

LICENSEE EVENT REPORT (LER)

Facility Name (1) Byron, Unit 1 Docket Number (2) 0 5 0 0 0 4 5 4 Page (3) 1 of 0 4

Title (4) RADIOACTIVE RELEASE TANK NOT SAMPLED PRIOR TO RELEASE AS REQUIRED BY TECHNICAL SPECIFICATIONS DUE TO PERSONNEL 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 Names	Docket Number(s)
0 1	1 1	8 7	8 7	0 0 1	0 0	0 2	0 9	8 7	Byron Unit 2	0 5 0 0 0 4 5 5

OPERATING MODE (9) 1

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify
<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	in Abstract
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	below and in
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	Text)

LICENSEE CONTACT FOR THIS LER (12)

Name A. Chernick, Rad-Waste Operating Engineer, Ext. 2329 TELEPHONE NUMBER 8 1 5 2 3 4 - 5 4 4 1

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

Yes (If yes, complete EXPECTED SUBMISSION DATE)  NO

Expected Submission Date (15) \_\_\_\_\_

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

On January 11, 1987 with Unit 1 in Power Operations at 70% power and Unit 2 in startup at 0% power, a Radioactive Release Package for the 0WX26T Radioactive Release Tank was prepared. This tank has been used exclusively for Treated Waste Water which typically has no quantifiable level of radioactivity. Technical Specifications requires the contents of the tank to be isolated, mixed, and sampled. This sample is then analyzed for radioactivity. This was thought to be completed and the tank was released at 1200 January 11, 1987. A review of the Release Package by an Operating Foreman subsequent to the release found the activity level of Tank was not consistent with the non-radioactive inputs to the tank. An investigation into this abnormality determined the most likely explanation was the sample was inadvertently taken from the other release tank (0WX01T) which contained a radioactivity level similar to the sample supposedly taken from the 0WX26T tank. Releasing the contents of 0WX26T without sampling is a violation of Technical Specification. There were no adverse consequences since less activity was actually released than was planned. The cause is a cognitive personnel error by the Radiation Chemistry Technician (non-licensed) who took the sample. Contributing to the error was incorrect labeling of the tanks. Corrective actions involve counseling the Technician, relabeling the tanks correctly, and checking all sample locations for proper labeling. There has been no previous occurrences of this nature.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [xx]

A. PLANT CONDITIONS PRIOR TO EVENT:

This event involved "Common" equipment to both Unit 1 and Unit 2.

Unit 1 MODE 1 - Power Operations Rx Power 70% RCS [AB] Temperature/Pressure Normal Operating

Unit 2 MODE 2 - Startup Rx Power 0% RCS [AB] Temperature/Pressure Normal Operating

B. DESCRIPTION OF EVENT:

On January 11, 1987 a Radioactive Release Package was prepared for the release of the Radioactive Liquid Waste Tank (0WX26T) [WB-TK]. There are two Radioactive Release Tanks, the other being 0WX01T. The radioactive release system originally had only one release tank (0WX01T). The second tank (0WX26T) was added to the system by modification. Since 0WX26T was placed in initial service in mid-December 1986, it has only handled Treated Waste Water (TR) [WH] which typically has no quantifiable level of radioactivity (non-radioactive).

Pursuant to Technical Specification 4.11.1.1.1, the release procedure required the contents of the tank to be isolated, mixed, and sampled. The sample is then analyzed for radioactivity and a release line radiation monitor alarm setpoint is set based on the tank's activity level. Actuation of the alarm would indicate that there is more activity present than anticipated and the release would be automatically terminated.

The sample for the 0WX26T release tank was thought to be taken and analyzed in accordance with the release procedure. The radioanalysis indicated an activity level in the 1E-06 microCurie per milliliter (µCi/ml) range. The radiation monitor was set and the tank was released at approximately 1200 January 11, 1987. A normal review of the Release Package by an Operating Foreman performed later on January 11, 1987 discovered, that based on the non-radioactive TR inputs to the 0WX26T Tank, no radioactivity should have been present in the tank. An investigation followed to determine the cause of this abnormality.

Sampling procedures require that two separate samples be taken in case re-analysis has to be done. The second sample of 0WX26T was analyzed and the radioanalysis was equivalent to the first. This eliminated the possibility of a bad analysis or a contaminated sample bottle.

The way the tank and release piping is designed, approximately 10% of the contents of the tank will remain in the tank after a release. This remaining volume was diluted by 40%, mixed, and resampled. Calculation determined that if the original sample was accurate, this new sample should show an activity level of approximately 2E-07 µCi/ml. The radioanalysis showed no quantifiable activity level. In addition, TR is sampled and analyzed prior to it being sent to the release tank. These samples have never shown any quantifiable radioactivity. This eliminated the possibilities of TR being contaminated or an inadvertent source of contaminated liquid into the tank.

The only possibility remaining was that the initial sample was taken incorrectly. The Radiation Chemistry Technician who took the original sample was asked to identify the sample point he took the sample from. He identified the correct location, however it was noticed that the sample points for both the 0WX01T tank and 0WX26T tank had incorrect labels. They were labeled "0A Release Tank" and "0B Release Tank" instead of 0WX01T and 0WX26T. In addition, the two sample points were within inches of each other. The release procedure instructed the Technician to sample the "0WX26T" tank.

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B. DESCRIPTION OF EVENT: (Continued)

By coincidence, the 0WX01T tank was released on January 11, 1987 also. The radioanalysis for this release, which was as expected, was compared to the analysis for the 0WX26T release. Both were virtually equivalent. Based on this, the most probable explanation is that the samples for the 0WX26T release were inadvertently taken from the 0WX01T sample point.

Failing to sample the 0WX26T tank prior to release is a violation of Technical Specification. A violation of Technical Specification is reportable pursuant to 10CFR50.73(a)(2)(1)(B). No 10CFR Part 20 limits were exceeded. There were no other systems or components inoperable that contributed to this event, and there were no manual or automatic safety system actuations.

C. CAUSE OF EVENT:

The root cause of this event was a cognitive personnel error on the part of the Radiation Chemistry Technician (non-licensed) who took the sample. The release procedure correctly identified which tank was to be sampled. Despite the confusing labeling, he failed to take adequate compensatory measures to ensure he was sampling the correct tank. All Technicians receive formal and "on the job" training on proper sampling procedures.

Contributing to the error is confusion on the nomenclature of the tanks which led to the labeling error. The Operating Staff which made and placed the labels, refer to the tank as "0A" and "0B" release tanks. This is incorrect, however consistent with other nomenclature for two train systems. Radiation Chemistry and Technical Staff personnel refer to the tanks, correctly, as the 0WX01T and 0WX26T tanks. Also, contributing to the error was the Radiation Chemistry Supervisors involved in radioactive releases were not informed by Operating that the 0WX26T tank was being used exclusively for non-radioactive waste water. Had they known this, it is likely they would have recognized the abnormality prior to the release.

D. SAFETY ANALYSIS:

There was no actual adverse safety consequences as a result of this event. The error was conservative in that less activity was actually released than was planned. Had the error been non-conservative in that there was more activity in the 0WX26T tank than the 0WX01T tank, then the release would have been automatically terminated based on the alarm setpoint set on the release line radiation monitor. A non-conservative error would have been the most severe consequence.

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E. CORRECTIVE ACTIONS:

1. All release packages back to the time 0WX26T was placed in service have been reviewed. All the radioanalyses of the samples analyzed for these releases were as expected. Consequently this is considered an isolated error.
2. The Technician was counseled and instructed about the importance of ensuring samples are taken from the correct location.
3. The 0WX01T and 0WX26T release tank sample points have been properly labeled.
4. All personnel involved in the preparation of Radioactive Release Packages, have been informed that the 0WX26T release tank is intended to be utilized for isotopically clean releases.
5. A review of all sample locations will take place to verify adequate, correct labeling to prevent recurrence of mis-sampling. (Action Item Record 6-87-012 will track this item).
6. Operating procedures involving the release tank have been reviewed to ensure the Release Tanks are correctly referred to.
7. Operating Foreman involved in Radwaste releases have been instructed on the proper Release tank nomenclature.
8. This report will be disseminated to Station Departments to be discussed with their respective personnel. (Action Item Record 6-87-031 will track this item).

F. PREVIOUS OCCURRENCES:

<u>LER NUMBER</u>	<u>TITLE</u>
NONE	

G. COMPONENT FAILURE DATA:

- a) 

<u>MANUFACTURER</u>	<u>NOMENCLATURE</u>	<u>MODEL NUMBER</u>	<u>MFG PART NUMBER</u>
Not Applicable			
- b) RESULTS OF NPRDS SEARCH:  
Not Applicable



**Commonwealth Edison**  
Byron Nuclear Station  
4450 North German Church Road  
Byron, Illinois 61010

February 9, 1987

LTR: BYRON 87-0172

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

Dear Sir:

The enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(i)(B) which requires a 30 day written report.

This report is number 87-001-00; Docket No. 50-454.

Very truly yours,

R. E. Querio  
Station Manager  
Byron Nuclear Power Station

REQ/JL/bf

Enclosure: Licensee Event Report No. 87-001-00

cc: J. G. Keppler, NRC Region III Administrator  
J. Hinds, NRC Resident Inspector  
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#3/017

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