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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 5

TITLE (4)

Unit 1 Vent Radiation Monitor Unknowingly Inoperable Due To Inadequate Logging Policy

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)
											N/A	0 5 0 0 0
0 7	2 8	8 7	8 7	—	0 3 1	—	0 0	0 8	2 7	8 7		0 5 0 0 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)	1 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
Julio G. Torre, Assistant Engineer - Licensing	7 0 4 3 7 3 - 8 0 2 9

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)

On July 29, 1987, at approximately 1341 hours, the Unit 1 Vent Gas Radiation Monitor was discovered to be inoperable due to a non-conservative High Radiation alarm setpoint. The setpoint had been changed three days earlier when the radiation monitor (EMF) had been declared inoperable due to a malfunctioning gas sample pump. When the EMF was declared operable on July 27, 1987, the setpoint was not returned to its normal value. Consequently, a Technical Specification violation occurred at 0032 hours on July 28 when the required grab samples were not taken while the EMF was unknowingly inoperable. The Unit was at 100% power during this incident.

This incident is classified as Event Cause Code E, Management/Quality Assurance Deficiency. The Shift Supervisor and Unit Supervisor on duty when the setpoint was first changed did not document the change in the Technical Specification Action Items Log (TSAIL) Remarks column, but they did document it in the Control Room, Unit Supervisor, and EMF Setpoint Log Books. The Shift Supervisor on duty when the EMF was declared operable checked only the TSAIL, and he did not realize that the setpoint had been changed. The setpoint was restored to its original value upon discovery two days later. The incident will be discussed with all Shift Supervisors and policy will be clarified.

The health and safety of the public were unaffected by this event.

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BACKGROUND:

The Unit Vent provides an outlet to the atmosphere for several ventilation systems and process air handling systems. Among these systems are the Containment Air Release and Addition (VQ) System, the Auxiliary Building Ventilation (VA) System, the Fuel Pool Ventilation (VF) System, and the Waste Gas (WG) System.

Sampling the Unit Vent flow are three process radiation monitors (EIIS:MON) (EMF). 1EMF-35 monitors radioactive particulates, 1EMF-36 monitors radioactive noble gases, and 1EMF-37 monitors radioactive iodine. A gas sample pump (EIIS:P) is utilized to draw a continuous sample flow from the Unit Vent and through 1EMF-35/36/37. A High Radiation (Trip 2) alarm on any of these EMFs will cause the VA and VF Exhaust Fans and Air Handling Units to trip. It will also cause valves 1VQ10, VQ Fans Discharge to Unit Vent, and 1WG160, WG Decay Tank (EIIS:TK) Outlet to Unit Vent, to close automatically. The setpoints for 1EMF-35/36/37 Trip 2 alarms are determined by Health Physics (HP) and are based upon Technical Specifications which specify the maximum allowable dose rate at the site boundary.

Technical Specification 3.3.3.11 indicates that when any of these EMFs are inoperable, effluent releases may be made for up to 30 days provided that grab samples are taken at a specified minimum frequency. The frequency is at least once per 12 hours for 1EMF-36 and at least once per 24 hours for 1EMF-35/37. Grab samples must be analyzed for radioactivity within 24 hours of being taken. The Technical Specification also specifies that when an alarm trip setpoint is less conservative than allowed based upon HP's site boundary dose calculations, radioactive gaseous effluent releases must be terminated or the EMF declared inoperable.

DESCRIPTION OF INCIDENT:

On July 26, 1987, at 2209 hours, the Unit Vent Radiation Monitors (1EMF-35/36/37) were declared inoperable while the Unit was at 100% power. The gas sample pump for these monitors had been tripping on high temperature, and was causing spurious Trip 2 alarms to be generated on 1EMF-36L. Each spurious Trip 2 alarm caused the VA and VF Systems to shutdown, and also closed 1VQ10 whenever a VQ release was in progress. At 2217 hours, Control Room personnel raised the Trip 2 alarm setpoint on 1EMF-36L to greater than 10 million counts per minute (cpm). This terminated the spurious Trip 2 alarms and allowed the operators to restart the VA and VF systems at approximately 2221 hours. The setpoint change was recorded in the Control Room, Unit Supervisor, and EMF Setpoint Log Books. At 0030 hours on July 27, 1987, HP completed the first grab sample for 1EMF-35/36/37 inoperability and analyzed the sample for radioactivity level. The results from this analysis indicated that the sample radioactivity was at acceptable levels, and no remedial actions were required by the Control Room Operators. At 0700 hours, shift turnover occurred. There was no mention of the Trip 2 alarm setpoint change on the shift turnover sheets. Shift Supervisor B reviewed the

Unit Supervisor Log during the turnover, but did not register the significance of the setpoint change at that time. HP placed portable fans in the area of the 1EMF-35/36/37 package in order to help cool the sample pump. A second grab sample was taken for 1EMF-36L at 1230 hours and analyzed for radioactivity level. At 1750 hours, HP notified Control Room personnel that the second grab sample results were satisfactory, and no remedial action was required. Shift Supervisor B declared 1EMF-35/36/37 operable at 1800 hours because the portable fans were in place and the sample pump had run without tripping during the hottest part of the day. Since the Trip 2 alarm setpoint for 1EMF-36L was not returned to its normal value (2700 cpm), the Trip 2 alarm and its associated automatic release termination capability were effectively defeated, resulting in 1EMF-36L remaining inoperable. Since neither HP nor responsible station personnel were aware of this, a Technical Specification violation occurred at 0030 hours on July 28, 1987, when the required grab sample was not taken for 1EMF-36L. The setpoint was discovered at 1341 hours on July 29, 1987, during preparation for a VQ System release. The setpoint was immediately returned to 2700 cpm, restoring 1EMF-36L to operability.

CONCLUSION:

This incident is classified as Event Cause Code E, Management/Quality Assurance Deficiency. Management policy on documenting the changing of EMF setpoints during inoperability was not clearly defined at the time of the event. The Unit 1 Supervisor on duty when 1EMF-35/36/37 were declared inoperable did not directly inform Shift Supervisor A that the Trip 2 alarm setpoint for 1EMF-36L had been changed to allow the VA and VF Systems to be restarted. The setpoint change was recorded in the Control Room, Unit Supervisor, and EMF Setpoint Log Books, therefore he felt that the change was sufficiently documented, and did not require a remark to be made in the Technical Specification Action Item Log (TSAIL). The Unit Supervisor stated that it was common practice when returning EMFs to operability to check the current setpoint in the EMF Setpoint Log. Shift Supervisor A agreed with this and stated that if he had been told about the setpoint change, he probably would not have made a change to his TSAIL entry. Shift Supervisor B used only the TSAIL entry when he declared 1EMF-35/36/37 operable. He stated that it was not common practice on his shift to check the EMF Setpoint Log Book prior to declaring EMFs operable, and that the TSAIL entry should have documented all of the causes for the inoperability. The difference in philosophy among the two shifts indicates a lack of a clear management policy on logging EMF setpoint changes made during inoperability. Shift Supervisor B did review the Unit Supervisor's Log Book during shift turnover. Therefore, he did read the entry regarding the EMF-36L Trip 2 setpoint change 11 hours prior to declaring 1EMF-35/36/37 operable, however he did not recall this log entry. During the 11 hour period, Shift Supervisor B was involved in several activities including a Unit 2 Reactor Trip and recovery (see LER 414/87-21).

The spurious Trip 2 alarms on 1EMF-36L which occurred whenever the gas sample pump tripped are due to an electrical noise problem. Similar behavior has been observed on 2EMF-39L, Containment Gas Radiation Monitor, during one previous incident (see LER 414/86-47). Duke Power personnel determined during

investigation of another incident involving 2EMF-39L that the Radiation Monitoring Cabinets are incorrectly grounded to the Station Grounding (EVA) System rather than to the Instrument Grounding (EVB) System (see LER 414/87-06). Also, several other control cabinets in the Control Room were discovered to have station ground cables attached to instrument ground bus bars inside the cabinets, contrary to design specifications. It has been theorized that the improper grounding of the Radiation Monitoring Cabinets is responsible for several incidents involving spurious Trip 2 alarms on 2EMF-39L in addition to those already mentioned (see LERs 414/86-02, 414/86-08, and 414/86-27). Following these events, Duke Power initiated Work Requests to disconnect the instrument grounds in Control Room cabinets from the EVA System for Units 1 and 2. These Work Requests should correct any grounding problems in the Radiation Monitoring Cabinet associated with 1EMF-36L when completed.

There has been one previous incident involving the automatic release termination capability of the Unit Vent EMFs being unknowingly inoperable (see LER 413/86-38). This incident was caused by a personnel error when a technician installed an output blocking jumper during maintenance and overlooked its removal when the work was finished.

CORRECTIVE ACTION:

SUBSEQUENT

The Trip 2 setpoint for 1EMF-36L was returned to 2700 cpm.

PLANNED

(1) This incident will be discussed at a Shift Supervisors meeting.

(2) The policy of logging all items that effect operability with regard to EMF's as well as other equipment will be clarified.

SAFETY ANALYSIS:

The automatic release termination capability of the Unit Vent Gas Radiation Monitor was unknowingly inoperable due to the non-conservative Trip 2 alarm setpoint, from 1800 hours on July 27, 1987, until 1341 hours on July 29, 1987. During this period, a grab sample of the Unit Vent gases was not taken every 12 hours as required by Technical Specifications. The analog signal from 1EMF-36L was unaffected by the Trip 2 setpoint, and the Trip 1 alarm setpoint was not changed during this incident. A Multipoint Recorder in the Control Room recorded the analog signal from 1EMF-36L during this period. The recorder plots a point for 1EMF-36L approximately every 15 minutes. Examination of this recorder indicated that the analog signal did not exceed 100 cpm during this time period. The normal setpoint for automatic release termination is currently 2700 cpm, therefore an automatic termination would not have occurred during this time period had the setpoint been correct. There were six VQ releases made during the

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

period when 1EMF-36L was unknowingly inoperable. The controlling EMF for all of the VQ releases was 1EMF-39L, Containment Gas Radiation Monitor, which would also have terminated the VQ release automatically on a Trip 2 alarm. Therefore, an automatic VQ release termination capability did exist at all times during the incident. In the event that high radiation had been detected in the VA or VF Systems, additional operable EMFs would have automatically realigned the charcoal filter units to the filter mode, minimizing discharge to the Unit Vent. There were no WG System releases made during this period.

This incident is reportable pursuant to 10 CFR 50.73, Section (a)(2)(i)(3).

The health and safety of the public were unaffected by this incident.

USNRC-DS
1987 SEP 15 A 9:41

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August 27, 1987

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

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413
LER 413/87-31

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 413/87-31 concerning a Unit 1 radiation monitor unknowingly inoperable due to inadequate logging policy. 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

JGT/117/sbn

Attachment

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