CATEGORY 1

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SUBJECT: LER 97-008-00:on 970404,safety-related AHU not declared inoperable during maintenance on associated temperature switches resulting in violation of TS.Caused by incorrect interpretation.Operations night order issued.W/970505 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:Application for permit renewal filed. 05000400

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Serial: HNP-97-098
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 97-008-00

Sir or Madam:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report describes past instances where safety-related air handling units were not declared inoperable during maintenance on associated temperature switches, thus resulting in a violation of Technical Specifications.

Sincerely,

J. W. Donahue
Director of Site Operations
Harris Plant

MV

Enclosure

c: Mr. J. B. Brady (HNP Senior NRC Resident)
Mr. L. A. Reyes (NRC Regional Administrator, Region II)
Mr. N. B. Le (NRC - NRR Project Manager)

IE22

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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TITLE (4)

Safety-related Air Handling Units not declared inoperable during maintenance on associated temperature switches resulting in a violation of Technical Specifications.

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
04	04	97	97	-- 008 --	00	05	05	97	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1
POWER LEVEL (10)	100%

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		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)
Michael Verrilli Sr. Analyst - Licensing	(919) 362-2303

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)

On April 4, 1997, with the plant in mode-1 operating at 100% power, investigation determined that certain safety-related air handling units had not been declared inoperable during maintenance on their associated temperature elements, temperature transmitters and/or temperature switches. During certain postulated scenarios, these temperature circuitry components would be required for the air handling units to perform their safety function. In the instances described in the event description, the temperature circuitry components were out of service for a period of time that exceeded the Technical Specification (TS) action statement for the specific component cooled by the air handling unit and/or were out of service during plant mode changes, which would result in a violation of TS 3.0.4.

This condition was caused by an incorrect interpretation of operability requirements related to safety-related air handling units. TS Interpretation #87-002 Revision-2, which was approved in August 1988, provided guidance on this issue by stating that the automatic start of a fan on high temperature was not an operability requirement. Based on this, maintenance performed on associated air handling unit temperature elements, temperature transmitters, and/or temperature switches was considered to have no effect on operability. This incorrect interpretation resulted in deficient plant procedures and processes that provide guidance for control of component operability.

An Operations Night Order was issued to address the operability requirements associated with the safety-related air handling units and their associated temperature circuitry components. Additional corrective actions will include: (1) training for appropriate Operations and Maintenance personnel, (2) revisions to the site computerized equipment database system (EDBS) and component operability database system (SPECAPRAISAL), and (3) revisions to affected maintenance temperature loop test and calibration procedures.

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

EVENT DESCRIPTION:

On April 4, 1997, with the plant in mode-1 operating at 100% power, investigation determined that certain safety-related air handling units had not been declared inoperable during maintenance on their associated temperature elements, temperature transmitters and/or temperature switches. During certain postulated scenarios, these temperature circuitry components would be required for the air handling units to perform their safety function. In the instances described below, the temperature circuitry components were out of service for a time period that exceeded the Technical Specification (TS) action statement for the specific component cooled by the air handling unit and/or were out of service during plant mode changes, which is a violation of the operational mode change limitations of TS 3.0.4.

1. In November 1986, Work Request/Job Order (WR/JO) 86-BQNZ1 was initiated to resolve a concern with the power supply card for Temperature Element Loop TE-6507BSB. This temperature loop is associated with the safety-related AH-6 (1A-SA) Air Handling Unit (EIIS Code: VF-AHU) that provides cooling in the 236' elevation of the Reactor Auxiliary Building (RAB) where the A-train Component Cooling Water (CCW), Auxiliary Feedwater (AFW) and Emergency Service Water (ESW) Booster pumps are located. Work was completed to repair the temperature element power supply card in May 1987. During the time period that the temperature element deficiency existed, the plant operated in mode-1 and made changes between mode-1 and mode-4. With the temperature loop power supply card in this deficient condition, the AH-6 Air Handling Unit may not have been capable of automatically starting on high temperature to perform its safety function and should have been declared inoperable. This condition is a violation of the 72 hour Limiting Condition for Operation (LCO) requirements of TS 3.7.1.2 (AFW), 3.7.3 (CCW), the 7-day LCO requirement for TS 3.6.2.3 (ESW - Containment Cooling) and the mode change limitations of TS 3.0.4.

2. In November 1986, WR/JO 86-BPBB1 was initiated due to a blown fuse in the power supply card for Temperature Element Loop TE 6532BSB. This temperature loop is associated with the safety-related AH-11 (1B-SB) Air Handling Unit (EIIS Code: VF-AHU) that provides cooling in the 236' elevation of the Reactor Auxiliary Building where A-train and B-train Containment Isolation Valves and Instrumentation are located. Work was completed to repair the temperature element power supply card in January 1987. During the time period that the temperature element deficiency existed, the plant operated in mode-1 and made changes between mode-1 and mode-4. With the temperature loop power supply card in this deficient condition, the AH-11 Air Handling Unit may not have been capable of automatically starting on high temperature to perform its safety function and should have been declared inoperable. This condition is a violation of the 72 hour LCO requirements of TS Interpretation 87-002 and the mode change limitations of TS 3.0.4.

3. In March 1987, WR/JO 87-AGNN1 was initiated to repair and calibrate Temperature Transmitter TT-01AV-6582X. This temperature transmitter is associated with the AH-29 (1X-SB) Air Handling Unit (EIIS Code: VF-AHU), which provides cooling for the AH-1 Fan Cooler power supply motor control center located on the 236' elevation of the Waste Processing Building. Repair and calibration of this transmitter was completed approximately forty days later per WR/JO 87-AGNN2. During the time period required to complete repairs and calibration, the plant operated in mode-1 and made changes between mode-1 and mode-4. With the transmitter in this condition, the AH-29 Air Handling Unit may not have been capable of automatically starting on high temperature to perform its safety function and should have been declared inoperable. This condition is a violation of the 7-day LCO requirements of TS 3.6.2.3 and the mode change limitations of TS 3.0.4.

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

EVENT DESCRIPTION: (continued)

4. In February 1990, WR/JO 90-ACYK1 was initiated to resolve spurious alarms caused by Temperature Switch TS-01AV-6567A2SA. This temperature switch is associated with the safety-related AH-26 (1A-SA) Air Handling Unit (EIIS Code: VF-AHU) that provides cooling for the E-6 RAB Emergency Exhaust Fans. Troubleshooting confirmed that the temperature switch was causing the spurious alarms. In March 1990, approximately 14 days after initiating the above WR/JO, the temperature switch and related instrument loop were calibrated to resolve the problem. During the time period that the temperature switch was not properly functioning, the plant operated in mode-1. With the temperature switch in this deficient condition, the AH-26 Air Handling Unit may not have been capable of automatically starting on high temperature to perform its safety function and should have been declared inoperable. This condition is a violation of the 7-day LCO requirements of TS 3.7.7 (RAB Emergency Exhaust).

5. In February 1991, WR/JO 91-ACTL1 was initiated to resolve alarms caused by Temperature Switch TS-01EV-6588A3. This temperature switch is associated with the safety-related AH-86 (1A-SA) Air Handling Unit located in the ESW Intake structure, which provides cooling air to the associated ESW pump electrical cabinets and serves as a backup heat supply for the ESW pumps. Troubleshooting identified a loose electrical connection at the temperature element. Repairs and loop calibration were completed in April 1991. During the time period that the temperature switch/element were not properly functioning, the plant operated in mode-1. With the temperature switch in this deficient condition, the AH-86 Air Handling Unit may not have been capable of automatically starting on high temperature to perform its safety function and should have been declared inoperable. This condition is a violation of the 72-hour LCO requirements of TS 3.7.4 (ESW).

6. In October 1991, WR/JO 91-ANXN1 was initiated when the ESW Intake Structure Exhaust Fan (E-88 1B-SB) failed to automatically start at its high temperature setpoint. Trouble shooting performed in January 1992 identified a broken conductor in the power supply card for Temperature Element Loop TE-01EV-6592BSB. Additional troubleshooting also identified a bad process instrument control bistable relay (NAS) card in this temperature loop in March 1992. Since replacement of the NAS card would impact several other instrument loops, a voluntary LCO was initiated for the E-88 ESW Exhaust Fan. However, during the time period prior to initiating the LCO, the temperature control loop was not properly functioning and the plant was in mode-1. With the temperature control loop in this deficient condition, the E-88 Exhaust Fan may not have been capable of automatically starting on high temperature to perform its safety function and should have been declared inoperable. This condition is a violation of the 72-hour LCO requirements of TS 3.7.4 (ESW).

CAUSE:

This condition was caused by an incorrect interpretation of operability requirements related to safety-related air handling units. TS Interpretation #87-002 Revision-2, which was approved in August 1988, provided guidance on this issue by stating that the automatic start of a fan on high temperature was not an operability requirement. Based on this, maintenance performed on associated air handling unit temperature elements, temperature transmitters, and/or temperature switches was considered to have no effect on operability. This incorrect interpretation resulted in deficient plant procedures and processes that provide guidance for control of component operability.

SAFETY SIGNIFICANCE:

There were no actual safety consequences associated with this event. However, based on the following postulated scenario, the safety-related air handling units/exhaust fans identified above should have been declared inoperable with their respective temperature control circuits not operating properly.

In the event of an accident which results in safety injection, Engineered Safety Feature (ESF) components would receive an automatic start signal from the Emergency Safeguards Sequencer to perform their safety function. This would also include the safety-related air handling unit fans for ESF component support. When the safety injection signal is reset per plant procedures, the air handling unit fans will automatically shutdown if they had not been manually started prior to the event, if room temperature is below the high temperature auto-start setpoint, or if the associated temperature control loop is failed low. With the temperature control loops not functioning properly

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

SAFETY SIGNIFICANCE: (continued)
as described in the event description, the fans may not have automatically re-started at their required high temperature setpoints and component damage may have occurred.

This event is being reported per 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.

PREVIOUS SIMILAR EVENTS:
There have been no previous reports submitted related to temperature control circuits and their potential impact on safety-related air handling unit operability.

CORRECTIVE ACTIONS COMPLETED:

1. An Operations Night Order was issued on March 14, 1997 describing this condition and the operability requirements associated with safety-related air handling units and their associated temperature control loops.

2. TS Interpretation #87-002 was revised on November 22, 1996 to state that the automatic high temperature fan start signal may be required for fan operability based on safety function.

3. Maintenance Temperature Loop Calibration Procedures LP-T-6592A and LP-T-6592B were placed on administrative hold on May 5, 1997.

CORRECTIVE ACTIONS PLANNED:

1. The plant processes used for component operability control will be updated to reflect the applicable temperature control circuit requirements. This will include the EDBS database 440 screen and the SPECAPRAISAL database. These updates will be completed by August 15, 1997 and November 15, 1997 respectively.

2. Maintenance Temperature Loop Calibration Procedures LP-T-6592A and LP-T-6592B will be revised prior to their next use or no later than July 15, 1997.