



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

May 23, 1994

LTR: BYRON 94-0188
FILE: 3.03.0800 (1.10.0101)


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).

This report is number 94-004; Docket No. 50-454.

Sincerely,


G.K. Schwartz
Station Manager
Byron Nuclear Power Station

GKS/DSK/ng

Enclosure: Licensee Event Report No. 94-004

cc: J. Martin, NRC Region III Administrator
NRC Senior Resident Inspector
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SIGNATURE PAGE FOR LICENSE EVENT REPORT

LER Number
454: 94-004

Title of Event: Waste Gas Decay Tank Curie Content Surveillance Missed Due to Poor Work Practices

Occurred: 04/23/94/0730
Date Time

OSR DISCIPLINES REQUIRED: ABD

W.S. / 5/16/94
SES DATE

Acceptance by Station Review:

W. Witt / 5/13/94
OE Date

W. A. / 5/18/94
SES Date

D. Brindle / 5/19/94
RAS Date

B. Rossman / 5/20/94
OTHER Date

Approved by: [Signature] / 5-20-94
Station Manager Date

LICENSEE EVENT REPORT (LER)

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TITLE
WASTE GAS DECAY TANK CURIE CONTENT SURVEILLANCE MISSED DUE TO POOR WORK PRACTICES

EVENT DATE			LER NUMBER			REPORT DATE			OTHER FACILITIES INVOLVED		
MONTH	DAY	YEAR	YEAR	SEQ. NUMBER	REVISION	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
0 4	2 3	9 4	9 4	0 0 4	0 0						0 5 0 0 0 0

OPERATING MODE 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (CHECK ONE OR MORE OF THE FOLLOWING)			
POWER LEVEL 0 8 8	20.402(b)	20.405(e)	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 385A)
	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	
NAME MARTIN R. WOLFE, EXT. 3218	TELEPHONE NUMBER 8 1 5 2 3 4 5 4 4 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		

SUPPLEMENTAL REPORT EXPECTED	EXPECTED SUBMISSION DATE	MONTH DAY YEAR
<input type="checkbox"/> YES, (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	

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

On April 29, 1994, with Unit 1 and Unit 2 in Mode 1 at 99% power, it was discovered that the OC Waste Gas Decay Tank had not been sampled after an addition of radioactive materials within twenty-four hours as required by Technical Specifications. The OC Waste Gas Decay Tank had been automatically aligned to service at 21:57 on 4/21/94. This tank was sampled by Chemistry at 08:22 on 4/22/94. The OC Waste Gas Decay Tank was automatically isolated at 13:45 on 4/22/94. The realignment was not recorded in the logbook, but was recorded on the turnover sheet. When Chemistry called at approximately 07:30 on 4/23/94 for Waste Gas Decay Tanks requiring samples, the OC Waste Gas Decay Tank was not reported as having been in service. The OC Waste Gas Decay Tank was not sampled after 08:22 on 4/22/94, although it remained in service until approximately 13:45 on 4/22/94. The causes of the event were determined to be poor work practices, inadequate training, and inadequate procedural guidance. Corrective actions to address each of the causes will be tracked.

This event is reportable (no immediate notification required) pursuant to 10CFR 50.73(a)(2)(i)(B).

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

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 04/23/94 / 0730

Unit 1 MODE 1 - Power Operations Rx Power 99% RCS [AB] Temperature/Pressure NOT/NOP

Unit 2 MODE 1 - Power Operations Rx Power 99% RCS [AB] Temperature/Pressure NOT/NOP

B. DESCRIPTION OF EVENT:

Dewatering of the Fuel Transfer Canal for maintenance began at 08:42 on 4/21/94. The water in the Fuel Transfer Canal was being pumped to the Spent Fuel Pool. From the Spent Fuel Pool, the water was being directed to Hold Up Tanks prior to processing. This increase in Hold Up Tank inventory resulted in displacement of the cover gas. Displaced cover gas is directed to the Waste Gas Decay Tanks (WGDT's) (GW) [WE] via waste gas compressors. Normally a single WGDT may last several days before requiring "Storage". The WGDT's are placed in "Storage" mode to allow maximum decay of the contents prior to release in order to minimize the annual integrated gaseous radioactive release to the environment. A WGDT that is in the "Storage" mode for long term decay may be tagged out of service to prevent radioactive additions during system realignments. Degassing of the primary coolant for outage generates WGDT inventory that must be released due to limited storage capacity of six WGDT's. Since the draining of the Fuel Transfer Canal results in a temporary displacement of the Hold Up Tanks cover gas, the WGDT's placed in the "Storage" mode for this evolution were not tagged out of service. The WGDT's would be subsequently realigned for cover gas to replace the water processed from the Hold Up Tanks, thereby preventing unnecessary gaseous release. It was estimated that approximately 100,000 gallons of water would be processed for this evolution.

All of the Radwaste Operators interviewed were cognizant of the dewatering of the Fuel Transfer Canal. Some of the Radwaste Operators were informed of the evolution through discussions with their Radwaste Supervisors, while others were informed from discussions with other Radwaste Operators during turnovers. All of the operators were aware of the increase in Hold Up Tank inventory and the impact on the WGDT's.

When the Fuel Transfer Canal dewatering began, the WGDT alignment was OE "In Service", OA "Storage", OF "Cover", and OC "Standby". The OB and OD WGDT's were available. The "Standby" tank is automatically aligned to "In Service" and the "In Service" inlet valve closes when the "In Service" tank pressure reaches 95 psig. A system realignment is required after the automatic switch-over to select a different "Standby" tank. The Radwaste Supervisors usually determine which tanks are selected for "Cover". The local manual valving of the WGDT's is performed by a radwaste "Rover". The Radwaste Operators review the desired valve alignment with the "Rover" and give the "Rover" the procedure to perform the valve alignment.

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

B. DESCRIPTION OF EVENT: (Continued)

At 21:57 on 4/21/94, the afternoon shift, the OC tank was automatically aligned to "In Service" and manual alignments performed subsequently. The OC WGDT was now the "In Service" tank. The OE WGDT was aligned to provide "Cover" and the OF WGDT was aligned to "Standby". This alignment was logged in the Radwaste Operator Logbook. This alignment was also noted on the Radwaste Operator Turnover to the first shift or "midnight shift". A review of the procedure revealed that a Technical Specification limit on activity applied to WGDT's. However, sampling is only addressed when a WGDT is placed in the "Storage" mode. The specification is applicable anytime radioactive material is added to the tank. The section of the procedure, BOP GW-6, that addresses sampling of the WGDT placed in "Storage" to ensure that the curie content is less than 5.0E4 of noble gas requires the operator to ensure that Chemistry has sampled the WGDT. In practice, a Chemistry Technician calls the Radwaste Operator between 07:00 and 08:00 every morning and asks which WGDT is "In Service" and which WGDT's have been "In Service" during the previous 24 hours. On 4/22/94 the OC and OE WGDT's were sampled per OBCS 11.2.6-1.

The second shift (day shift) Radwaste Operator for 4/22/94 (RWO #1) took a turnover at 06:50. RWO #1 stated that in order to determine which WGDT's have been "In Service", he first reviews the Radwaste Operator Turnover Sheet to determine the date that any WGDT was placed in "Storage". If any tanks were placed in storage in the last 24 hours, then the Radwaste Operator Logbook is reviewed. It was noted that this analysis usually occurs when the Chemistry Technician calls between 07:00 and 08:00 every morning. The Radwaste Operator usually records the required readings for his shift on the RWP Equipment Operator Daily Logs immediately after the turnover. No reference is made on these daily logs to the Technical Specification requiring sampling of the applicable WGDT's or the Chemistry Technician's samples. RWO #1 was cognizant of the Technical Specification required sample for Curie content of the WGDT's. All of the Radwaste Operators interviewed were knowledgeable of the required samples for explosive mixtures and also of the activity samples taken prior to a release of radioactive gas. However, most of these operators were not familiar with the requirement to sample the WGDT's that had been in service for Curie content.

The next alignment change of the WGDT's occurred at approximately 13:45 prior to the 15:00 shift turnover. RWO #1 was aware of the auto switch-over from the OC WGDT to the OF WGDT and at this time encountered difficulties with the waste gas compressors. The OF inlet valve was found closed. The valve lineup to the OF WGDT was corrected as the now "In Service" WGDT. The OC WGDT was valved to the "Storage" mode. The OB WGDT was aligned to the "Standby" mode. This alignment was addressed on RWO #1 turnover to third shift. This evolution was not noted in the Radwaste Operator Logbook as required by administrative procedure.

The final WGDT realignment prior to sampling for Curie content on 4/23/94 occurred at 18:38 on third shift of 4/22/94. The OB WGDT was now the "In Service" tank with the OD as "Standby" and OF in "Storage". This alignment was noted in the Radwaste Operator Logbook. This alignment was identified by RWO #2 on the Radwaste Operator Turnover to the first shift Radwaste Operator for 4/23/94 via the STORAGE DATE block for the OC WGDT of the turnover. The STATUS block for the OC WGDT contained a (-) which is commonly used to indicate a tank that is available. It was noted during interviews that some Radwaste Operators check for the STORAGE DATE block containing a date as indication of a WGDT in "Storage". This type of entry was not unusual. This alignment was depicted on the Radwaste Operator Turnover to the day shift Radwaste Operator RWO #3 for 4/23/94.

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B. DESCRIPTION OF EVENT: (Continued)

The duty Chemistry Technician for 4/23/94 called the Radwaste Operator RWO #3 at approximately 07:30. The Chemistry Technician asked which WGDT was "In Service" and if any other WGDT's had been made up to in the past 24 hours. RWO #3 reviewed the Radwaste Operator Turnover Sheet and then checked the Radwaste Operator Logbook. RWO #3 noted that OF WGDT appeared in the logbook and OB was currently "In Service". RWO #3 reported the OB "In Service" and OF WGDT had been made up to in the last 24 hours. The Chemistry Technician sampled the OB WGDT and then the OF WGDT after RWO #3 aligned the OF WGDT for sample. The OB WGDT was realigned to service after the sample. The OC WGDT was not sampled after 08:22 on 4/22/94 although it remained "In Service" until approximately 13:45 on 4/22/94.

The missed surveillance was discovered on 4/29/94 during review of the computer program to track WGDT decay data by a Radwaste Supervisor. Previous sample data was requested from the Chemistry Department. The only previous data reflected a low pressure condition of approximately 18 psig. Actual OC WGDT pressure was approximately 91 psig. The LCOAR OBOS 11.2.6-1a was entered and the abnormal operating procedure OBOA RAD-3 was entered. The OC WGDT was sampled and the LCOAR OBOS 11.2.6-1a was exited at 00:07 on 4/30/94. A search of Byron's NTS database provided no previous occurrences.

This event is being reported pursuant to 10CFR 50.73(a)(2)(i)(B).

C. CAUSE OF EVENT:

The causes of this event were determined to be poor work practices, inadequate training, and inadequate procedural guidance.

The realignment of the Waste Gas Decay Tanks (WGDT's) was not documented in the Radwaste Operator Logbook. The OC WGDT was placed in "Storage" mode without adequate documentation to ensure sampling requirements were met.

RWO #1 did not adequately document the change of equipment status as required by administrative procedure. Equipment status information was not documented in the Radwaste Operator Logbook as required by administrative procedure. The operator was knowledgeable of the significance of the equipment status. RWO #2 did not ensure that the information provided to him on his turnover was consistently carried over to the next turnover sheet. Equipment status information was not consistent between shifts on shift turnover sheets. Variations in completion of shift turnovers were accepted. RWO #2 was knowledgeable of some of the sampling requirements for WGDT's, but did not have specific knowledge of the Technical Specification sampling requirements for WGDT's. Specific knowledge would have provided a heightened level of awareness for information transmittal. RWO #3 overlooked information provided on the Radwaste Operator Turnover Sheet that would have provided equipment status for the OC WGDT. The Radwaste Operator daily logs; RWP Equipment Operator Daily Logs, BOP 199-EO RWP, does not document the Technical Specification requirement to sample WGDT's that have had radioactive materials added to them in the previous 24 hours. This is an exception to the current philosophy of referencing associated Technical Specification information on daily logs with (**). The Radwaste Operator Turnover Sheets, BAP 335-1T9, do not document the Technical Specification requirement to sample WGDT's that have had radioactive materials added to them in the previous 24 hours. The Radwaste Operator must analyze data previously recorded and provide the analysis results via phone to the Chemistry Technician to ensure compliance with Technical Specifications. The current procedure for realignment of WGDT's does not reference the need to document tanks that have had radioactive materials added to them under all possible realignments.

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D. SAFETY ANALYSIS:

At no time during this event did a potential exist to challenge the limit of 5.0E4 Curies in a Waste Gas Decay Tank. This limit is imposed to protect MEMBERS OF THE PUBLIC at the nearest SITE BOUNDARY from "Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure"

E. CORRECTIVE ACTIONS:

- a. A Daily Order was generated stressing the importance of adequate log keeping and to alert Radwaste Operators to the required sampling for Waste Gas Decay Tanks.
- b. A Training Revision Request (TRR) will be generated to have the Radwaste Supervisors provide their expectations for consistency of documentation during cycle 4 of Non-Licensed Operator training. This discussion will include the importance of referencing all available documentation in the performance of applicable tasks. The Licensed operators performing the Non-Licensed tasks will be requested to attend this training. This item will be tracked by NTS item # 454-180-94-004-00-01.
- c. A TRR will be generated to inform the Radwaste Operators of the significance of sampling the WGDT's for total Curie content in order to remain in compliance with Technical Specifications. This item will be tracked by NTS item # 454-180-94-004-00-02.
- d. BOP 199-EO RWP will be revised to reference the necessary WGDT status information consistent with current philosophy. This will be tracked by NTS item # 454-180-94-004-00-03.
- e. BAP 335-1T9 will be revised to reference the necessary WGDT status information. The revised turnover sheet will provide the Radwaste Operator the opportunity to analyze all available status information and annotate that analysis information prior to the Chemistry Technician's phone call each morning. This will be tracked by NTS item # 454-180-94-004-04.
- f. BOP GW-6 will be revised to address documentation of all WGDT's that have received radioactive materials. This should include realignment from the "In Service" mode to the "Cover" mode. Steps that require notification of the Chemistry Department upon realignment should be deleted since the Chemistry Department is not held accountable for maintenance of status information. Also, steps that require notification of the Shift Engineer and/or Shift Supervisor should be revised to notify the Radwaste Supervisor of system realignment since the Radwaste Supervisor is held accountable for this information and reports to the Shift Engineer. This will be tracked by NTS item # 454-180-94-004-05.
- g. Additionally, OBCS 11.2.6-1 should be revised to reflect the current practice of contacting the Radwaste Operator instead of the Radwaste Supervisor because the Radwaste Operator may be, under certain situations, more knowledgeable of sudden system realignments such as automatic switch-overs. Additionally, a constant reference time should be set in this surveillance. This will be tracked by NTS item # 454-180-94-004-06.

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F. RECURRING EVENTS SEARCH AND ANALYSIS:

There were no previous events identified for this event.

G. COMPONENT FAILURE DATA:

<u>MANUFACTURER</u>	<u>NOMENCLATURE</u>	<u>MODEL NUMBER</u>	<u>MFG PART NUMBER</u>
NONE.			