

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) McGuire Nuclear Station - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 6 9	PAGE (3) 1 OF 0 6
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TITLE (4) WASTE GAS SURVEILLANCE SAMPLE WAS NOT OBTAINED WITHIN TECHNICAL SPECIFICATION TIME LIMIT - INCORRECT DETERMINATION - 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)											
1	2	3	1	8	7	8	7	8	0	3	7	0	0	0	0	2	0	1	8	8	McGuire Unit 2	0 5 0 0 0 3 7 0
1	2	3	1	8	7	8	7	8	0	3	7	0	0	0	0	2	0	1	8	8		0 5 0 0 0 3 7 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) 0 7 7	20.402(b)	20.405(e)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.36(a)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.36(a)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)						
	20.405(a)(1)(iii)	XX 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)(ix)								

LICENSEE CONTACT FOR THIS LER (12)

NAME STEVEN E. LeROY - LICENSING	TELEPHONE NUMBER
	AREA CODE: 7 0 4      3 7 3 - 6 2 3 3

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH    DAY    YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 12/31/87 at approximately 2200, Radwaste Chemistry (RDW) reviewing the RDW Daily Status Board realized that a sample required by Technical Specification (TS) 3/4.11.2.6 had not been obtained on day shift within the 24 hour surveillance interval. RDW informed Health Physics (HP) of the omitted sample of Waste Gas (WG) Shutdown Tank B, and HP obtained a sample from the tank at 2247. The sample verified that the radioactive noble gas in WG Shutdown Tank B was less than the TS limit. The sample was not obtained within the time limit because day shift RDW personnel had erroneously determined that a sample from WG Shutdown Tank B was not necessary to satisfy the TS sampling requirement. This event is assigned a cause of Personnel Error because RDW personnel incorrectly determined that a sample was not required on WG Shutdown Tank B on the afternoon of 12/31/87. The governing procedure will be changed to require 2 RDW personnel to check the WG Logbook daily and document which tanks are to be sampled prior to contacting HP. The daily WG turnover sheet will be enhanced and RDW personnel will be requalified on WG tank sampling.

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		YEAR 87	SEQUENTIAL NUMBER 037	REVISION NUMBER 00	02	OF 06

TEXT (If more space is required, use additional NRC Form 388A's) (17)

INTRODUCTION:

On December 31, 1987 at approximately 2200, night shift Radwaste Chemistry (RDW) personnel, while reviewing the RDW Daily Status Board, realized that a sample required by Technical Specification (TS) 3/4.11.2.6 had not been obtained on day shift within the 24 hour surveillance interval. RDW personnel informed Health Physics (HP) personnel of the omitted sample of Waste Gas (WG) [EIIS:WE] Shutdown Tank B [EIIS:TK], and HP personnel obtained a sample from the tank at 2247. The sample verified that the radioactive noble gas in WG Shutdown Tank B was less than the TS limit. The sample was not obtained within the time limit because day shift RDW personnel had erroneously determined that a sample from WG Shutdown Tank B was not necessary to satisfy the TS sampling requirement.

Unit 1 was in Mode 1, Power Operation, at 77% power, and Unit 2 was in Mode 1 at 100% power at the time of this event.

This event has been assigned a cause of Personnel Error because RDW personnel incorrectly determined that a sample was not required on WG Shutdown Tank B on the afternoon of December 31, 1987.

EVALUATION:

Background

The WG system is designed to process, store, and release fission gases accumulated from radioactive contaminated systems. The system is a closed loop comprised of two compressors [EIIS:CMP], two catalytic hydrogen recombiners [EIIS:RCB], six decay tanks [EIIS:TK] for normal power service, and two shutdown tanks. WG Shutdown Tank B normally contains nitrogen and is primarily used to degas the Reactor Coolant system [EIIS:AB] during unit startups and shutdowns. WG Shutdown Tank B is also used occasionally to receive inputs of significant volumes of non-radioactive gas; thereby, conserving available volume for radioactive gas in the six WG decay tanks.

Technical Specification 3/4.11.2.6 requires that the quantity of radioactive material contained in each gas storage tank be determined to be less than or equal to 49,000 Curies of noble gases (as Xenon-133) at least once each 24 hours when radioactive materials are being added to the tank. RDW personnel maintain a WG Weekly Checklist which requires a daily sign-off that samples have been obtained for isotopic analyses from the in-service WG decay tank, shutdown tank, or any tank that has been in service in the previous 24 hours. Also, HP procedure for Radioactive Gaseous Effluent Sampling and Analysis Frequency specifies that a grab sample be obtained once each 24 hours from each WG tank that has received radioactive gas within the last 24 hours.

Normally, sampling of the required tanks is performed between 1300 and 1500 each day. HP personnel contact RDW personnel to find out which tanks should be sampled. HP personnel also usually check the RDW Daily Status Board sample

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TEXT (if more space is required, use additional NRC Form 306A's) (17)

notations. RDW personnel perform sample valve alignments, and HP personnel obtain the samples.

Description of Event

On December 30, 1987, after completion of maintenance activities on Recycle Holdup Tank (RHT) A, RDW decided to align RHT A to WG Shutdown Tank B to educt the large volume of air from RHT A prior to restoring the normal system alignment. To minimize the radioactive gaseous influent to WG Shutdown Tank B during this operation, RDW isolated the Unit 1 and Unit 2 Volume Control [EII:CB] Tank purges. They then placed WG Shutdown Tank B in service (receiving waste gas from normal operations) and removed WG Decay Tank D from service at 1310. RDW began educting air from RHT A to WG Shutdown Tank B at 1325. RDW Technician A noted on the RDW Daily Status Board that WG Decay Tank D and WG Shutdown Tank B were the tanks to be sampled for the day.

HP contacted RDW Technician A to determine which WG tanks were to be sampled for December 30. RDW Technician A informed HP to sample WG Decay Tank D and Shutdown Tank B. An HP technician also checked the RDW Daily Status Board and verified that these were the two tanks for which samples were required. RDW personnel made the appropriate sample valve alignments, and HP personnel sampled WG Shutdown Tank B at 1430 and WG Decay Tank D at 1440.

Night shift RDW personnel secured the RHT A eduction to WG Shutdown Tank B at 2015 after the eduction was completed at 2006. At 0155 on December 31, 1987, RDW returned WG Decay Tank D to service and removed WG Shutdown Tank B from service. They checked and found that the RDW Daily Status Board listed WG Decay Tank D and WG Shutdown Tank B as the tanks to be sampled, which would still be correct for the daily samples for December 31, 1987 based on the switch they had just made of in-service tanks.

At approximately 0800, shortly after receiving shift turnover from night shift, RDW Technician A noticed the notation to sample both WG Decay Tank D and WG Shutdown Tank B on the RDW Daily Status Board. He erased the notation for WG Shutdown Tank B from the board, erroneously believing that the sample obtained on the previous day was the only sample required from the tank. When HP checked with RDW to determine which tanks should be sampled to satisfy the daily requirement, RDW Technician A informed HP to sample WG Decay Tank D, the in-service tank. HP personnel also checked the RDW Daily Status Board and found WG Decay Tank D to be the only tank designated for sampling. RDW personnel made the valve alignment to obtain this sample, and HP personnel obtained the sample at 1430. RDW Technician B initialed the sign-off step for December 31, 1987 on the WG Weekly Checklist, after verifying agreement between the RDW Daily Status Board sample notation and the sample obtained.

When one of the same night shift RDW personnel who had worked the previous evening checked the RDW Daily Status Board at approximately 2200, he noted that only WG Decay Tank D was listed for sampling. After verifying in the WG Logbook

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TEXT: If more space is required, use additional NRC Form 305A (1/77)

that WG Decay Tank D was the only tank sampled on day shift, he contacted HP to inform them of the apparent omission of a sample from WG Shutdown Tank B. HP sampled the tank as soon as possible and completed the sample at 2247. The sample analysis showed results well within the TS limit. Operations was notified of the problem with the missed surveillance and made appropriate notations in the Unit 1 Technical Specification Action Item Logbook.

### Conclusion

This event has been assigned a cause of Personnel Error because an erroneous decision was made by RDW Technician A that a sample from WG Shutdown Tank B was not required on December 31, 1987. RDW and HP management agree that although HP personnel have ultimate responsibility for sampling, RDW personnel are responsible for determining which tanks should be sampled.

RDW Technician A is an experienced technician in WG system operations. He believed he had satisfied all the sampling requirements for WG Shutdown Tank B on the previous day. He did not think about the fact that the tank was in service after the sample was obtained on December 30, 1987. Two conditions may have contributed to the incorrect decision. It is a very unusual situation for an in-service tank to be removed from service at any time other than during day shift prior to daily sampling. Also, it was somewhat unusual for the largest sources of radioactive gaseous inputs to the in-service tank, the Unit 1 and Unit 2 Volume Control Tank purges, to be isolated from the in-service tank. In hindsight, RDW Technician A thinks that he did not believe there were any radioactive inputs to WG Shutdown Tank B requiring 24 hour tank sampling. However, some radioactive inputs such as the Reactor Coolant Drain Tank vents and the Boron Recycle system Evaporator were still aligned to WG Shutdown Tank B while the Unit 1 and Unit 2 Volume Control Tank purges were isolated.

RDW Technician B initialed the WG Weekly Checklist sign-off step for Thursday, December 31, 1987 to indicate that "any tank that was in service in the previous 24 hours" had been sampled for isotopic analysis. RDW Technician B knew that WG Decay Tank D was sampled on December 31, 1987 because she performed the Independent Verification of the valve alignment. She signed the step for December 31, 1987 on the WG Weekly Checklist because the sample obtained was the same sample listed on the RDW Daily Status Board. However, this information did not verify that any tank which had been in service in the previous 24 hours had been sampled. The WG Logbook is the only source which contains that information. However, until this event occurred, checking the RDW Daily Status Board and having knowledge of which samples were obtained was considered to be an acceptable check prior to signing off the step on the WG Weekly Checklist.

A review of McGuire Licensee Event Reports (LERs) revealed one similar event with the same root cause documented in LER 369/85-01; therefore, this event is considered to be recurring. One corrective action for this previous event was for HP personnel to review their own daily logbook entries and duties checklist to

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ensure that the daily TS sampling is performed. This corrective action could not have prevented this event because HP personnel did pull appropriate samples according to instructions from RDW personnel and verification by visual inspection of the RDW Daily Status Board. The other corrective action for the previous event was for RDW personnel to sign off on the daily day shift to night shift turnover sheet that the in-service WG Decay Tank was sampled. Since the in-service tank was sampled on December 31, 1987 and only the tank which had been removed from service was not sampled, this sign-off would not have prevented this current missed surveillance.

This event is not reportable to the Nuclear Plant Reliability Data System (NPRDS).

CORRECTIVE ACTIONS:

Immediate: HP obtained a sample from WG Shutdown Tank B at 2247 on December 31, 1987.

Subsequent: None

- Planned:
- 1) The Radwaste Procedure for Waste Gas Decay Tank Sampling, OP/O/B/6200/45, will be changed to require two RDW personnel to check the WG Logbook daily and document which tank(s) are to be sampled prior to instructing HP as to which tanks should be sampled.
  - 2) RDW will change their daily WG turnover sheet to require that a notation be made of which tanks should be sampled if any switching of in-service tanks has occurred.
  - 3) RDW will be requalified on the Employee Training and Qualification System task for WG tank sampling.
  - 4) Compliance will issue an interpretation of TS 3/4.11.2.6 to clarify the surveillance requirement.

SAFETY ANALYSIS:

TS 3/4.11.2.6 requires a 24 hour surveillance to verify that the quantity of radioactivity is less than or equal to 49,000 Curies of noble gases as Xenon-133 in any tank when radioactive materials are being added to the tank. According to the TS basis, the TS limit provides assurance that in the event of an uncontrolled release of a WG tank's contents the resulting total body exposure to an individual at the nearest exclusion area boundary would not exceed 0.5 Rem. WG Shutdown Tank B total equivalent activity was 9.42 Curies Xenon-133 on December 30, 1987 at 1430 and 12.5 Curies Xenon-133 on December 31, 1987 at 2247. It is highly improbable that the TS limit was approached between these two samples because no means of activity reduction (other than decay) was in progress.

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TEXT: If more space is required, use additional NRC Form 386A (17)

There were no personnel injuries, personnel overexposures, or releases of radioactive material as a result of this event.

This event is considered to be of no significance with respect to the health and safety of the public.

DUKE POWER COMPANY

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HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

February 1, 1988

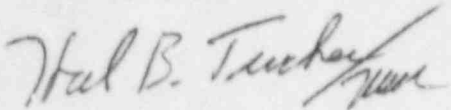
U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Unit 1  
Docket No. 50-369  
Licensee Event Report 369/87-37

Gentlemen:

Pursuant to 10CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 369/87-37 concerning a missed Technical Specification Waste Gas sample on December 31, 1987. This report is being submitted in accordance with 10CFR 50.73-(a)(2)(4-B). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

SEL/218/jgc

Attachment

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