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August 12, 2002

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

Subject: Catawba Nuclear Station, Unit 2
Docket No. 50-414
Licensee Event Report 414/02-001

Attached is Licensee Event Report 414/02-001 titled "Safety Related Plant Component Was Rendered Inoperable as a Result of a Manufacturing Deficiency Identified in a 10 CFR Part 21 Notification."

There are no regulatory commitments contained in this letter or its attachment.

This event is considered to be of no significance with respect to the health and safety of the public. If there are any questions on this report, please contact L.J. Rudy at (803) 831-3084.

Sincerely,

Gary R. Peterson

Attachment

IE22

xc (with attachment):

Mr. Luis A. Reyes
Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
61 Forsyth Street, S.W., Suite 23T85
Atlanta, GA 30303

Mr. Chandu P. Patel (addressee only)
U.S. Nuclear Regulatory Commission
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Mr. Darrell J. Roberts
NRC Senior Resident Inspector
Catawba Nuclear Station

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700 Galleria Place
Atlanta, GA 30339-5957

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Mr. Kenneth W. Gannaway
100 N. Tryon Street
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NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request. 50 hours Reported lessons learned are incorporated into the licensing process and fed back to industry Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U S Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503 If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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4. TITLE
Safety Related Plant Component Was Rendered Inoperable as a Result of a Manufacturing Deficiency Identified in a 10 CFR Part 21 Notification

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	18	2002	2002	- 001 -	00	08	12	2002	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	100%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

	20 2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20 2201(d)		20 2203(a)(4)		50.73(a)(2)(iii)		50 73(a)(2)(x)
	20 2203(a)(1)		50 36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73 71(a)(4)
	20 2203(a)(2)(i)		50 36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73 71(a)(5)
	20.2203(a)(2)(ii)	X	50 36(c)(2)		50 73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50 73(a)(2)(v)(C)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50 73(a)(2)(v)(D)		
	20.2203(a)(2)(v)	X	50.73(a)(2)(i)(B)		50 73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20 2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
L.J. Rudy, Regulatory Compliance	803-831-3084

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B2b	BF	2VQDP0016A	I207	Yes	B2b	BF	2VQMO0016A	R378	Yes

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

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

On June 10, 2002, Rotork Controls, Inc. (Rotork) submitted a 10 CFR Part 21 notification to the NRC. This report described a problem discovered with the NA1 type electric valve actuators fitted with an Add-on-Pak 1 (AOP1) assembly, manufactured between 1978 and October 2001, that have a safety related function and are used for end of travel indication. The molded components within the AOP1 assembly have a low level of crystallinity and cannot be confirmed to be of the same specification as those originally tested and qualified in 1978. The low level of crystallinity could distort in extreme circumstances, causing the actuator switches to reset or fail to operate. Duke Energy personnel evaluated all existing safety related applications utilizing Rotork actuators. One application was found to result in an inoperable component due to the concern identified in the notification. This component is a valve in the Containment Air Release and Addition System. At the time of this event, this valve was already inoperable due to a problem unrelated to the notification. The operator for this valve will be replaced during the next Unit 2 refueling outage.

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

BACKGROUND

This event is being reported under 10CFR50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's Technical Specifications, and 10CFR50.36(c)(2)(i), Limiting Condition for Operation (LCO) not met.

Catawba Nuclear Station Unit 2 is a Westinghouse Pressurized Water Reactor (PWR) [EIIS: RCT].

The Containment Air Release and Addition System [EIIS: BF] is utilized to maintain containment pressure between the Technical Specification limits during normal plant operation. An increase in pressure during normal operation is controlled by the containment air release fans taking suction from the containment and passing through the containment air release filters. The containment atmosphere is sampled and analyzed. Air is then released to the unit vent. If a slight vacuum develops inside containment, air is introduced into containment by the system. Due to the pressure differential, air is drawn into containment from the Auxiliary Building by natural flow.

For Containment Air Release and Addition System valves which provide a containment isolation function, Technical Specification 3.6.3 applies. If a valve is incapable of closing automatically, Required Action A.1 requires, in part, isolating the affected penetration flow path within 4 hours. If this is not accomplished, Required Actions F.1 and F.2 mandate that the unit be in Mode 3 within 6 hours and in Mode 5 within 36 hours, respectively.

On June 10, 2002, Rotork Controls, Inc. (Rotork) submitted a 10 CFR Part 21 notification to the NRC. This report described a problem discovered with the NA1 type electric valve actuators fitted with an Add-on-Pak 1 (AOP1) assembly, manufactured between 1978 and October 2001, that have a safety related function and are used for end of travel indication. Rotork identified that the molded components within the AOP1 assembly have a low level of crystallinity and cannot be confirmed to be of the same specification as those originally tested and qualified in 1978. The low level of crystallinity could distort in extreme circumstances, causing the actuator switches to reset or fail to operate. For the distortion to occur, two conditions must exist simultaneously: 1) the actuator is held in the fully open or closed

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condition and the AOP1 assembly is set within 0% and a minimum of 3.7% of end of travel/maximum of 7.5% of end of travel (dependent on the gear ratio), and 2) the AOP1 components reach temperatures above 80 degrees C (176 degrees F) and are maintained at this temperature for more than 10 minutes. An annealing process was added to the AOP1 components in October 2001 to preclude this condition.

In response to the 10 CFR Part 21 notification, Duke Energy personnel evaluated all existing safety related applications utilizing Rotork actuators. Only one application was found to result in an inoperable component due to the concern identified in the notification. This component is a valve [EIIS: V] in the Containment Air Release and Addition System (valve designation 2VQ016A).

When this event was discovered, Unit 2 was operating in Mode 1 at 100 percent power. Except as stated in the Event Description, no structures, systems, or components were out of service that had any significant effect on the event.

EVENT DESCRIPTION
(Certain event times are approximate)

Date/Time	Event Description
June 10, 2002/----	Rotork submitted a 10 CFR Part 21 notification to the NRC concerning the AOP1 assembly.
June 10, 2002/1336	Problem Investigation Process (PIP) C-02-03326 was written to begin investigation into the issue.
June 18, 2002/----	Catawba Engineering recommended that valve 2VQ016A be considered inoperable as a result of the 10 CFR Part 21 issue. (Valve 2VQ016A had previously been declared inoperable on May 29, 2002 at 1200 hours as a result of a problem unrelated to the 10 CFR Part 21 issue. Valve 2VQ016A had been subsequently closed to comply with Technical Specification 3.6.3, Required Action A.1 and was still closed when the 10 CFR Part 21 issue was discovered.)

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CAUSAL FACTORS

The root cause of this event was determined to be a manufacturing deficiency. The 10 CFR Part 21 notification submitted by Rotork indicated that the sub-contractor that supplied components utilized in the AOP1 assembly did not anneal the components. This resulted in the affected components having a low level of crystallinity. Rotork indicated that an annealing process was added to the AOP1 assembly components in October 2001 to preclude recurrence of this condition.

CORRECTIVE ACTIONS

Immediate:

1. Catawba Engineering began an investigation into the issue upon receipt of the 10 CFR Part 21 notification.

Subsequent:

1. Valve 2VQ016A was determined to have been inoperable as a result of the condition described in the 10 CFR Part 21 notification. (The valve was already inoperable due to reasons unrelated to the 10 CFR Part 21 issue and therefore did not need to be declared inoperable.)

2. The setup procedure for Rotork operated valves was revised to preclude future setup of affected AOP1 assemblies in the travel range described in the 10 CFR Part 21 notification.

Planned:

1. The operator for valve 2VQ016A will be replaced with an operator unaffected by the 10 CFR Part 21 issue during the next Unit 2 refueling outage.

2. Catawba Engineering will evaluate any safety related components which may have been previously affected by this 10 CFR Part 21 issue over the three-year LER period and which are not presently affected (e.g., components modified during previous refueling outages such that this 10 CFR Part 21 issue is no longer applicable). If any additional components are found to have

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been retroactively inoperable, they will be identified in a supplement to this LER.

The planned corrective actions are being addressed via the Catawba Corrective Action Program. There are no NRC commitments contained in this LER.

SAFETY ANALYSIS

Valve 2VQ016A is a motor operated diaphragm valve whose safety related function is to close within 5 seconds of a Design Basis Accident (DBA) to maintain containment leakage within the values assumed in dose analysis calculations and specified in the Technical Specifications. Consequently, this valve will be closed long before being exposed to temperatures that could potentially affect proper operation of the AOP1 assembly. For this valve, the subject failure mechanism could potentially affect the set of contacts used in the anti-hammer circuit. Under the scenario where the containment isolation signal is reset when required following a DBA, the valve would have performed as required. Under an unlikely scenario where the containment isolation signal is not reset when required following a DBA, the issue described in the 10 CFR Part 21 notification could have been a concern. In such an unlikely scenario, if the AOP1 assembly contacts were to reset following a DBA, the valve actuator would continue to drive the valve disc into the diaphragm if the close torque switch relaxes. 2VQ016A is a soft-seated diaphragm valve; therefore, the hammering could result in seat damage, thus potentially affecting the ability of the valve to properly seal containment.

Because valve 2VQ016A was unknowingly inoperable, it was not closed within 4 hours of it initially becoming inoperable, thereby resulting in a violation of Technical Specifications. Valve 2VQ016A can be utilized for containment pressure control during normal plant operation. (The last time this valve was believed to have been used for containment pressure control was in 1989, during Hurricane Hugo.) Valve 2VQ015B is in series with 2VQ016A on the same containment penetration. These two valves are normally closed during plant operation and are opened only rarely when adding air to containment. Technical Specification Surveillance Requirement 3.6.3.2 requires that each Containment Air Release and Addition System isolation valve be verified closed on a 31-day frequency, except when the valves are open for pressure control, ALARA or air

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quality considerations for personnel entry, or for surveillances that require the valves to be open. The probability of a DBA occurring during the intervals that valves 2VQ015B and 2VQ016A were open for reasons allowed by Technical Specifications would have been small. In addition, valve 2VQ015B was unaffected by the issue described in the 10 CFR Part 21 notification.

This event was of no significance with respect to the health and safety of the public.

ADDITIONAL INFORMATION

Within the last three years, only one other LER occurred that was caused by a potential manufacturing defect. LER 414/01-003 described a reactor trip that occurred as a result of a coil failure in one of the reactor coolant pump motors. However, the specifics of the two events were dissimilar. In addition, there have been no LERs within the last three years resulting from 10 CFR Part 21 notifications. Therefore, this event is considered to be non-recurring in nature.

Energy Industry Identification System (EIIS) codes are identified in the text as [EIIS: XX]. This event is considered reportable to the Equipment Performance and Information Exchange (EPIX) program.

This event is not considered to be a Safety System Functional Failure. There were no releases of radioactive materials, radiation exposures, or personnel injuries associated with this event.