NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Catawba Nuclear Station - Unit 1	0 5 0 0 0 4 1 3	1 OF 0 4

TITLE (4)

Inadvertent Isolation of the Main Fire Protection System

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 NAMES	DOCKET NUMBER(S)
0 8	0 7	8 5	8 5	—	0 4 9	—	0 0	0 9	0 6	8 5		0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Roger W. Ouellette, Assistant Engineer-Licensing	7 0 4 — 3 7 3 - 7 5 3 0

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 fifteen single-space typewritten lines) (16)

From August 7, 1985, at 2355 hours, to August 8, 1985, at 0410 hours, both discharge headers of the Fire Protection (RY) pumps were isolated, rendering the Exterior/ Interior Fire Protection System inoperable.

When the Unit Supervisor authorized the isolation of one of the RY headers to support maintenance work, he did not realize that the other RY header was already isolated. This was caused by the Unit Supervisor not reviewing the active tagouts on the RY System and by not properly following the fire impairment reporting station directive. Therefore, this incident has been classified as a Personnel Error. A review of the controlled RY fire impairment flow diagrams by the Fire Protection Control Operator led to the discovery of the incident and subsequent return to operability of one RY pump discharge header. Unit 1 was in Mode 1 at 100% reactor power at the time of the incident.

This incident is reportable pursuant to 10 CFR 50.73, Section (a)(2)(i)(B).

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Catawba Nuclear Station - Unit 1	0 5 0 0 0 4 1 3	8 5	— 0 4 9	— 0 0	0 2 OF 0 4

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

The Interior/Exterior Fire Protection (RF/RY) System is designed to control and extinguish fires that may occur within the plant, yard, and transformer areas by automatic and manual means. The water supply is provided by three 150% rated capacity electric motor driven fire pumps (RY pumps) which take suction from Lake Wylie. The RY pumps are located at the low pressure service water intake structure at elevation 583 feet. Water discharged from the three RY pumps flows through two discharge headers.

In addition to the three RY pumps, two 25 gpm RF jockey pumps and one 200 gpm RF jockey pump are provided to prevent frequent starting of the RY pumps and to maintain a pressure in the yard mains of approximately 125 psig. A 5500 gallon pressurizer tank is provided to eliminate water hammer and provide surge capacity for sudden demands on the system.

Per Technical Specification 3.7.10.1b, the Fire Protection System shall have an operable flow path capable of taking suction from Lake Wylie and transferring the water through distribution piping with operable sectionalizing control valves and isolation valves for each sprinkler, hose standpipe, or spray system riser required to be operable per Tech. Specs. 3.7.10.2 and 3.7.10.4. To ensure these Tech. Specs. are adhered to and to ensure the maximum integrity of the Fire Protection System, Station Directive 2.12.6 (Fire Impairment Reporting) was developed. Per this directive, prior to isolation of any portion of the RF/RY System, the Fire Protection Control Operator (FPCO) must be delivered a copy of the applicable tagout removal and restoration record (R&R) sheet. From the R&R sheet, a fire impairment form is completed. Also, the portion of the RF/RY System that is isolated is highlighted on controlled fire impairment flow diagrams by the FPCO.

Because clam larvae could be injected into the RF/RY System after an RY pump start and impair system operation, Nuclear Station Problem Report (NPR) CP-1376A was submitted. From this NPR, Nuclear Station Modification (NSM) CN-50013 was developed. Per this NSM, a chlorine injection loop was to be installed on each RY header. This chlorination system was to serve to kill the clam larvae that enter the piping.

During preparation of the NSM CN-50013 package, a mistake was made by the accountable Engineer when the chlorination loop designations (A and B) written on the flow diagram were exactly opposite those on the erection drawings. During the initial stages of installation of the system, the problem was not evident because isolation of the system was not required. On August 4, 1985, work was begun on the final stages of the NSM where the chlorine injector nozzles were to be connected to the RY piping. For this particular job, the construction crew requested that RY header A be isolated. However, when R&R 15-2557 was initiated to isolate RY header A, the flow diagram in the NSM package was used. Therefore, tags were made to isolate the opposite RY header than the one construction requested.

At 1130 hours on August 8, 1985, R&R 15-2557 was submitted to the FPCO for implementation of the fire impairment station directive. After this, valves 1RY7 (RY Loop Isolation), 1 RY18 (RY Loop to Exterior Loop Header), 1RY19 (RY Loop Crossconnect), and 1RY21 (RY to Low Pressure Service Water Isolation) were closed.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Catawba Nuclear Station-Unit 2	0 5 0 0 0 4 1 3	8 5	— 0 4 9	— 0 0	0 3 OF 0 4

On August 7, 1985, construction began work per the NSM erection drawing on RY header A, which was not isolated. Construction drilled three holes in the piping to allow for the installation of the chlorine injection system. After drilling the holes, the pipe began to drain water. The construction crew left the header to drain and were to continue work the next day.

At 2000 hours on August 7, 1985, a Nuclear Equipment Operator (NEO) discovered water draining from the RY piping. After he informed the Unit Supervisor, it was decided that the leak should be isolated since he was unaware of the work that had been performed that day. Work Request 17992 OPS was initiated to repair the leak. R&R 15-2598 was initiated to isolate the leak. When the NEO isolated the leak by closing valves 1RY174 (RY loop isolation), 1RY103 (RY to exterior loop header, 1RY20 (RY to RL intake isolation), and 1RY19 (RY loop crossconnect), alarms were receved by the FPCO at the fire protection panel. The FPCO called the Control Room to verify that they had received a valid alarm. When the Control Room informed the FPCO that an RY header was being isolated, the FPCO requested that Operations deliver a copy of R&R 15-2598 as required by the fire impairment reporting station directive.

The FPCO received a copy of R&R 15-2598 from the Unit Supervisor at 0145 hours on August 8, 1985. When the FPCO began to highlight on the fire impairment flow diagram the RY header that had been isolated per R&R 15-2598, he discovered that both RY headers were now isolated since the first header had been isolated per R&R 15-2557. The Control Room was informed of the problem at 0300 hours. The RY header that was isolated per R&R 15-2598 was unisolated at 0410 hours.

On the next day when construction arrived to install the chlorination system, they found the three holes in the header still draining. Since the drainage was not decreasing, construction requested that Operations tighten the isolation valves because they felt that they were leaking. At this time Operations found that the header construction had drilled the installation holes in was not isolated. The Maintenance Planner for this NSM work request was contacted the next morning. Operations isolated the header that construction was performing work on at 1230 hours after the tags were cleared. During the investigation of this incident, it was discovered that the discrepancy in the NSM package had caused the isolation problems.

This incident has been classified as a Personnel Error. Prior to removing the RY header from service, the Unit Supervisor did not review the active RY R&R sheets to ensure there would be no effects on system operation. Also, the Unit Supervisor violated Station Directive 2.12.6 by not submitting the R&R sheet to the FPCO prior to removing the header from service. If either of these steps had been performed, the problem would have been recognized and the Technical Specification violation would not have occurred.

A contributing cause of Administrative Deficiency, is assigned to this incident. When the Engineer prepared the NSM package, he arbitrarily chose which loop would be chlorination loop A and B. However, the mistake was made when the flow diagram and erection drawings were not consistent.

Since March 1985, the accountable Engineer has been

required to include implementation instructions for each NSM package. If implementation instructions had been included in this NSM package which was orginated in May 1984, the error in loop designations would have been identified.

CORRECTIVE ACTIONS

1. After the discovery that both RY headers were isolated, one RY header was returned to service.
2. The RY header that was isolated by mistake was unisolated and the correct RY header was isolated.
3. The accountable Engineer changed the chlorination loop designations on the flow diagram in the NSM package to agree with the erection drawings.
4. This incident was discussed with the Unit Supervisor.
5. A revision was made to Operations Management Procedure 2-18 (Tagout/Removal and Restoration (R&R) Procedure) to reemphasize Operations Supervisors' responsibilities regarding the fire impairment reporting station directive.

SAFETY ANALYSIS

During this incident, the RF/RY System was unable to perform its designed function for four hours and fifteen minutes. During this time period, the fire detection system or the hourly fire watches for inoperable detectors were available to detect a fire, and the fire brigade could have been dispatched and responded with alternate means to extinguish the fire. During the time period RF/RY was inoperable, there were no fires.

The health and safety of the public were not affected by this incident.

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VICE PRESIDENT
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September 6, 1985

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

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a)(1) and (d), attached is Licensee Event Report 413/85-49 concerning an inadvertent isolation of the Main Fire Protection System. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H.B. Tucker /BB

Hal B. Tucker

RWO/hrp

Attachment

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1/1