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)

Liquid Waste Releases Without Accurate Sample Activity Analysis

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 7	2 8	8 4	8 4	- 0 0 2	- 0 0	0 8	2 7	8 4		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 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)

Before releasing potential radioactive liquids to the environment, samples are taken and analyzed. The concentration of radioactive material in the liquid must be within a certain range before the release can be made. Three liquid waste releases were made at Catawba without an accurate analysis of the sample activity.

Liquids were released from the Waste Monitor Tanks into Lake Wylie through the discharge structure of the Low Pressure Service Water System.

Inaccurate sample results were caused by software problems in the computer performing the analysis. The computer program used in the analysis was not revised after a new analysis routine was entered into the computer. Therefore, this incident is classified as Event Cause Category B, Manufacture Deficiency. The software problems were discovered and corrected on the morning of July 28, 1984.

This incident violates Technical Specification 3.11.1.1 and is reportable pursuant to 10 CFR 50.73 Section (a) (2) (i).

Unit 1 was in Mode 6 at the time of the releases.

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

The Radioactive Liquid Waste (WL) System collects, segregates, and processes all radioactive and potentially radioactive liquids generated in the plant. Two 5,000 gallon Waste Monitor Tanks (WMT) are used in the WL System for storage and monitoring purposes prior to discharging liquids from the plant. Before performing a Liquid Waste Release (LWR), the contents of the tank are sampled. An analysis is performed and prepared on the sample. A Gamma Isotopic Analysis is then performed. After the shift supervisor reviews the results, an Operator is sent out to make the liquid waste discharge.

A VAX computer is used along with an ADCAM Gamma Analysis System to perform the Gamma Isotopic Analysis. The ADCAM Gamma Analysis System is manufactured by ORTEC. ORTEC also provides the software for the computer.

Three LWR samples were not analyzed accurately by the Gamma Analysis System before being released to the environment.

Several samples were obtained on July 27th and 28th, including the following:

1. Sample for LWR0009 from WMT B.
2. Sample for LWR0010 from WMT A.
3. Sample for LWR0011 from WMT B.
4. Sample for LWR0012 from WMT A.

During the week of July 16th, the ORTEC Representative installed a new software analysis program for the ADCAM Gamma Analysis System. However, he failed to revise the booting (re-initializing) program to refer to the new software. The booting program was not needed until July 27th. All sample analyses performed before this date used the new computer analysis routine. On July 27th, at approximately 1200 hours, the computer terminal locked-up and would not operate. To unlock the terminal, the computer had to be re-initialized. When the system was re-initialized to unlock the terminal, the booting program defaulted to the old program rather than the newly installed program.

After this event, the first analysis performed by the computer was on the sample for LWR0009. When the program ran, the correct analysis routine could not be located within the software. Consequently, no analysis was performed. The computer provided a printout with a total activity summary of "0.000000" listed. This was expected since Catawba Unit 1 has not been critical. The printout results were not accurate since an analysis was not performed. No indication existed on the printout to alert personnel that the analysis was not performed. Samples for LWR0010 and LWR0011 were performed with the same results.

A daily Quality Control (QC) check is performed for the detectors used in the Gamma Analysis System. The computer software performs this check after a certain option is selected from the terminal. The daily QC check on July 28th failed as a result of the software problems mentioned above. This alerted personnel of a problem. The software problem in the booting program was found and corrected. This problem existed for approximately 19 hours before being discovered.

The liquids released from the WMT's can come from any of the following sources:

1. Floor Drain Tank
2. Laundry and Hot Shower Tank
3. Reactor Makeup Water Storage Tank
4. Refueling Cavity
5. Cold Leg Accumulators

Most of the liquids released for LWR0009 through LWR0012 were drained from the Refueling Cavity and the Cold Leg Accumulators. The sample for LWR0012 was re-analyzed after the software problem was corrected. The results of this analysis showed only background radiation present. The release for LWR0012 was made after performing the second analysis.

Radiation monitor EMF49 monitors the radioactivity of all liquids discharged from the WL System. The monitor gives an alarm on high radiation and stops the discharge by automatically closing valve 1WL124 (WL Discharge Flow to the Low Pressure Service Water System). EMF49 was operable during the releases mentioned in this report. EMF49 was set at the following trip setpoints:

TRIP 1 Setpoint = 518 counts per minute (CPM)
TRIP 2 Setpoint = 740 CPM

The LWR chart recorder for LWR0009 through LWR0012 showed the response of EMF49 equal to background radiation levels.

No radioactive material releases, radiation exposure, or personnel injuries occurred. This incident is considered to be an isolated case.

CORRECTIVE ACTION

The booting program was edited to correct the software problem, and the sample for LWR0012 was re-analyzed.

The Health Physics procedure HP/0/B/1001/16 (Operation and Calibration: ORTEC ADCAM Gamma Analysis System) was reapproved on 8-2-84. Limits and precautions were added to require additional QC checks as follows:

- QC one detector when booting is required.
- QC all detectors when a power failure occurs.

The effect of editing the booting program was shown by the accurate QC check on the detectors.

The re-analysis of the sample for LWR0012 showed only naturally occurring isotopes.

The notes added to the procedure will insure that the analysis system is operable after power failures or re-initialization.

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SAFETY ANALYSIS

The setpoints for the discharge radiation monitor (EMF49) are determined before each release is made. If the radiation level of the discharge flow exceeds a certain setpoint, then EMF49 will actuate an alarm in the Control Room and terminate the discharge. The LWR chart recorder for LWR0009 through LWR0012 showed the response of EMF49 equal to background radiation levels. Therefore, the health and the safety of the public were not affected by this incident.

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
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August 27, 1984

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 Sections (a) (1) and (d), attached is Licensee Event Report 413/84-02 concerning liquid waste releases made without accurate sample activity analysis. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

RWO:slb

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
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NRC Resident Inspector
Catawba Nuclear Station

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