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 FACIL:50-296 Browns Ferry Nuclear Power Station, Unit 3; Tennessee 05000296
 AUTH.NAME AUTHOR AFFILIATION
 AUSTIN,S.W. Tennessee Valley Authority
 CAMPBELL,G.G. Tennessee Valley Authority
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-002-00:on 890307,missed compensatory sampling.Due to
 procedural deficiencies & personnel error.W/890405 ltr.
 W/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
SIMMS,M	1 1	PD	1 1
GEARS,G	1 1		
INTERNAL: ACRS MICHELSON	1 1	ACRS MOELLER	2 2
ACRS WYLIE	1 1	AEOD/DOA	1 1
AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
DEDRO	1 1	IRM/DCTS/DAB	1 1
NRR/DEST/ADE 8H	1 1	NRR/DEST/ADS 7E	1 0
NRR/DEST/CEB 8H	1 1	NRR/DEST/ESB 8D	1 1
NRR/DEST/ICSB 7	1 1	NRR/DEST/MEB 9H	1 1
NRR/DEST/MTB 9H	1 1	NRR/DEST/PSB 8D	1 1
NRR/DEST/RSB 8E	1 1	NRR/DEST/SGB 8D	1 1
NRR/DLPQ/HFB 10	1 1	NRR/DLPQ/QAB 10	1 1
NRR/DOEA/EAB 11	1 1	NRR/DREP/RPB 10	2 2
NRR/DRIS/SIB 9A	1 1	NUDOCS-ABSTRACT	1 1
REG FILE 02	1 1	RES/DSIR/EIB	1 1
RES/DSR/PRAB	1 1	RGN2 FILE 01	1 1
EXTERNAL: EG&G WILLIAMS,S	4 4	FORD BLDG HOY,A	1 1
H ST LOBBY WARD	1 1	LPDR	1 1
NRC PDR	1 1	NSIC MAYS,G	1 1
NSIC MURPHY,G.A	1 1		

NOTES: 5 5

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) BROWNS FERRY UNIT 3	DOCKET NUMBER (2) 0 5 0 0 0 2 9 6	PAGE (3) 1 OF 05
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TITLE (4)

MISSED COMPENSATORY SAMPLING WHILE CONDUCTIVITY MONITOR WAS OUT OF SERVICE

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)
03	07	89	89	002	00	04	05	89	BROWNS FERRY UNIT 1		05000259
									BROWNS FERRY UNIT 2		05000260

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

OPERATING MODE (9) N	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	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)(vii)(B)	
POWER LEVEL (10) 0100	20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Steven W. Austin, Engineer, Plant Assessment Section	TELEPHONE NUMBER AREA CODE 2105 7129 1-311715
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

☐ YES (If yes, complete EXPECTED SUBMISSION DATE)☒ NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On March 7, 1989 with units 1 and 3 defueled and unit 2 in cold shutdown, it was discovered that compensatory reactor coolant water sampling had not been performed with a continuous conductivity monitor inoperable as required by technical specifications. On February 12, 1989 while performing surveillance instruction 3-SI-4.6.B.1.a-c, Reactor Coolant Chemistry, it was discovered that local conductivity monitor 3-CIT-43-011 was out of calibration. On March 6, 1989 the instrument mechanics removed the continuous conductivity monitor from service for repair. It was not returned to service until 21 hours later on March 7, 1989. Technical Specification (TS) 4.6.B.1.c requires sampling every 8 hours when the conductivity monitor is inoperable.

The cause of the event was attributed to procedural deficiencies and personnel error. Site Directors Standard (SDSP) 7.9 will be revised to require an impact evaluation for any maintenance on TS equipment.

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

DESCRIPTION OF EVENT

On February 12, 1989, a maintenance request (MR) was issued to recalibrate the unit 3 continuous conductivity monitor 3-CIT-043-011 (EIIS identifier CE) for reactor coolant chemistry. This is the local indicator; the main control room indicating recorder was reading accurately. On February 13, 1989 at 0620 the impact evaluator reviewed the MR and determined that an impact evaluation would not be required. The impact evaluator is an SRO that is utilized for determining if the work being performed on the component would place the system in a limiting condition for operation. On March 6, 1989 at 0825 hours, the MR was authorized for work by the Assistant Shift Operations Supervisor (ASOS). At 0915 hours on March 6, 1989 the monitor was removed from service. The instrument maintenance technicians removed the monitor from the local instrument panel, informed the unit 3 operator that the monitor had been pulled and placed an instrument removal tag at the local instrument panel. At that time, the unit operator wrote on the main control room indicating recorder "CIT out of service for calibration". On March 7, 1989 at 0615 hours, while obtaining a Reactor Coolant sample for routine surveillance, a chemistry lab technician noted that monitor 3-CIT-043-011 was missing from the local panel. He then initiated an 8 hour sampling frequency as required by Technical Specification (TS) 4.6.B.1.c. This TS requires that when the continuous conductivity monitor is out of service the reactor coolant water be analyzed every 8 hours. On March 7, 1989 at 0655 hours, a sample of the reactor coolant water was taken and analyzed. The results were 0.32 micromhos/centimeter. On March 7, 1989 at 1105 hours the chemistry lab notified the unit 3 operator that, per surveillance instruction 3-SI-4.6.B.1.a-c, Reactor Coolant Chemistry, analysis was complete and satisfactory. Monitor 3-CIT-43-011 was placed back into service.

At the time of the event units 1 and 3 were defueled, unit 2 was in cold shutdown.

ANALYSIS OF EVENT

Samples of the reactor water taken before and after the event indicated conductivity at 0.32 micromhos/centimeter which is within TS limits.

The continuous conductivity monitor for coolant chemistry is the primary mode for monitoring water conductivity in the reactor loops. While performing 3-SI-4.6.B.1.a-c (Reactor Coolant Chemistry) the chemistry lab technician discovered the conductivity monitor was within acceptance criteria for the SI but out of calibration and issued MR 877517. The author of the maintenance request marked the request routine. The paragraph for failure description/work requested did not indicate the monitor loop would be taken out of service. It did, however, require a call to the chemical lab prior to calibration to obtain flow cell reading.



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

ANALYSIS OF EVENT (continued)

When the impact evaluator reviewed the maintenance request, it was not indicated that the piece of equipment would be removed and taken to the instrument maintenance shop. It was also not indicated that the conductivity monitor was a TS item with imposed time limits. When the maintenance request was reviewed by the impact evaluator, the work instruction block was blank. He wrote on the maintenance request "IE not required". This was a correct determination in accordance with procedure SDSP-7.9 Integrated Schedule and Work Control. Paragraph 6.3-A states "IES not required for-chemical instrumentation work that has No control function on the equipment it's monitoring or any other equipment other than Alarm Function only". SDSP-7.9 has no requirements for chemical instrumentation that has the potential for placing the plant in a TS limiting condition.

The MR was approved for work by the ASOS. The work instructions were to "calibrate, troubleshoot and restore the instrument to its intended function per Instrument Maintenance Special Instruction (IMSI)-3014." IMSI-3014, Troubleshooting and Maintenance Instruction, allows the instrument maintenance technician to troubleshoot and repair as necessary under the same MR. Attachments from this instruction were a part of the MR package. The ASOS failed to recognize that, utilizing these instructions, the instrument maintenance personnel could remove the conductivity monitor from the local panel.

The conductivity monitor was not declared inoperable at the time the MR was written. It became inoperable when the instrument technician pulled the conductivity monitor and took it to the instrument maintenance shop; however, it was not declared inoperable per TS.

The unit 3 operator did not recognize that when the instrument loop was taken out of service, an 8 hour sampling would be required. Attachment 1 of IMSI-3014 contains a paragraph. "Will a control room function (i.e., indication, alarm, etc.) be inoperable or its accuracy be questionable?" The action required to answer the paragraph is yes or N/A. If yes is checked, the originator is to use Attachment 5 part 3 which requires the instrument technician to place orange stickers in the main control room when an instrument is inoperable due to a malfunction or calibration. Paragraph 6.1.17 of SDSP-7.6 also requires the use of stickers or markings in the control room when an instrument's accuracy is questionable or removed from operable status. The attachment was not utilized during the performance of this maintenance request.

CAUSE OF EVENT

The root cause of the event was procedural deficiencies. Site Directors Standard Practice (SDSP)-7.9, Integrated Schedule and Work Control defines the responsibilities of the Work Control Group (WCG) and the work control process. Paragraph 6.3-A states, "an impact evaluation is not required when chemical instrument work, that has no control function on the equipment that it is monitoring or any other equipment other than alarm function only". This paragraph did not require an impact evaluation sheet (IES) to be completed for the continuous conductivity monitor because it had no control function.



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CAUSE OF EVENT, (continued)

The ASOS did not have full knowledge of the actions that were going to be taken by the instrument mechanics during the calibration. Even though attachments from IMSI-3014 were part of the MR package allowing the instrument maintenance technicians to remove the monitor, the ASOS did not recognize this would happen. This was one contributing factor in the event.

Attachment 1 of IMSI-3014 requires the use of stickers or markings in the control room when an instruments accuracy is questionable or removed from service. The instrument maintenance technicians did not utilize this portion of IMSI-3014 in the performance of their work. This was a second contributing factor in the event.

CORRECTIVE ACTION

The immediate corrective action was to perform an analysis on the reactor coolant water and determine if the water was still within TS. The results were 0.32 micromhos/centimeter which is well within the TS requirement of <10 micromhos/centimeter.

The instrument maintenance technicians were instructed to follow the work control form, Attachment 1 of IMSI-3014 as written, especially in the areas in notification of the SOS when equipment is being made inoperable during calibration.

Further corrective action is to revise SDSP-7.9 and add a requirement that an impact evaluation will be performed on TS equipment. The impact evaluation sheet will be revised to allow notation of TS time limits.

The ASOS has been counseled on attention to detail in the performance of his duties.

Previous Similar Events

These listed events cover missed samples, they are not necessarily results of the same root cause.

BFRO-259-85010

Discontinuance of CAM hourly sampling due to personnel error

BFRO-259-86001

Inoperable main stack gas monitoring recorder

BFRO-259-88010

Inadequate procedure causes two cases of missed samples that were required to compensate for inoperable effluent radiation monitors



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PREVIOUS SIMILAR EVENTS (continued)

BFRO-259-88015

Failure to monitor off-gas stack effluents due to procedural inadequacy and personnel error

BFRO-259-88041

Failure to comply with technical specifications caused by personnel error

BFRO-296-88006

Procedural deficiency causes failure to comply with technical specifications

COMMITMENTS

1. Site Directors Standard Practice (SDSP)-7.9 will be revised to provide further directions for an Impact Evaluation Sheet.

This revision will be in place by April 28, 1989.



TENNESSEE VALLEY AUTHORITY
Browns Ferry Nuclear Plant
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APR 05 1989

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

Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 3 - DOCKET NO. 50-296 - FACILITY
OPERATING LICENSE DPR-68 - REPORTABLE OCCURRENCE REPORT BFRO-50-296/89002

The enclosed report provides details concerning the missed compensatory sampling while conductivity monitor was out of service. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(i).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

G. C. Minis for
Guy G. Campbell
Plant Manager

Enclosures

cc (Enclosures):

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NRC Resident Inspector, BFN



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