RAS 5986

INCIDENT INVESTIGATION EVENT REPORT

50-390-CIVP et al. Licensee Exhibit 129- Recd 6/20/02

QA Record

CATEGORY 1 ☐
CATEGORY 2 ☒
CATEGORY 3 ☐

II No. II-5-92-090

SQ1000010103

10

Problem Title: Inadequate Setpoint Calculation for Radiation Monitors

Cause Codes CA,CB,CD,CF,A

LER No. 327/92019

Event Manager Signature R. W. Fortenberry Date 11/24/92

Responsible Organization SQN/PMO

Plant Manager Signature [signature] Date 12-8-92

Site VP Signature (Category 1 & 2 events) [signature] Date 12-15-92

QA PROGRAM MANAGER

Problem Resolution Sheet Closeout:

- ☒ Investigation Report distribution listing completed.
- ☒ Open Corrective Action entered into tracking system.
- ☒ Causes entered into tracking system.
- ☒ Report review and approval complete.
- ☒ Open items listing issued to actionees.

TVA Exh. 129

FI000108

CAP Manager Paul L. Shepherd Date 12-17-92

Template=SECY-028 SECY-02

TVA 40202

1 of 1

NUCLEAR REGULATORY COMMISSION

Docket No. 50-390 CVP Official Exh. No. TVA 129

In the matter of TVA

Staff	IDENTIFIED ✓
Applicant ✓	RECEIVED ✓
Intervenor	REJECTED
Other	WITHDRAWN
DATE 6/20/02	Witness
Clerk BHM	

John M. Stitt, SB 1C-SQN

SEQUOYAH NUCLEAR PLANT - CLOSURE OF INCIDENT INVESTIGATION (II) II592080

All action closure documentation has been reviewed and the actions taken were adequate. (No additional or follow-up actions resulting from evaluations or changes to the II are required.)

R.W. Fortenberry 7/1/93
Event Manager / Date
R.W. Fortenberry

OR

The following information/documentation is required prior to closure of the II.

N/A

Event Manager / Date

PLS:PMB
1163y/15

FI000109

					...IT IN THE APPROPRIATE PLANT S...OCUMENTS				
0568			[illegible]	F05	REVISE 11-12 TO ADDRESS METHOD OF ACCOUNTING FOR GAS DETECTO R CHAMBER VACUUM. (THIS ACTIO N IS TRACKED UNDER ACT...9161001.)	121192 Y121192	556 CCM		
			103	F...	DETERMINE THE BASES FOR VALUES OF TS 3.3.3 AND TABLE 3 3-6 DETERMINE IF TS CHANGES ARE NECESSARY. 1/29/93. DI 4/... 93	041693 Y041693	SGP LMW		50
	...-5		109	F05	PROVIDE SSD'S FOR RM WITH TS S ETPOINTS. ...2-26/93, DI 4/30/ 93, DI 7/2.../93	070193 Y070693	SGP LEE EHT		5
	...1693		110	F05	REVISE THE SSD FOR THE RM HIGH VACUUM MALFUNCTION ALARM FROM A SETPOINT VALUE OF 12 PLUS/M INUS 1 IN HG TO 9 PLUS/MINUS 1 IN HG.	021693 Y021693	SGP LEE JMG		5
0010	...60193		112	...S	DEFINE THE RAD MONITOR SAFETY LIMITS FOR THE RAD MONITORS IN TECH SPEC 3.3.3.1 AND TABLE 3 .3-6	060193 Y060193	SG... ... ...AB		5
			113	F03	PREPARE CLOSURE PACKAGE FOR TH E EVENT MANAGERS VERIFICATION.	072293	FDS SIG JMS		5

SUB. TOTAL 1 ITEMS

REPORT TOTAL 1 ITEMS

FI000111

INCIDENT INVESTIGATION FORM IR NO. 92-0335

Location: (Plant Units) SQN U1/U2 Event Time: (Date/Time) Discovery Time: (Date/Time) 11/6/92

INITIATOR

Initiator: Name: T.A. PANNELL Organization: OPS Extension: 7800

Description of Problem: INADEQUATE RAD MONITOR VACUUM SWITCH CALIBRATION

Activities in Progress:

SUPERVISOR

Proposed Category? ☐ 1 ☑ 2 ☐ 3 ☐ Deliver to SOS ☐ N/A

Initiator's Supervisor R.J. BEECKEN Organization PM Extension: 6501

Cause (if known):

Corrective Action Plan:

Plant Condition at Discovery 100% PWR Documents Initiated SQ PER 92-0335

SOS

Determination Operability Affected ☐ Yes ☒ No

Comments: The cause found early in based on a walkdown of all radiation monitors revealed the present operability of any monitor was unaffected.

Shift Operations Supervisor [signature] Date/Time 11-9-92 1206

PLANT MGR

Reportability Determination

☑ Notification No: Req'd Concur to pursue as cat II to confirm.

☑ Corporate Notification Required Date/Time call made

☐ NRC Notification Required per 10 CFR 72 Date/Time

☑ NRC Notification Required per 10 CFR 73 (a)(1)(B) 11-9-92 1800 Date/Time

☐ Other Notification Required (specify)

☐ Tech. Spec. Action Entered Date/Time

Investigation Responsibility Category ☐ 1 ☑ 2 ☐ 3

Investigation Required FI000112

Event Manager R. FORTENBERY Report Due Date

Team Members R.E. Richie J.T. Newton K.E. Meade

☐ Problem Not Valid - Return to Corrective Action Program Manager

Plant Manager [signature] Date: 11/9/92

EV MGR

Identify Appropriate Immediate Actions:

1. Verified all offsite Monitors were at ≤ 10" H_2O Vacuum.
2. Monitor Vacuum on all offsite monitors each shift
3. Change Alarm setpoint to 29" H_2O Vacuum.

Action Complete

EVENT TITLE: Inadequate Setpoint Calculation for RAdiation Monitor

EVENT TEAM*				ROOT CAUSE ANALYSIS TRAINING		
POSITION	NAME	ORGANIZATION	EXT.	TVA RCA	K-T	HPES
EVENT MANAGER	R.W. Fortenberry	Plt Staff	8704	X	X	X
LEAD INVESTIGATOR						
TEAM MEMBER	Jeff Newton	Tech Supp/ICE	7681			
TEAM MEMBER	Don Amos	Chemistry	6930			
TEAM MEMBER	Calvin Borrell	NE	8480			
TEAM MEMBER						
TEAM MEMBER	Ken Meade	LICENSING*	7766	Mort		

*NOTE: EVENT TEAMS WILL INCLUDE A MEMBER FROM LICENSING (EXT. 8924) FOR REPORTABLE EVENTS AND AN HPES QUALIFIED EVALUATOR FOR ALL CATEGORY 1 EVENTS.

INVESTIGATION PLAN:

1. Trace History of RM setpoints to determine times and amount of Tech Spec non-compliance - Don Amos
2. Review plant Rad Monitors and use of vacuum correction to determine Scope of Condition - Jeff Newton
3. Perform NER, LER and TRO database searches to look for similar or related events. - Ken Meade
4. Assess the Safety implication of Tech Spec non-compliance
5. Determine if SQN has ever exceed ODCM release rates as a result of RM setpoint above TS limit - Don Amos.

FT060115

APPROVAL: [signature]

(CATEGORY 1&2 REPORTS - PLANT MANAGER)
(CATEGORY 3 REPORTS - EVENT MANAGER)

FILE INSTRUCTIONS: MAINTAIN WITH ORIGINAL II PACKAGE

Incident Investigation Inadequate Setpoint Calculation for Radiation Monitors | II No. II-S-92-080

Event Manager R. W. Fortenberry | Date Received 11/24/92

Responsible Training Manager Doug G Goodman | Section Technical

Date and Location of PERP (Cat. 1 or 2) 11/24/92 3:00 pm

REVIEWER ASSESSMENT

Has training been conducted in the area that contributed to the event? Yes ☑ No ☑

Was a train task associated with this event? Yes ☑ No ☐

If yes,

Identify all applicable training materials (classroom, simulator, laboratory, OJT). Sign off for sampling monitors

Were personnel involved in the II trained? Yes, in sampling & counting.

Were all section personnel trained and over what time period? Yes, initial training in the upper chemistry Training Room

If testing was involved, did it aggressively survey issue? NO, vacuum change was not in procedure.

Was training material adequate or does material need to be revised? NO, does need To be revised to include pressure changes

Do personnel need to be retrained? Yes

Should requalification training be initiated? Yes, cover IE 82-49 seminar to include Operation of monitors, Gas Laws, and effect of changes on chamber pressures/sensitivities on sample results

If no, is training needed?

Course or training setting affected

Personnel affected

Appropriate action/date(s)

Are simulator changes necessary? Yes ☐ No ☑

FI000116

Comments/recommendations

APPROV

Section Manager Responsible for Attending PERP: Operations ☐ Maintenance ☐ Technical ☑

Section Manager Doug G. Goodman | Date 11/24/92

[illegible] | Date [illegible]

EXECUTIVE SUMMARY

On November 6, 1992 it was discovered that certain Technical Specification Gaseous Radiation Monitors could have had their setpoints calculated in a non-conservative manner. The subject Radiation Monitor setpoints do not account for the system design which has the gas sample chamber upstream of the sample pump, thus creating a vacuum in the detector gas chamber. This pressure difference requires a correction factor to be applied in order to calculate the setpoint. Applying the correction factor to several Radiation Monitors indicates the actual setpoints could have been greater than the Technical Specification Allowable Setpoints specified in TS 3.3.3.1.

A related and concurrent event identified in the Problem Evaluation Report SQP900281PER indicated non-conservative vendor calibration data had been used in the calculation of these same Radiation Monitor setpoints. This, when combined with the failure to account for detector pressure in the setpoint calculation, compounded the error.

Since the action of TS 3.3.3.1 was not applied, it is concluded that SQN was in a condition prohibited by Technical Specification. Upon discovery plant personnel took readings at the Radiation Monitors to ensure they remained within their Technical Specification Allowable Setpoints. The Instrument Malfunction alarms were then calibrated lower on the subject Radiation Monitors to ensure Technical Specification compliance.

The root cause of this event is inadequate engineering control of Radiation Monitor setpoints and setpoint methodology. Contributing causes were failure of management to ensure that adequate interdepartmental communications existed and responsibilities for the overall Radiation Monitoring System were not well defined or understood.

FI000115

DESCRIPTION OF THE EVENT

A. Initial Conditions

On November 6, 1992 it was discovered that certain Technical Specification (TS) Radiation Monitors (RM) could have had there setpoints calculated in a non-conservative manner. The subject RM setpoints do not account for the system design which has the gas sample chamber upstream of the sample pump, thus creating a vacuum. The original gaseous calibration by the manufacturer was performed at atmospheric conditions. The operating pressure difference requires a correction factor to be applied in order to calculate the correct setpoint for the RM's.

Units 1 & 2 were operating at approximately 100% rated thermal power. The Noble Gas alarm/CRI setpoints of the Containment atmosphere monitors RM-90-106 and 112 and the Containment Purge monitors RM-90-130 and 131 were at 75% of the Technical Specification (TS) limit. The high vacuum malfunction alarm for the subject RMs was set at 12 ± 1 inch of Mercury (IN Hg) below atmospheric pressure. There was no pressure correction applied to the Noble gas monitor for Containment Vent Isolation (CVI) setpoint. Assuming the vacuum could be as high as 13 IN Hg without requiring operator action or initiating a CVI, the setpoint could be 113% of the TS limits of TS 3.3.3.1.

B. Sequence of Events

The Chemistry Section procedure TI-18, Radiation Monitoring, is the procedure for controlling and calculating the alarm setpoints for RMs. The General Atomics (GA) 1974 Calibration Report provided the detector sensitivity values for the initial developement of this procedure. The initial procedure, TI-18, set the CVI setpoint at 10% of the TS limit for both the particulate and Noble gas detectors for containment atmosphere monitors RM 90-106 & 112. The containment purge Noble gas monitor RM-90-130 & 131 CVI setpoint was set at 10% of the TS limit. This was sufficient margin to compensate for gas detector chamber pressure errors and for the use of non conservative gas detector GA calibration sensitivities.

Initially, TI-1 set the Main Control Room (MCR) Noble

gas monitors RM-90-125 & 126, setpoint at 350 counts per minute (cpm). The TS limit is 400 cpm. When corrected for the highest possible vacuum prior to alarming, the CRI setpoint could have been 529 cpm.

In April of 1979 GA issued a revision to the Calibration Report. This report reduced the sensitivities for the gas detector making the earlier sensitivities non-conservative. The report was issued to the Engineering Design Organization in Knoxville. The plant instrument engineer eventually received a copy of the report, but the Chemistry Section never received a copy.

On April 28, 1982 revision 10 to TI-18 raised the Noble gas CVI setpoint on RM-90-106, 112, 130, and 131 to 40% of the TS limit. When this setpoint is corrected for non-conservative detector sensitivities and chamber pressure, the CVI could have occurred at 93% of the TS limit.

The NRC issued Information Notice 82-49, Correction For Conditions For Air And Gas Monitoring. This notice identified that pressure correction was necessary to account for sample deviation from Standard Temperature and Pressure (STP) conditions in gas detector rotometers. The notice was entered into the Nuclear Experience Review (NER) process and sent to all appropriate organizations. The Instrument Maintenance Group responded that the calibration of the RM rotometer sample flow was corrected for pressure. The Chemistry Section responded that analyst take into account pressure differential within monitors when collecting particulate and charcoal samples. No one addressed the effects of pressure on the RM Noble gas detectors. No corrective action was identified.

In 1986 and 1987 a Surveillance Instruction verification and validation program was established to ensure the complete accuracy and validity of all plant procedures used to comply with the TS. Watts Bar Plant personnel were acquired to perform this review for Sequoyah. The April 1979 revision to the GA Calibration Report was identified. The revised report was included in the references section of TI-18, but the revised detector sensitivity values were not entered into the procedure.

On April 16, 1990, Instruction Change ICF-90-217 changed the Noble gas CVI setpoint to RM-90-106 and 112 to 70% of the TS limit and removed the setpoints to RM-90-130 and 131 from TI-18. ICF-90-[illegible] added the CVI setpoints for RM-90-130 and 131 to ST[illegible], Containment (Upper, Lower) Purge, and raised the gas CVI setpoint to 70% of

the TS. On April 26, 1992 the setpoints in the above monitors were raised to the values allowed by the procedures. When the setpoints are corrected for the non-conservative detector sensitivities and chamber pressure, the alarm could have occurred at 143% of the TS limit.

On June 12, 1990 A Problem Evaluation Report, SQP900281PER was issued by the Chemistry Section identifying that the April 1979 GA Calibration Report had not been implemented in plant procedures. An operability evaluation determined that the current Noble gas CVI setpoints for the RM-90-106, 112, 130, and 131 were at 95% of the TS limit. This operability evaluation was based on the current containment atmospheric isotope mix, best estimate isotope sensitivities obtained from the 1979 GA Calibration Report, and current CVI setpoints of 70% of the TS limit. When the CVI setpoint is corrected for detector chamber vacuum, the CVI could have occurred at 143% of the TS limit.

On Decembe 27, 1990 SI-410.2 revision 12 and TI-18 revision 2 ere issued. These procedure revisions included the detector sensitivities from the April 1979 GA Calibration Report and raised the Noble gas CVI setpoint to 75 f the TS limit. The sensitivities were about 5% less t n t used in the SQP900281PER operability evalu because a more conservative approach was used interpreting the GA calibration data. However, when e oble gas setpoint were further corrected for chamber essure, the CVI could have occurred as high as 113% above the TS limit.

Revision 24 to TI-18 also l er e CRI setpoint on the Main Control Room Noble gas i s RM-90-125 and 126 to 253 cpm. When this setpoint is c ected for chamber pressure, the monitor could CRI s high as 382 cpm. his is less than the TS limit of 400 m.

C. Immediate Corrective Actions

Based on a table, "Correction f r Sample Chamber Pressure", provided by the ven or for the model RD-52 gas detector the System Engineer d termined that if the Noble gas detector chamber vacuum did not exceed 10 IN Hg below atmospheric pressure, there was sufficient margin in the CVI setpoint to accommodate the chamber vacuum error. This option was chosen over re ing the monitor CVI setpoint, because lowering the CVI setpoint would increase the chances of initiat g a CVI. The following actions were initiated:

1. The vacuum in RM-90-106, 112, 130, 131, 125, and 126 were immediately verified by the System Engineer to be less than 10 IN Hg.
2. The MIG Group initiated a program of reading the vacuum on the above monitors twice per shift to verify the vacuum to be less than 10 IN Hg.
3. The MIG procedures SI-302 and SI-302.2 were revised to lower the vacuum alarm setpoint to 9 ± 1 IN Hg.
4. The performance of SI-302 and 302.2 with the revised vacuum alarm points was completed on November 14, 1992 and the twice per shift reading of the RM vacuum levels was suspended.

ANALYSIS OF THE EVENT

A. Evaluation of Plant Systems and Components

The two problems identified in this incident investigation, non-conservative Noble gas detector sensitivities and no correction for gas chamber pressure, are applicable to all GA model RD-32 Noble gas detectors. the specific monitors are as follows:

1,2-RM-90-99
0-RM-90-101B
1,2-RM-90-106B
1,2-RM-90-112B
0-RM-90-118
1,2-RM-90-119
0-RM-90-125
0-RM-90-126
1,2-RM-90-130
1,2-RM-90-131
0-RM-90-132B
0-RM-90-205
0-RM-90-206

TS monitors

The MCR Noble gas monitors RM-90-125 and 126 were initially calibrated with the CRI setpoint at 350 cpm. When this value is corrected for gas chamber pressure, the CRI could occurred at 529 cpm. TS CRI setpoint is 400 cpm. This out of TS condition existed from initial licensing on unit 1 to December 27, 1990 when the CRI setpoint was reduced to 253 cpm (382 cpm when corrected for chamber pressure).

The containment atmosphere monitors, RM-90-106 and 112 CVI setpoints were initially at 10% of the TS limit. The

containment purge Noble gas monitors RM-90-130 and 131 CVI setpoints were also initially at 10% of the TS limit. Though the Noble gas CVI setpoints were raised to 40% of the TS limit in 1982, sufficient margin still existed to accommodate the use of non-conservative detector sensitivity values and applying no correction for gas chamber pressure. On April 26, 1990 the CVI setpoint for these detectors were raised to 70% of the TS limit. Late in 1990 the CVI setpoint was raised to 75% of the TS limit. At this point sufficient margin no longer existed to bound the above errors. These monitors remained outside the TS limits of TS 3.3.3.1 until November 6, 1992, when the gas chamber vacuum was verified manually to be less than 10 IN Hg below atmosphere. The vacuum was continued to be verified less than 10 IN Hg twice per shift until the high vacuum alarm setpoint was changed to 9 ± 1 IN Hg.

Though the other monitors shown in the above list could also have non-conservative alarm setpoints, they are not TS monitors. They monitor effluent stream, but have never been used to quantify Offsite Dose Calculation Manual (ODCM) effluent releases. All ODCM effluent releases are quantified samples analyzed in the Chemistry Laboratory test equipment.

The Particulate and Iodine monitors were calibrated with a solid source as opposed to a gas source for the gas monitors. Also, flow through the charcoal and particulate filters is and always has been adjusted to Standard Cubic Feet Per Minute (SCFM). The CVI setpoint for the RM-90-106, 112, 130, and 131 particulate monitors has always been maintained at less than or equal to 40% of the TS limit. Thus, sufficient margin has always existed.

There is an Eberline Noble gas detectors on the Condenser exhaust. This detector is not corrected for chamber pressure. The Eberline detector operates with a positive pressure in the chamber. Therefore, the RM output would be conservative.

There is a Sorrento Noble gas detector on the shield building exhaust. These detectors are digital detectors that have internal compensation for the detector chamber pressure.

INSTRUMENT INACCURACIES

Per Memorandum "STATE LICENSING POSITION ON INSTRUMENT INACCURACIES" (RIMS S1C [illegible] 0878), SQN Licensing position on the significance of instrument inaccuracies in

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selecting Technical Specification (TS) surveillance acceptance criteria can be based on quantitative evaluation of the margin available in each analysis. Determinations could then be made as to whether or not sufficient margin already exists in the safety limit determined by analysis to bound instrument inaccuracies.

0-RE-90-125 & 126

Per GDC 19, the exposure limit for control room personnel must not be in excess of 5 rem whole body, or it. equivalent to any part of the body, for the durat.. n of the accident. The 400 cpm TS limit is equiva.. t to 1.76E-5 μCi/cc. Using Xenon-133 the dose ra.. to control room personnel would be 0.614 mrem/hr o.. .. rem for 100 days.

1,2-RE-90-106, 112, 130 & 131

Per 10CFR20, no .. dividual shall receive a dose to the whole body in .. y .. riod of one calendar year in excess of 0.5 rem. .. e TS Radiation Monitoring setpoint is based if .. N .. ntinuously Purged 24 hours a day/365 days a y.. r .. would not exceed the 10CFR20 limit. However, T (3.6.1.9) on.. y allows each unit to Purge for .. 0 hours per ye.. r. .. herefore, there is significant ma.. in in the se.. oint to bound the instrume.. inaccuracies.

This demonstrates that there sufficient margin in the development of the TS limit to encompass instrument inaccuracies.

B. Evaluation of Personne. Perfo.. nance

The evaluation of the NRC IE N .. ce 82-49 was evaluated in part by several organizati .. The Instrument Maintenance Group evaluated .. ct of vacuum on rotometer indications. They concl.. ed they already corrected rotometer .. ding for va.. m to obtain SCFM values. The Chemistr.. Section eva.. ated the effects of vacuum on the charc.. al, .. articulat.. and gas samples obtained for anal.. s in the lab. Though, TI-18 states that the Chemistr.. ection is resp.. nsible for the Alarm setpoints for all .Ms, they did no.. evaluate the effects of vacuum on the RM gas detectors.

In the 1986-1987 time frame, a pr.. gram was instituted to verify and validate all procedure.. used .. o ensure TS compliance. The requirements of .. h .. pr.. gram were that

FI000121

all methods, techniques, calculations and requirements were to be traced to there source document. The engineers who evaluated TI-18 found the revised GA Calibration Report issued in April 1979, but did not include the revised sensitivities into the procedure. There is no indication that the NRC IE Notice was included in the review. The procedure was not revised to include as pressure correction allowance in determining gas detector setpoints.

On April 16, 1990 TI-18 and SI-410.2 were revised to raise the Noble gas CVI setpoint on RM-90-106, 112, 130, and 131 to 70% of the TS limit. The procedure review and revision process and the 10CFR50.59 process failed to identify the needed gas detector pressure correction and the use of old non-conservative detector sensitivity values. Though there were other procedure changes that also failed to identify these deficiencies, the significance of the April 1990 changes are they allowed the p. t to exceed the TS limits of TS 3.3.3.1.

C. Safety Consequences and Implications

As stated above, 1 & 2-RM-90-106 and 112, 0-RM-90-125 and 126 and 1,2-RM-90-130 and 131 were out of calibration such that their respective TECH SPEC dose limits during containment purging operation could have been exceeded. However, due to the reactor coolant gross activities during this time period and shield building vent monitors, there is a high level of confidence that the TECH SPEC dose limits would not have been exceeded in the event of a design basis accident or operational transients during containment purging. Justification to support this position is provided below.

EVENTS EVALUATED

The reactor coolant activities during the period of time the radiation monitor setpoints were out of specification will have a big impact on the radiation dose to the environment. Therefore, this evaluation will analyze the impacts of a Large Break LOCA, Small Break LOCA, and RCS Leakage, during containment purging activities with the subject radiation monitor out of calibration. In addition to these events the Fuel Handling Accident inside containment was evaluated. These conditions constitute the most limiting events for the subject radiation monitors being incorrectly setup.

LARGE BREAK LOCA

In the event of a LBLOCA, a safety injection signal would be generated 2.7 seconds Reference FSAR Table 15.4.1-7. This signal will initiate a containment isolation signal resulting in the activation of the Main Control Room Emergency Ventilation System (MCREVS) and the closure of the containment purge isolation valves. SI-166 documents the maximum allowable stroke time for the containment purge isolation valves (1 & 2-FCV-30-7 through 10, 14 through 20, 37, 40, 50 through 53, 56 through 59) as 4 seconds. FSAR Table 15.4.1-1a indicates the earliest nuclear fuel rod burst will not occur until 50.7 seconds. Therefore, only normal reactor coolant activities, not design basis activities, would be released into containment at the time of containment isolation. It is noted in this scenario that MCREVS activation and containment isolation would have been achieved successfully without the use of RM-90-106, 107, 125, 126, 130, and 131. It is concluded that this scenario would not have resulted in an unanalyzed conditions in the LBLOCA analysis provided in FSAR 15.4.1 or the Environmental Consequences of a Postulated LOCA provided in FSAR 15.5.3.

SMALL BREAK LOCA

In the event of a SBLOCA, a safety injection signal would be generated 58 seconds for a 2 inch break Reference FSAR Table 15.3.1-1. As mentioned above, this signal would result in the activation of the MCREVS and the initiation of a containment isolation signal without the use of RM-90-106, 112, 125, 126, 130, and 131. Also in this scenario, only normal reactor coolant activities would be released into containment at the time of containment isolation; see FSAR Table 15.3.1-1. It is concluded that this scenario would not have resulted in an unanalyzed conditions in the SBLOCA analysis provided in FSAR 15.3 or the Environmental Consequences of a Postulated LOCA provided in FSAR 15.5.3.

CALCULATED RCS LEAKAGES

SQNAPS3-063, Offsite and Control Room Operator Dose Due to a Small Line Break LOCA, calculated radiation doses at the site boundary, low population zone, and the control room operator in the event of a 4 inch small break LOCA. "For simplicity this calculation assumed the leakage from containment went directly to the environment for the entire 30 day time period (no EGTS). This leads to very conservative results as there is no hold up, dilution, deposition, and filtration of the radioisotopes considered as they are released from containment. It was

also assumed that there was no failed fuel" resulting from the SBLOCA. The source terms used in this analysis were taken from ANSI/ANS-18.1/1984, Radioactive Source Term For Normal Operation Of Light Water Reactors, which were used to determine the expected reactor coolant activities. It is noted this methodology has been incorporate into SQN design basis calculation SQNAPS3-047, Reactor coolant Activities In Accordance With ANSI/ANS-18.1/1984. Clearly, these assumptions bound the scenarios in question including RCS LEAKAGE during plant operations. The results of this analysis are provided below in REM.

Type of Radiation	Control Room Operator Dose	30-Day Low Population Zone	2-Hr Site Boundary
Gamma	7.19E-05	1.31E-02	1.10E-02
BETA	3.92E-04	3.68E-04	3.03E-03
Inhalation	5.43E-02	1.58E-01	1.31E+00

The control room operators will receive doses much less than the 10CFR50 GDC 19 criteria of 5 rem whole body, 30 rem beta, and 30 rem thyroid. The calculated 2 hour Site Boundary and the 30 day Low Population Zone doses are well within the NRC 10CFR50 GDC-19 and 10CFR100 limits.

ACTUAL RCS ACTIVITIES

Thus far in this evaluation it has been determined only normal reactor coolant activities would have been released into containment up to the time the safety injection signal would result in the activation of the MCREVS and the initiation of a containment isolation signal independently of the subject radiation monitors. Therefore, the radioisotopes associated with only normal reactor coolant would be mixed in containment purge effluent. Subsequently a review of actual RCS source terms continuously being circulated in the RCS primary coolant and interconnecting systems during routine plant operations was warranted This task required a review of SI-54 , Reactor Coolant E-Bar Determination data to evaluate SQN RCS actual gamma activity for normal plant operations over the past 12 years. This data was compared to the gamma activity provided in ANSI/ANS-18.1/1984. The attached graphs, Figures 1 and 2, reveal SQN Units 1 and 2 actual gamma activities are bounded by the expected primary coolant activities in ANSI/ANS-18.1/1984. This trending indicates the plant has operated within 33% of the ANSI/ANS-18.1/1984 RCS gamma activities.

FAILED FUEL REPORTS

FI000124

Since SQNAPS30047 assumes the dose rates from the plants components were based on an assumed 0.125% failed nuclear fuel per reactor core, it was prudent to review and compare the SQN nuclear fuel performance report following each refueling to the calculated values of failed fuel.

Given below are the actual numbers of failed fuel obtained from SQN Fuel Performance Summary Reports

CORE RELOAD	UNIT 1 FAILED FUEL	UNIT 2 FAILED FUEL
CYCLE 1	5	4
CYCLE 2	5	4
CYCLE 3	2	6
CYCLE 4	6	7
CYCLE	6	1

The above data show a maximum of 7 failed fuel rods is bounding for SQN to date. SQN FSAR Table 4.1-1 indicates the reactor core contains a total of 50,952 fuel rods. Therefore, SQNs actual worse case failed fuel ratio is 0.0001374 which is bounded by a factor of 9 by the assumed 0.125% failed fuel rods. This trending indicates the plant has operated with a reactor core better than expected by the industry standards.

FUEL HANDLING ACCIDENT

In the event of a FHA inside containment during containment purging operations, the radioisotopes from the accident would be exhausted through the containment purge ducts. The containment purge ducts houses the Shield Building Vent Radiation Monitors located down stream of the Containment Purge Radiation Monitors. These monitors do not provide a safety control function however, they do provide an alarm and indication in the main control room at 10' (31100 microCi/sec) of the ODCM or TECH SPEC value based on Xe-133, reference TI-18, Radiation Monitoring. As mentioned earlier, the Containment Purge Monitors were incorrectly calibrated at 75% of this value. Therefore, the operator would have been alerted to take the correct actions to mitigate the event. Furthermore, during nuclear fuel movement, TECH SPEC 3/4.9.5 requires direct communications be maintained between the main control room and the operators at the refueling station. This requirement is administratively

controlled via FHI-7, Refueling Operation.

FSAR 15.5.6, Environmental Consequences of a Postulated Fuel Handling Accident was performed in accordance with REGUIDE 1.25. One the assumptions provided in REGUIDE 1.25 requires all activity is assumed to be released over a two hour time period. The results of this analysis indicates the doses are less than the 10CFR100 values of 300 rem to the thyroid and 25 rem to the whole body.

Clearly the assumption allowing a release up to two hours bounds the requirement of direct communications be maintained between the main control room and the operators at the refueling station. Therefore, it is concluded that this scenario would not have resulted in an unanalyzed conditions in FSAR 15.5.6.

CONCLUSION

Given the existing hardware and administrative controls that are in place the 10CFR100 exposure limits would not have been exceeded in the event of a Large Break LOCA, Small Break LOCA RC[illegible]akage, or Fuel Handling Accident inside containment during containment purging activities with the subject radiation monitor's setpoint out of calibration. These conditions constitute the most limiting events for the subject radiation monitor's setpoint being out of calibration.

VI. EXTENT OF CONDITION

The conditions of old non-conservative gas detector sensitivities and the absences of a gas detector pressure correction is applicable to all G[illegible]odel RD-32 gas detectors. The Eberline condense vacuum pump exhaust gas detectors do not compensate for gas chamber pressure. However, they operate at a positive pressure which is conservative. The Sorrento model RD-52 gas detectors are digital and internally compensate for detector chamber pressure. The internal compensation for gas chamber pressure in the model RD-52 is a constant based on a value derived from a test.

V. PREVIOUS SIMILAR EVENTS

A review of the Licensee Event Report (LER), Nuclear Experience Review (NER), and the Tracking and Reporting of Open Items (TROI) data bases were conducted to identify any previous similar events.

The key words used for the NER search were **RADIATION MONITOR** and **SETPOINT**. 132 NER events were identified and none of these events were similar to this problem.

The same keywords were used in the LER data base search. 159 LER events were identified. These events were reviewed and determined not to be applicable to this subject.

The keywords used for the TROI search were all **SYSTEM 90** documents. 422 TROI documents were identified. One document was found to be applicable. SQP900281PER was written to document the wrong sensitivities were being used to calculate RM setpoints. The corrective action associated with this PER could not have prevented this event from occurring.

NRC IE Notice 82-49, Correction For Sample Conditions for Air and Gas Monitoring, was identified by personnel involved in the investigation. The Sequoyah response to this notice was inadequate. No corrective action was identified. Had this notice been properly evaluated, this event could have been prevented.

VI. ROOT CAUSE

A. In 1979 a revision to the GA Calibration Report was issued. A trace of the paper shows that this report was transmitted to the TVA Office of Engineering Design in Knoxville, Tennessee. Though it can not be established how, the Sequoyah Instrument RM engineer received a copy of this revision. The Chemistry Section never received a copy of the revised report. There did not exist a programmatic barrier to ensure that changes were reviewed by all appropriate organizations. The root cause of was changes were not adequately communicated.

B. NRC IE Notice 82-49 was issued in 1982 that specifically deals with the effects of pressure on the response of gas detectors and the effects of pressure on the indication of rotometers. The Sequoyah response was inadequate. This is deemed an inappropriate action, because an adequate evaluation of this notice would have prevented this event. The notice was evaluated in part by various plant organizations. The Instrument Maintenance Group evaluated the effects of pressure on rotometers measurements, and determined plant procedures adequate. The Chemistry Section evaluated the effects of pressure on the iodine, particulate, and gas samples and determined the plant procedures to be adequate. The effects of vacuum on the RM gas detector was omitted from

the evaluation. No one address the notice from the big picture, only in part. The root cause was there was no methods in place to ensure interdepartmental communications.

C. The SI validation and verification program failed to identified the need to correct the RM gas detectors for chamber pressure. The review identified the revised GA Calibration Report issued in 1979, but did not include the revised values in TI-18. The cause of this omission could not be determined. The personnel from Watts Bar who performed this review are no longer available to interview. However, it is believed that their mindset would be the same as the mindset in Sequoyah Chemistry Department. This barrier failed because management method did not ensure ownership of all aspects of the RMs. The Chemistry personnel focus on effluent quantification and ODCM methodology. The RM setpoints and setpoint methodology were controlled by plant procedures and did not adequately address all necessary aspects. The root cause is lack of engineering control of RM setpoints and setpoint methodology.

D. In April of 19[illegible] an inadequate review was performed on revisions to the plant procedures which controlled the CRI setpoints for RM's. This action is determined inappropriate because the consequences allow the plant to violate the TS limits of TS 3.3.3.1. The reasons and causes are the same as those for the inadequate SI verification and validation actions.

I. CORRECTIVE ACTIONS

A. There exist today an NER program that will ensure all revised vendor information is reviewed for applicability by all appropriate organizations. Thus, There is no action needed to correct root cause A.

B. The action for root causes B, C, and D are as follows:

1. Define responsibilities for all aspects of RMs. This action is complete. An agreement on responsibilities is attached

2. Document responsibilities determined in action B.1 in appropriate plant documents.
SQO/CEM/WFJ; SQO/RAD/CEK; SQO/MG/RDP;SQO/ICE/RKG;
SQP/LMN/VAB
Due 1/15/93

3. Revise TI- to address methods of accounting for gas

detector chamber vacuum.
SQO/CEM/WFJ
Due 12/11/92

4. Determine the bases for values of TS 3.3.3.1 and Table 3.3-6. Determine if TS changes are necessary.
SQP/LMN/VAB
Due 1/29/93

5. Provide SSDs for RM with TS setpoints
SQP/LEE/CRB
Due 2/26/93

6. Revise the SSD for the RM high vacuum malfunction alarm from a setpoint value of 12 ± 1 IN Hg to 9 ± 1 IN Hg.
Resp: SQP/LEE/CRB
Due 2/19/92

l actions have been coordinated withthe responsible parties.

II.OTHER OBSERVATI · AND ACTIONS

A. The NER database search did not reveal the NRC IE Notice 82-49. The NER keywor . indexes should be revised to ensure this notice will be picked up by searches for Radiation Monitors.
Resp: Licensing/Jim Smith
Complete

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RESPONSIBILITIES FOR RADIATION MONITORS

Maint - Responsible for corrective and preventative maintenance, calibration of RMs

Chem - Responsible for setpoints on effluent and process RMs (anything that readout in cpm or μCi/cc) and ODCM methodology including inaccuracies. They are considered the end user of the equipment and should oversee the daily performance including trending and results of RMs.

Rad Con- Responsible for RMs that read out in dose rate units. They are considered the end user of these RMs and should include the oversight of RM performance, trending and results.

T/S - Provide oversight for the RM system. This includes maintenance and calibration procedures as well as system health and upgrade.

NE - Provide the design basis of the RM system. The are the owner of TS setpoints.

J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. S92080
II Action Item Sequence No. 02

I request that the referenced TROI action be ☒ closed as complete.

☐ extended to _____.

Basis for extension/closure:

Site Standard Practice, SSP-13.1, Conduct of Chemistry was revised on 12/9/92 and contains the responsibilities for the Chemical Section on effluent radiation monitors. (See Attached)

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy).
SSP-13.1; REV 3 Dated 12/9/92

William F. Jones 1/14/92
SIGNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated
1-14-93
PJS

☐ This extension does not impact nulcear safety or plant operability.

☐ Alternate Corrective Action.

_____ / _____
EVENT MANAGER / DATE

_____ / _____
PLANT MANAGER / DATE
OR DEPT MGR FOR CATEGORY 3

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Category 3) is required for all action data extensions and for closure when action taken is difference from the approved corrective action in the Final Event Report.

JHH:PMB

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PL090205/1317

1

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

SITE STANDARD PRACTICE

SSP-13.1

CONDUCT OF CHEMISTRY

Revision 3

PREPARED/PROOFREAD BY: Mike Goodson DATE: 12/2/92

SIGNATURE Mike Goodson per Telecon AE Richie

RESPONSIBLE ORGANIZATION: Chemistry

APPROVED BY: [signature] DATE: 12/1/92

EFFECTIVE DATE: 12/9/92

VERIFICATION DATE: N/A

REVISION DESCRIPTION: This revision modifies chemistry limits and sampling frequencies for various plant systems. Additional guidance for implementing and maintaining a data assessment program and recommendations for implementing and monitoring overall program responsibilities are provided in this revision. This revision will control systems 14 and 43 Chemistry annunciator/alarm setpoints to ensure compliance to current Chemistry standards. DCNs M08902A and M08903A on Unit 1 and Unit 2 respectively removed annunciator/alarm control from plant Instrument Tabulation drawings.

FI000135

3.7 Bulk Chemical Specifications

Strict criteria for system chemistry control at SQN requires that bulk chemicals and materials used in systems be controlled to prevent contaminant introduction and ensure system operability. Guidelines and requirements for bulk chemicals are delinerated in Chapter 10 of the Nuclear Power Chemistry Manual. These requirements are based on regulatory criteria, plant system vendor specifications and industry best practices. The guidelines will be strictly adhered to for chemicals coming in contact with CSSC equipment.

The Chemistry Department shall verify the proper location for all site chemical and fuel oil deliveries and discharges. Control will be maintained by locking all unloading and transfer valves. Control of chemicals at SQN is further delinerated in SSP-13.2 "Chemical Traffic Control (CTC) Program".

3.8 Radioactive Effluents

The Chemistry organization shall have a radioactive effluents monitoring program, as required by the site administrative Technical Specifications, established in the Offsite Dose Calculation Manual (ODCM).

Corporate Chemistry is responsible for establishment and maintenance of a meteorology program which complies with the requirements given in 10 CFR 50.

In accordance with Sequoyah Technical Specification Administrative Section, the radioactive liquid effluent monitoring instrumentation channels shall be operable with their alarm/trip setpoints set to ensure that the limits of the ODCM are not exceeded.

Effluent radiation monitor backgrounds should be monitored and maintained as low as possible to ensure accurate effluent monitoring. The setpoint for the effluent radiation monitor will routinely be set at a small fraction above the expected response and will alarm or automatically terminate the release. The termination of the release will initiate an evaluation into changes in the release pathway, radioactivity levels, monitor backgrounds, changes, etc.

Effluent release monitoring will also be evaluated for Regulatory Guide 1.21 compliance. Representative sampling verification, effluent radiation monitor response versus expected response, etc., any anomalies will be evaluated and corrective action taken.

3.9 Instructions

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J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item # TIS92080
II Action Item Sequence No. 03

I request that the referenced TROI action be [X] closed as complete.

[ ] extended to _____.

Basis for extension/closure:

Rad. Monitor responsibilities in CAM's and ARM's documented in RCI-5, Radiological Control Instrumentation Program, page 5, section 5.6.5.

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy

Richard Holte for Charles Kent 1-14-93
SIGNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated 1-14-93 PMB

[ ] This extension does not impact nuclear safety or plant operability.

[ ] Alternate Corrective Action.

_____ / _____
PLANT MANAGER / DATE

The plant managers approval is required for action date extensions and for closure when action taken is different from the approved corrective action in the Final Event Report.

JHH:PMB

1159y

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TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

RADIOLOGICAL CONTROL INSTRUCTION

RCI-5

RADIOLOGICAL CONTROL INSTRUMENTATION PROGRAM

Revision 16

PREPARED/PROOFREAD BY: Steven R. Bradley DATE: 1-13-93

SIGNATURE: Steven R. Bradley

RESPONSIBLE ORGANIZATION: Radiological Control

APPROVED BY: Charles Kent DATE: 1-14-93

EFFECTIVE DATE: 1-15-93

REVISION
DESCRIPTION: Revised to incorporate monthly response checks for electronic dosimeters and make minor editing changes.

FI000135

5.6 Instrument Control (Continued)

5.6.3 RADCON portable instrumentation available for use shall be in a well defined area separate from other instruments.

5.6.4 Individuals that use radiation protection equipment are required to adhere to the RADCON instructions that dictate the use and handling of the equipment.

5.6.5 RADCON will monitor the availability of the plant general area continuous air monitors (CAM) and area radiation monitors (ARM) and will provide management oversight for these instruments.

QUALITY ASSURANCE PROVISIONS

None.

FI000136

5h/dar

J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. 592080
II Action Item Sequence No. 04

I request that the referenced TROI action be [X] closed as complete.

[ ] extended to _____.

Basis for extension/closure:

The Maintenance Responsibilities for all instrumentation is stated in SSP 6-1, "Conduct of Maintenance." There are no Separate Responsibilites for Rad Monitoring Instrumentation.

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy)

[signature] 1/11/93
SIGNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated 1-12-93 PLS

[ ] This extension does not impact nulcear safety or plant operability.

[ ] Alternate Corrective Action.

_____ / _____
EVENT MANAGER / DATE

_____ / _____
PLANT MANAGER OR DEPT MGR FOR CATEGORY 3 / DATE

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Category 3) is required for all action data extensions and for closure when action taken is difference from the approved corrective action in the Final Event Report.

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JHH:PMB

PL090205/1317

1.0 INTRODUCTION

Maintenance has a primary role in ensuring safe and reliable nuclear power facility electrical generation. To carry out this role, management endorses a strong maintenance philosophy based on a sound set of standards, values, convictions, and principles. That philosophy is established and implemented by this Site Standard Practice.

The guidelines of this Site Standard Practice conform to INPO 85-038 *Guidelines for the Conduct of Maintenance at Nuclear Power Stations*.

1.1 Purpose

This Site Standard Practice provides requirements, guidelines, and instructions for the conduct of maintenance to ensure maintenance activities are conducted in an effective, consistent manner in accordance with the operating license, plant procedures, and applicable regulatory requirements. Additionally, this Site Standard Practice presents and endorses a professional code provided on Appendix A *Maintenance Professional Code*.

1.2 Applicability

This Site Standard Practice applies to all personnel (TVA and contractor) involved in the administration, planning, scheduling, supervision, and performance of maintenance activities or functions at TVA's nuclear facilities. The requirements of this Site Standard Practice also apply to maintenance activities performed by nonnuclear Power organizations on plant equipment.

2.0 REQUIREMENTS

2.1 Maintenance Organization and Administration

2.1.1 Management Standards and Expectations

In order for the Maintenance Organization to function effectively, the following management standards and expectations are established for all Maintenance employees.

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→ 1

2.1.1 Management Standards and Expectations (Continued)

All Maintenance Employees

A. STRIVE to achieve the highest level of technical competence in his or her discipline--become the expert in their skill.

B. CONSIDER personal safety and the safety of others as being the utmost in the performance of any activity, AND

COMPLY with site safety rules and the use of safety equipment at all times.

C. PAY attention to the minute details of each task performed, AND

VERIFY each detail is correct, AND

ENSURE every activity is done right the first time.

D. COMMUNICATE effectively:

1. ESCALATE problems.

2. REPORT deficiencies quickly.

3. PROVIDE input to problem resolution.

4. ASK questions.

5. LEARN and USE the communication systems such as conditions adverse to quality reports, work requests, and suggestion programs.

6. TALK to their supervisor.

It takes each employee's contribution to ensure success.

E. SUPPORT a team approach to activities and the conduct of daily routines.

It is never their problem--it is always ours.

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2.1.1 Management Standards and Expectations (Continued)

All Maintenance Employees (Continued)

F. THINK problems and tasks through--be creative when deriving resolutions.

Application of new technologies and approaches is promoted.

G. BE accountable for the quality and efficiency of his or her work, including technical correctness of the work, housekeeping, safety, and so forth.

H. CONSIDER dose reduction in every task as low as reasonably achievable (ALARA).

Is there a better way to do the task at hand to minimize dose?

I. CONSIDER shielding, flushing the system, use of glove bags, and so forth.

J. RESPONSIBLE for not to work both mentally and physically fit to perform their duties.

The requirements of the Fitness for Duty Program are delineated in SQA80.3.13 *Fitness for Duty Program.*

K. MAINTAIN the plant to design conditions, AND

OBTAIN approval for any deviation from design configuration by the appropriate design control process such as a design change request and so forth in accordance with the following implementing documents:

1. AI-19 (Part VI) *Modifications: Permanent Design Change Control Program*

2. AI-9 *Control of Temporary Alterations and Use of Temporary Alterations Order.*

L. PROTECT plant equipment, AND

DO NOT LEAVE equipment open and unattended.

M. USE the correct tool properly, AND

RETURN the tool to the correct location when a task is complete, AND

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DO NOT ABUSE tools.

2.1.7 Specific Group Manager Duties and Responsibilities (Continued)

Instrument Maintenance Group Manager

C. RESPONSIBLE to the Maintenance Manager for the management of the following areas:

1. Maintenance of plant process instrumentation.

2. Maintenance of plant security equipment.

3. Maintenance of plant installed radiation/contamination monitor.

4. Instrument Calibration Program (SQE8 *Control of Installed Permanent Process Instrumentation*).

5. Housekeeping for instrumentation shops and offices.

6. Instrumentation repair and test capabilities.

Maintenance Support Group Manager

D. RESPONSIBLE to the Maintenance Manager for the management of the following areas:

1. Management of support craft activities (laborers, carpenters, sheet metal workers, painters, asbestos, and composite crew).

2. Plant protective coating and preservation efforts.

3. Thermal insulation and fire barrier integrity.

4. Scaffold Program.

5. Plant Housekeeping and Foreign Material Exclusion Program.

6. Tool Room operations, Tool Control Program, and tool maintenance.

7. Measuring and Test Equipment (M&TE) Program.

8. Asbestos removal and control.

9. Executing warehouse preventive maintenance.

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J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. IIS 92080 VII-B 2
II Action Item Sequence No. 05

I request that the referenced TROI action be [X] closed as complete.

[ ] extended to _____.

Basis for extension/closure:

Per the System engineers responsibilites as defined in SSP 8.50 Rev 2 "Conduct of Technical Support", T/S responsibilites as defined by this II are documented

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy).

RK Hladny 11/15/93
SIGNATURE (II/ACTION SUPERVISOR) / DATE
PLS

[ ] This extension does not impact nuclear safety - plant operability.

[ ] Alternate Corrective Action.

TROI update 1-6-93 PLS

EVENT MANAGER / DATE

PLANT MANAGER / DATE
OR DEPT MGR FOR CATEGORY 3

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Category 3) is required for all action date extensions and for closure when action taken is difference from the approved corrective action in the Final Event Report.

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2.3 Technical Support System Engineers Responsibilities

NOTE 1 Qualifications, training requirements, and experience necessary to perform engineering functions shall be of primary concern when assigning system engineering responsibilities to an individual.

NOTE 2 In general, an individual assigned to perform as a system engineer will normally be assigned direct responsibility for one to four systems. However, this will be determined by a Technical Support Section Supervisor based on the knowledge, training and experience of the individual and the complexity of the system to which the individual is assigned.

A. Improve the reliability and performance of assigned system(s).

B. Perform walkdowns in accordance with memorandum, "SQN-Walkdown Program - Technical Support", (S57 900117 800). This includes, but is not limited to:

1. Maintaining a regular presence in the field.

2. Initiating corrective action, if necessary.

3. Monitoring performance indicators to ensure reliable system operation.

C. Discuss the operation and maintenance of assigned system(s) with Operations personnel and maintenance planners, to help identify any recurring abnormal operational or maintenance conditions. This includes review of appropriate logs and instrumentation data.

D. Trend important system parameters such as flow rates, pressure, electrical voltages, etc., to identify deteriorating system performance. [C.2]

E. Initiate corrective actions prior to a failure or forced outage; such as, providing input to the PM program for new or revised requirements.

F. Evaluate significant changes or developing trends and recommend appropriate corrective actions to the Immediate Technical Support Section Supervisor. [C.2]

G. Provide technical assistance to other sections in writing/revising instructions, proposed Technical Specifications changes, and FSAR revisions.

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2.3 Technical Support System Engineers Responsibilities (Continued)

H. Determine potential problem equipment to be trended in the assigned system(s) and provide documented rationale for the determination of the equipment and applicable performance indicators to be trended. Trending of selected equipment may include device drift found at calibration intervals, conditions found during SI, WO, and/or PM performance, status/condition of equipment during system walkdowns, Nuclear Plant Reliability System (NPRDS) and Equipment Management System (EMS) failure reports, etc. Methods available to the SE for use in determining the equipment to be trended includes engineering judgement, base equipment history, and Reliability Centered Maintenance ("RCM") methodology contained in SSP-6.51. The information trended should be used to predict failures resulting in increased unit availability, reliability, and performance. Special trending requirements are outlined in Appendix C. [C.2 and C.3]

NOTE Component Failure Analysis Reports (CFARs) will be analyzed by a representative from [illegible] to deal with component failures across system boundaries. [C.2 and C.3]

I. Evaluate NPRDS and EMS failure reports (SSP-6.4) for the SE assigned system(s) to determine if (1) a failure of the device actually occurred or if something else resulted in the condition of the device, and (2) an undesirable trend has developed with the component. The SE review and response to the NPRDS and EMS failure reports shall be completed and documented within 30 days of receipt from the Special Projects/Trending Supervisor. Undesirable trends will be reported to the immediate Technical Support Supervisor. [C.2 and C.3]

J. Maintain System Notebooks in accordance with Appendix E.

K. Perform a technical review of new or revised instructions, as assigned, prior to implementation.

L. Revise as necessary, any instructions that Technical Support is responsible for and is applicable to their assigned system(s).

M. Review workplans for impact on system interactions, maintainability, system configuration changes, and adequacy of testing performed to validate the system performance after modification.

N. Review (periodically) work requests (WRs) to maintain a familiarity of maintenance activities and help identify and evaluate repetitive failures of equipment.

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2.3 Technical Support System Engineers Responsibilities (Continued)

O. Assist in the specification of post maintenance testing as requested by other site sections.

P. Review (periodically) the performance of post maintenance testing activities to ensure the adequacy of testing.

Q. Review Design Change Requests (DCRs) applicable to assigned system(s) for need and priority prior to management's approval.

R. Recommend changes in system design as a result of items identified through the Nuclear Experience Review (NER) process. This may include contacting other sites or utilities to evaluate items potentially applicable to Sequoyah. Maintain a copy of appropriate NER correspondence in the system notebook. (Reference SSP-4.4)

S. Perform investigations on items which are not resolved by routine maintenance activities. This may include developing root cause analyses or writing and performing special tests to obtain adequate information to evaluate system performance and/or resolve the root cause of a system malfunction.

T. Assist and/or perform the investigation of reportable occurrences or significant operating events.

U. Develop programs, analyses, and reports to respond to new or revised regulatory requirements and requests. (Includes NRC bulletins, Generic Letters, and notices that require technical responses to meet regulatory deadlines.)

V. Provide input to annual SAR updates.

W. Provide input to plant schedules for system outages, testing and investigations.

X. Perform project management functions for outage related activities as assigned.

1. For major maintenance activities as assigned.
2. For section equipment as assigned.

Y. Evaluate adequacy of system technical information.

1. Technical manuals.
2. Drawings.
3. Site procedures as assigned.

Z. Support/assist administratively.

1. INPO/NUREG/Generic Letter review, NER program, etc.
2. Licensee Event Report preparation.
3. Follow up on plant safety committee requests/commitments

2.3 Technical Support System Engineers Responsibilities (Continued)

AA. Investigate drawing deviations between design and as-built configuration. (Reference SSP-2.11)

BB. Establish system/component service/life limitations.

1. Review operational requirements to identify most limiting components (i.e., elastomers, solenoids, motors, etc.)
2. Maintain knowledge of system/component life status.

CC. Perform periodic evaluations of:

1. Products of the Corrective Action Program
2. Safety evaluations
3. Test deficiencies
4. Drawing deficiencies
5. M&T out of calibration
6. TACF

DD. Coordinate/obtain vendor support as required.

EE. Assist maintenance groups with equipment testing and craft support as assigned.

FF. Submit a monthly letter to their assigned supervisor in accordance with the format of Appendix B.

GG. Ensure all activities which directly/indirectly affect reactivity management are reviewed by Reactor Engineering (Reference SSP-12.17).

2.4 System Engineer Certification

2.4.1 Certification Record

The Certification Record (Appendix A) is to document completion of training that demonstrates attainment of the System Engineer Certification. Completion of this certification is not required for performance of the duties and responsibilities outlined in Section 2.3. These duties will be assigned to individuals based on the judgement of the Technical Support Supervisors.

TECHNICAL SUPPORT MISSION STATEMENT

The mission of Technical Support is to provide technical leadership for Sequoyah Nuclear Plant through optimization of system performance and reliability, quality management of reactivity and assigned engineering programs, proactive identification and resolution of plant issues, initiation of design modifications and technical assistance to the Operations and Maintenance departments. With regard to these areas, the following functions are performed. This Attachment may be updated at any time with the approval of only the Technical Support Manager.

_____ /
Technical Support Manager Date

1. **Plant Performance**

   Establish plant performance monitoring activities to optimize plant reliability and efficiency by routinely collecting, trending and analyzing performance data such as thermal, hydraulic, electrical, acoustical, and mechcanical data for equipment, systems, and components important to plant reliability and efficiency. Performance data is analyzed, and the results are used to proactively predict and correct degrading performance. Serve as the technical lead in resolving identified problems.

2. **Reactivity Management**

   Technical Support, and in particular the Station Reactor Engineer, has the overall responsibility for ensuring that the operation of the reactor core is compatible with the cycle goals, and that the fuel remains within its design basis. Reactivity management comprises all aspects of how Sequoyah is operated, and our philosophy of reactivity management demands that (Reference SSP-12.17).

   A. All planned reactivity changes are conducted in a controlled manner.

   B. The effects of reactivity changes are known and monitored.

   C. Any anomalous indication is met with conservative action.

3. **Program Management**

   Directs the development of assigned programs and provides technical direction for ongoing implementation of these programs.

   - Section XI Repair and Replacement
   - Section XI System Test (Hydro's)
   - Section XI Pumps and Valves
   - Appendix J (LLRT AND CILRT)
   - Heat Exchangers
   - Fire Protection
   - [illegible]nse Time Test
   - Compliance Instrument (TI-54)
   - Software Change Control
   - Unit Performance
   - TACF's
   - [illegible] Valves (SOER 86-003)
   - [illegible] Equipment

FI000147

J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. S92080

II Action Item Sequence No. 6

I request that the above referenced TROI action be [X] closed as complete.

[ ] extended to _____.

Basis for extension/closure:

See the attached.

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy).

VA Bland / 1/13/93
SIGNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated
1-14-93
PLS

[ ] This extension does not impact nuclear safety or plant operability.

[ ] Alternate Corrective Action.

_____ / _____
PLANT MANAGER / DATE

The plant managers approval is required for all action date extensions and for closure when action is different from the approved corrective action in the Final Event Report.

:VGT
PL025N08--ID 51

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IIS92080 TROI SEQUENCE 6:

IIS92080 TROI Sequence # 6 may be closed due to the existing administrative controls. STD-9.4 Configuration Management Control indicates "site Engineering Managers have management responsibility for establishing and maintaining design basis documents for their sites (except for nuclear fuel components; see Nuclear Power Standard 9.1) and are accountable for the quality and completeness of the design basis within their scope." This requirement has been satisfied with the Radiation Monitoring System Design Criteria (SQN-DC-V-9.0) and its references. The attached sheets from the said documents support this position.

Calvin W. Burrell 1/13/93
Calvin W. Burrell, Jr./Date
Paperer

V A Bianco 1/13/93
Vince A. Bianco/Date
Reviewer

F1000149

1.0 PURPOSE

This standard establishes the requirements and responsibilities for the documentation of plant design basis and configuration, and for configuration control.

2.0 SCOPE

The configuration management program defined in this standard identifies documented design requirements, ensures the design is properly implemented, documents the actual plant configuration, and controls configuration throughout the life of the plant. Changes to plant configuration and the updating of configuration documents to incorporate those changes are covered in Nuclear Power Standards 9.2, 9.3, and 12.4.

This standard applies to TVA employees and contractors involved in activities that affect nuclear plant configuration.

3.0 INSTRUCTIONS

Configuration management is an integrated process that ensures (a) that plant structures, systems, components, and computer software conform to approved design requirements, and (b) that a plant's physical and functional characteristics are accurately reflected in plant documents and data systems.

3.1 Design Basis Documentation

The design basis for each nuclear plant shall be established and documented.

3.1.1 The Chief Engineer, Corporate Engineering, provides (a) requirements or criteria for identifying and scoping design basis documents, and (b) defines the engineering processes followed in producing design basis documents. These requirements, criteria, and processes shall:

A. Ensure that environmental qualification of safety-related equipment is included, as appropriate, in the design basis.

B. Establish and define design responsibilities and interface controls to facilitate preparation, review, approval, release, distribution, and revision of documents involving design interfaces.

C. Implement the applicable requirements of ANSI N45.2.11-1974 and Regulatory Guide 1.64, Rev 2, 1976.

3.1.2 Site Engineering Managers have management responsibility for establishing and maintaining design basis documents for their sites (except for nuclear fuel components; see Nuclear Power Standard 9.1) and are accountable for the quality and completeness of the design basis within their scope. Site engineering managers ensure that (a) personnel who prepare, review, approve, issue, and revise those design basis documents are trained in the applicable established engineering processes, and (b) requirements, criteria, and engineering processes for documenting design basis are implemented.

3.1.3 The Nuclear Fuel Manager manages establishment of fuel component-related design basis documents for each site, and is accountable for the quality and completeness of the design basis for nuclear fuel components. The Nuclear Fuel Manager ensures that (a) personnel who prepare, review, approve, issue, and revise those design basis documents are trained in the applicable established engineering processes, and (b) requirements, criteria, and engineering processes for documenting design basis are implemented.

3.2 Plant Configuration Documentation

The plant configuration shall be established and documented for each nuclear site. Plant configuration includes the physical arrangements and functional attributes of structures, systems, and components, and the computer software, procedures, and other documents that effect functional control of those structures, systems, and components.

Each Site Vice President may, with the Chief Engineer's concurrence, establish an Exclusion List that identifies site items not subject to configuration management. The Exclusion List may include only structures, systems, or components that are not quality-related and are not described in the plant Safety Analysis Report. When an Exclusion List is established, the Site Vice President must implement controls to ensure that the list is maintained current.

3.2.1 The Site Vice President shall establish and ensure implementation of the processes and controls required to accomplish documentation of plant configuration. These processes and controls shall detail responsibilities of and interfaces between involved organizations, and shall provide controls for transmittal of configuration information between organizations. The interface controls shall provide for verifying the quality of information transmitted between site organizations.

FI000151

1.0 SCOPE

1.1 Scope

This document will ultimately include the design criteria for all monitor channels of the plant radiation monitoring system (System 90).

The second revision of Design Criteria SQN-DC-V-9.0 was written specifically to satisfy one of the system inputs to the Restart Design Basis Document (RDBD), revision 1. Therefore, it addressed the design basis of those monitors of the radiation monitoring system that are within the restart system boundaries defined in the SQN-OSG7-048, revision 5, calculation (reference 6.1.1). The second revision also included the design criteria of other monitors that were included in an earlier revision of SQN-OSG7-048.

The third revision of Design Criteria SQN-DC-V-9.0 includes all criteria of the second revision and incorporates DIM-SQN-DC-V-9.0-3. The third revision expands those criteria to include the design requirements for all monitor criteria needed to satisfy commitments made to the NRC in CCTS No. NCO86-0[illegible]-00[illegible] The criteria for several additional monitors were available and are also added in the third revision.

A future revision of the design criteria will add the design requirements for all other monitors of the radiation monitoring system. Design requirements for some of these monitors are provided in the first revision of this design criteria. To preserve the documentation of these requirements until they are incorporated in the future revision, the first revision is enclosed as Attachment A.

All regulatory requirements and TVA commitments for implementing Regulatory Guide 1.97 Revision 2 have been incorporated by Revision 4. If a discrepancy is found to exist between this design criteria and another Sequoyah Nuclear Plant (SQN) design criteria, the appropriate Nuclear Engineering (NE) department manager(s) shall be notified by memorandum. If a discrepancy is found to exist between this design criteria and any other document where the other document is not a SQN design criteria, then this design criteria shall govern.

1.2 System and Component Identification

The overall radiation monitoring system is shown in TVA control diagrams 47W610-90-1 through -6, reference 6.1.12.

FI000152

II-S-92-080 SEQ # 07

COMMITMENT COMPLETION FORM

Part I. CONTROL NUMBER NCO920161001

Originating Document LER 327/92019
Commitment Due Date 12/31/92 (C) Reference S10921207800 RAF to NRC

Commitment Statement: TI-18 and 0-SI-CEM-030-410.2 will be revised to address the method of accounting for gas detector chamber vacuum by December 31, 1992.

****

Part II. Commitment Completion Information (Use a separate sheet if additional space is needed).

A. Action Taken to Complete Commitment: _____

B. Reference Documentation: _____

C. Commitment Completion Date: _____

D. Commitment and Documentation Complete and Approved. Completion of all actions as noted in documentation are sufficient to fully implement the commitment.

Signature Implementing Organization: _____ Date _____
In-line Independent Verification: _____ Date _____
Signature Lead Coordinator: _____ Date _____

Forward to Site Licensing upon completion.

****

Part III. Site Licensing:

CCTS Updated to show receipt: _____ _____
Signature

F1000153

H. Holland, OPS 4D-SQN

EQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

eference: II Item No. II-S-92-080
II Action Item Sequence No. 8

request that the referenced TROI action be /X/ closed as complete.

/ / extended to _____.

isis for extension/closure:

Calculation coversheets are attached.
SQNAPS3-116 Rev 0.
II-RPS-181-1 v.1
SQN-APS3-53 Rev 0.

r closure list supporting clos e documentation as required per SSP.12.9 (Attach Copy).

Mike Lorret 16 April 1993
GNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated 4-16-93 PLS

/ / This extension does not impact nulcear safety or plant operability.

/ / Alternate Corrective Action.

B Buck for RWF 4/16/93
T MANAGER / DATE

PLANT MANAGER / DATE
OR DEPT MGR FOR CATEGORY 3

e responsible organization's and Plant Manager's approval (or Dept. Mgr's for tegory 3) is required for all action data extensions and for closure when action taken difference from the approved corrective action in the Final Event Report.

F1000154

MB

)90205/1317

TITLE: Technical Specification Setpoints for Containment Monitors RM-90-106/112 and RM-90-130/131	PLANT/UNIT: SQN 1&2
PREPARING ORGANIZATION: M/NE Dept.	KEY NOUNS (Consult RIMS DESCRIPTORS LIST): Rad Monitor, STP, FENCDOSE, COROD, Setpoint
BRANCH/PROJECT IDENTIFIERS: SQNAPS3-116	Each time these calculations are issued, preparers must ensure that the original (R0) RIMS accession number is filled in.
APPLICABLE DESIGN DOCUMENT(S): N/A	
SAR SECTION(S): 11.4 / UNID SYSTEM(S): N/A	

Rev	(for RIMS' use)	RIMS accession number
R0		
R__		
R__		
R__		

Revision 0	R1	R2	R3
ECN No. (or indicate Not Applicable) N/A	N/A		
Prepared [signature] 4/8/93			
Checked Marc C. Berg 4-15-93			
Reviewed Marc C. Berg 4-15-93			
Approved [signature]			
Date 4/15/93			
Use for 10534 if more space required: List all pages added by this revision.			
List all pages deleted by this revision.			
List all pages changed by this revision.			

Safety-related? Yes ☑ No ☐

Statement of Problem

Determine the adequacy of existing Tech Spec setpoints for RM-90-106/112 and RM-90-130/131 for limiting doses to 10CFR100 and GDC 19 during a small LOCA with containment purge

Abstract

These calculations contain an unverified assumption(s) that must be verified later. Yes ☐ No ☑

Calculation contains special requirements or limiting conditions. Yes ☐ No ☑

This calculation determines the adequacy of the existing SQN Tech Spec setpoints for containment (CTM) monitors RM-90-106/112 and RM-90-130/131. This was done as part of the corrective action to the radiation monitoring incident investigation reported in II-S-92-80. The subject monitors initiate a CVI upon detection of high radiation in CTM atmosphere and purge exhausts. This safety objective is specifically applicable to a small break LOCA event concurrent with CTM purging.

Source terms for the small LOCA consisted of a release of 100% of the RCS activity with a factor of 10 iodine spike. Total release to the environment consisted of CTM leakage (0.25%/day, first 24 hr, 0.125%.day, thereafter) and CTM purge (14000 cfm of lower CTM, case 1 and 14000 cfm of upper CTM, case 2).

STP was used to calculate radioactive purge concentrations at various times post-small LOCA. These concentrations were compared with those in Table 3.3.6 of the SQN TSs. FENCDOSE and COROD were used to calculate the control room and offsite doses due to this event to determine compliance with 10 CFR100 and GDC 19.

Results of this calculation are given below.

F1000155

Total pages R0: 36

☐ Microfilm and store calculations in RIMS Service Center. Microfilm and destroy ☐

TITLE	PLANT/UNIT
BASIS FOR DETERMINING AN ACCEPTABLE SET POINT FOR THE SPENT FUEL POOL RADIATION MONITOR SET POINT	Sequoyah 1 & 2

PREPARING ORGANIZATION	KEY NOUNS (Consult RIMS DESCRIPTORS LIST)
NE/M/NE/SQEP	Spent Fuel Pool, Monitor Set Point

BRANCH/PROJECT IDENTIFIERS

TI-RPS-181
RPS-3147

Each time these calculations are issued, preparers must ensure that the original (RO) RIMS accession number is filled in.

Rev	(for RIMS' use)	RIMS accession number
R0	841207T0021	NEB 841206 237
R1	900212E0005 (S1)	B87 900116 007
R—		
R—		

APPLICABLE DESIGN DOCUMENT(S)

SQN-DC-V-9.0

SAR SECTION(S)	UNID SYSTEM(S)
N/A	90

Revision 0	R1	R2	R3
ECN No. (or indicate Not Applicable)	N/A		
Prepared: M. K. Brando[illegible]	[signature]		
Checked: W. M. Bennett	[signature] 12/6/84		
Reviewed: F. A. Koontz, Jr	[signature] 12/6/84		
Approved: G. E. German	[signature]		
Date: 12/6/84	11/7/84		
List all pages added by this revision.	10.		
List all pages deleted by this revision.	N/A		
List all pages changed by this revision.	N/A [signature] 12/11/84		

Safety-related? Yes ☑ No ☐

Statement of Problem

Determine the relationship between the dose rate seen at the spent fuel pool radiation monitors (RE-90-102 and 103) due to a postulated fuel handling accident and the resulting unfiltered offsite thyroid dose.

Abstract

These calculations contain an unverified assumption(s) that must be verified later. Yes ☐ No ☑

An analysis was performed to determine the re[illegible]nship between the dose rate seen at the spent fuel pool radiation monitors (RE-90-[illegible]nd 103) due to a postulated fuel handling accident and the resulting unfilte[illegible]te thyroid dose. The purpose of this analysis is to determine if a h[illegible]gher set po[illegible] for the above monitors can be justified.

Occasional isolations of the auxiliary buil[illegible]g ventilation systems have occurred due to "spurious" monitor readings in excess of the current set point, ~~15~~ 10 mR/hr. It may be possible to avoid these "spurious" isolations by increasing the monitors' set point without raising the offsite dose to an unacceptable level from releases which do not trigger isolation. Failure to isolate the auxiliary building will affect only the thyroid dose since the auxiliary building gas treatment system (ABGTS) filters only affect the iodines. From the relationship between the monitor reading and the unfiltered offsite thyroid dose, the acceptability of a set point can be assessed on the basis of the offsite radiological consequences of a fuel handling accident. This analysis was requested by NUC PR.

F1000156

DETERMINATION OF MAIN CONTROL ROOM INTAKE MONITOR (0-RM-90-125,126) SETPOINT	Plant/Unit SQN 1 & 2

Preparing Organization: DNE/NEB/APS3	KEY NOUNS (Consult RIMS Descriptors List): RADIATION MONITOR, MHA LOCA, FHA, CONTROL ROOM
Branch/Project Identifiers: SQNAPS3-053	Each time these calculations are issued, preparers must ensure that the original (RO) RIMS accession number is filled in.

Rev	(for RIMS' use) (35)	RIMS ACCESSION NUMBER
R0	870727F0013	B45 '87 0530 23
R		
R		
R		

Applicable Design Document(s):

SAR Section(s) | UNID System(s)

	Revision 0	R1	R2	R3
ECN No. (or Indicate Not Applicable)				
Prepared	[illegible signature]			
Checked	[illegible signature]			
Reviewed	[illegible signature]			
Approved	[illegible signature]			
Date	5-30-87			
List all pages added by this revision				
List all pages deleted by this revision				
List all pages changed by this revision				

USE FORM TVA 10534 IF MORE SPACE REQUIRED

Safety-related? Yes (x) No ( )

Statement of Problem

Determine if the 400 cpm setpoint for the main control room air intake monitor (0-RM-90-125,126) is acceptable.

ABSTRACT (These calculations contain an unver[illegible]ied assum[illegible]on(s) that must be verified later. Yes ( ) No (x))

No documentation had been found to support the setpoin[illegible] va[illegible] [illegible]n in the SQN Tech Spec 3.3.3.1 for the main control room air intake radiation monitors (0-RM-90-125,126) [illegible] detectors were installed to protect the operators by isolating the control room in the event an accident [illegible] significant amounts of radioactivity. This calculation is to determine if the current setpoint of 400 cou[illegible] [illegible] minute (cpm) is acceptable.

The procedure for this calculation consisted of several [illegible]. The first part of this calculation determined the count rate expected at the beginning of a LOCA to see if [illegible]is value was greater than the setpoint. The radioactive releases due to a maximum hypothetical loss of coola[illegible] accident (MHA-LOCA) were taken from the three time intervals from a modification of a STP run found in SQNAPS3-152. These intervals were chosen to be representativ[e] of the accident spectrum at the beginning of the LOCA.

The second part of the calculation determ[illegible] the count r[illegible]te for the beginning of the fuel handling accident (FHA). This was done in the same manner as the first part. Th[illegible] activi[illegible]s were taken from the first three time steps of the STP run from GENHAL3-008.

FI00015[illegible]

(Continued on page 2)

( ) Microfilm and store calculations in RIMS Service Center
(x) Microfilm and return calculations to: F. Taylor
Microfilm and destroy. ( )
Address: W10 D222 C-K

RIMS, SL 26 C-K
H. L. Jones, DNE DSC-MOU 3, SQN

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITOR					
a. Fuel Storage Pool Area	1	*	≤ 100 mR/hr	10^{-1} - 10^{4} mR/hr	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤ 8.5×10^{-3} μCi/cc	10 - 10^{7} cpm	28
b. Containment					
i. Gaseous Activity					
a)Ventilation Isolation	1	ALL MODES	≤ 8.5×10^{-3} μCi/cc	10 - 10^{7} cpm	28
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
ii. Particulate Activity					
a)Ventilation Isolation	1	ALL MODES	≤ 1.5×10^{-5} μCi/cc	10 - 10^{7} cpm	28
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
c. Control Room Isolation	1	ALL MODES	≤ 400 cpm**	10 - 10^{7} cpm	29

R5

* With fuel in the storage pool or building

** Equivalent to 1.0×10^{-5} μCi/cc.

FI000153

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITOR					
a. Fuel Storage Pool Area	1	*	$\leq$ 200 mR/hr	10^{-1} -10^{4} mR/hr	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	$\leq 8.5 \times 10^{-3}$ µCi/cc	10 - 10^{7} cpm	28
b. Containment					
i. Gaseous Activity					
a)Ventilation Isolation	1	ALL MODES	$\leq 8.5 \times 10^{-3}$ µCi/cc	10 - 10^{7} cpm	28
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
ii. Particulate Activity					
a)Ventilation Isolation	1	ALL MODES	$\leq 1.5 \times 10^{-5}$ µCi/cc	10 - 10^{7} cpm	28
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
c. Control Room Isolation	1	ALL MODES	$\leq$ 400 cpm**	10 - 10^{7} cpm	29

*With fuel in the storage pool or building
**Equivalent to 1.0 x 10^{-5}µCi/cc

Amendment No. 12, 60, 112
April 28, 1989

10/93

J. M. STITT
CORRECTIVE ACTION MANAGER
SB1C - SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE.

REFERENCE: II ITEM NO. II-S-92-080 ITEM No. VII.B.5

II ACTION ITEM SEQUENCE NO. TROI ITEM 09

I REQUEST THAT THE REFERENCE TROI ACTION BE;

_X_ CLOSED AS COMPLETE.

___ EXTENDED TO: _____

BASIS FOR EXTENSION/CLOSURE:

Setpoint and Scaling Documents (SSD's) have been issued for the Radiation Monitors with Tech. Spec. setpoints. The SSD's are as follows: 1,2-R-90-106B, 1,2-R-90-112B, 1,2-R-90-130, 1,2-R-90-131, 0-R-90-125, and 0-R-90-126.

FOR CLOSURE, LIST SUPPORTING DOCUMENTATION AS REQUIRED PER SSP 12.9. (ATTACH COPY).

John M. Longhill — 7/8/93
SIGNATURE (II/ACTION SUPERVISOR) — DATE

N/A — N/A
PROJECT ENGINEER (EXTENSIONS) — DATE

___ THIS EXTENSION DOES NOT IMPACT NUCLEAR SAFETY OR PLANT OPERABILITY.

___ ALTERNATE CORRECTIVE ACTION.

FI000160

N/A
PLANT MANAGER (*) — DATE

A 7/8/93
EVENT MANAGER (*) — DATE

* THE PLANT AND EVENT MANAGER'S APPROVAL (OR DEPT MGRS FOR CAT 3) IS REQUIRED FOR ALL ACTION DATE EXTENSIONS AND FOR CLOSURE WHEN ACTION TAKEN IS DIFFERENT FROM THE APPROVED CORRECTIVE ACTION IN THE FINAL EVENT REPORT.

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SET POI. 'T AND SCALING DOCUMENT

FOR ISTRUMENT LOOP NO.

1-, 9[illegible]-106B

SSD 1-R-90-106B
Page 3

	REVISION R0	R1	R[illegible]	R3	R4	R5
	DATE 2/15/93					
EPARED	[signature]					
RIFIED	[signature]					
WED	[signature]					
PROVED	[signature]					

FI900162

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SE POINT AND SCALING DOCUMENT

INSTRUMENT LOOP NO.

2-R-90-106B

SSD 2-R-90-106B
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE 2/15/13					
PREPARED						
VERIFIED					FI0001 82	
EVIEWED						
APPROVED						

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-R-90-112B

SSD 1-R-90-112B
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED						
VERIFIED					FI000165	
REVIEWED						
APPROVED						

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

R-90-112B

SSQ2-R-90-112B
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED	[signature]					
VERIFIED	[signature]				FI000164	
REVIEWED	MJ Schedwin					
APPROVED	[signature]					

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE
NUCLEAR ENGINEERING

SSD 1-R-90-130
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-R-90-130

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 2/1/93					
PREPARED	Jackie Sa. la					
VERIFIED	K. Wasser				FI000195	
REVIEWED	MJ Smedsrud					
APPROVED	[illegible]					
ISSUED	[illegible]			SR		

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSD 2-R-90-130
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

INSTRUMENT LOOP NO.

2-R-90-130

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED	Joe de Sabla				FLOOD	
VERIFIED	K. Wason					
REVIEWED	M J Meredith					
APPROVED	CBell					

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSD1-2-90-131
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-2-90-131

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED	Jelde Sabula					
VERIFIED	K. Chaisson				EL0001	
REVIEWED	MJ Schneider					
APPROVED	[illegible]					

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE NUCLEAR ENGINEERING

SSD 2-R-90-131
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

2-R-90-131

	REVISION.	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED	Jacob Sabla					
VERIFIED	[illegible]				FI000168	
REVIEWED	MJ Anderson					
APPROVED	[illegible]					
ISSUED	2/15/93			0		

TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

0-R-90-125

SSD 0-R-90-125
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED	[signature]					
VERIFIED	[signature]					
REVIEWED	MJ [signature]					
APPROVED	[signature]					

FI000K6C

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

O-P-90-126

SSD O-P-90-126
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE 2/15/93					
PREPARED						
VERIFIED						
VIEWED						
APPROVED						
ISSUED				1 2		

F1000170

T. H. HOLLAND
COMPETITIVE ACTION MANAGER
OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE.

REFERENCE: II ITEM NO. II-S-92-080
II ACTION ITEM SEQUENCE NO. 10

I REQUEST THAT THE REFERENCE TROI ACTION BE;

X CLOSED AS COMPLETE.

___ EXTENDED TO: _____

BASIS FOR EXTENSION/CLOSURE:

SSD'S ISSUED FOR FLOW LOOPS, SEE ATTACHED COVER SHEETS

FOR CLOSURE, LIST SUPPORTING DOCUMENTATION AS REQUIRED PER SSP 12.9. (ATTACH COPY)

T. M. Campbell 2/16/93
SIGNATURE (II ACTION SUPERVISOR)

N/A
PROJECT ENGINEER (EXTENSIONS)

___ THIS EXTENSION DOES NOT IMPACT NUCLEAR SAFETY OR PLANT OPERABILITY.

___ ALTERNATE CORRECTIVE ACTION.

TROI updated 2-17-93 PLS

N/A
PLANT MANAGER (*)

FI000171

* THE PLANT MANAGERS APPROVAL (OR DESIGNEE) IS REQUIRED FOR ALL ACTIONS FOR EXTENSION OR CLOSURE WHEN ACTION TAKEN IS DIFFERENT FROM THE APPROVED CORRECTIVE ACTION IN THE FINAL EVENT.

1

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSD O-F-90-206
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

O-F-90-206

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 10-9-92	11-25-92				
REPARED	T. Thomas	T. Thomas				
ERIFIED	T. Thomas	M. D. Engle				
EVIEWED	Ronald Hyatt	R. Jackson				
PROVED mmf						
SUED	12/22/92	11-25-92				

FIG 00172

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE NUCLEAR ENGINEERING

SSD O-F-90-205
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

O-F-90-205

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 10-9-92	11-25-92				
PREPARED	T. Thomas	T. Thomas				
VERIFIED	K. Thomas	K.B. Engle				
REVIEWED	Donald E. Jackson	D.E. Jackson			FI000173	
APPROVED	[illegible]	[illegible]				
ISSUED	12/30/92	11-25-92				

TVA TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE NUCLEAR ENGINEERING

SSD O-E-90-132A
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

O-F-90-132A

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 10-9-92	11-25-92				
PREPARED	T. Thompson	T. Th				
VERIFIED	[signature]	[signature]			FIGGS	
REVIEWED	[signature]	[signature]				
APPROVED [illegible]	[signature]	[signature]				
ISSUED	12/30/92	11-25-92				

SSD 0-F-90-126
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

0-F-90-126

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 10-9-92	11-25-92				
PREPARED	T. Thompson	T. T.				
VERIFIED	[signature]	[signature]				
REVIEWED	[signature]	[signature]				
APPROVED	[signature]	[signature]				
ISSUED	12/30/92	[signature]				

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSD O-F-90-125
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

O-F-90-125

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 10-9-92	11-25-9				
PREPARED	T. Thomp	T. Tho				
VERIFIED		M.S. Engl				
REVIEWED					FIGURE	
APPROVED						
ISSUED	10/30/92	11-25-9				

TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NUCLEAR ENGINEERING

SSD 2-F-90-131
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

2-F-90-131

	REVISION R0	R1	R2	R3	R4	R5
	DATE 12-1-92					
PREPARED	T. Tibb[illegible]					
VERIFIED	M. Wann[illegible]					
REVIEWED	[illegible]					
APPROVED	[illegible]					

FI000177

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSO Z-F-90-130
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

Z-F-90-130

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 12-1-92					
PREPARED	T. Tolson					
VERIFIED	T. Tolson				FLOODING	
REVIEWED	Ronald Jack					
APPROVED						

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSD L-F-90-131
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

L-F-90-131

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 12 1-92					
PREPARED	T. Thay					
VERIFIED	K. Hawn				F1000179	
REVIEWED	Ronald Jackson					
APPROVED						

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE
NUCLEAR ENGINEERING

SSD 1-F-90-130
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-F-90-130

	REVISION. R0	R.	R2	R3	R4	R5
	DATE 12-1- Z					
PREPARED	T. Tobin					
VERIFIED	T. Tobin				F100130	
REVIEWED	Ronald Jackson					
APPROVED						

TVA TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NUCLEAR ENGINEERING

SSD 1-E-90-119
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-F-90-119

	REVISION. R0	R1	R2	R3	R4	R5
	DATE 10-1-92	11-25-92				
PREPARED	T. Thomas	T. Th				
VERIFIED	R. Tolson	[illegible]				
REVIEWED	[illegible]	[illegible]			FI000181	
APPROVED	[illegible]	[illegible]				
ISSUED	12/3/92	11-25-9[illegible]		174		

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE
NUCLEAR ENGINEERING

SSD 1-E-90-99
Page 7

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-F-90-99

	REVISION R0	R1	R2	R3	R4	R5
	DATE 10-1-92	11-25-9				
PREPARED	T. Thomas	T. Th				
VERIFIED	R. Thomas	R.D. Pugh				
REVIEWED	Ronald F. Pugh	Ronald F.			F10001	S2
APPROVED NRP	[illegible]	[illegible]				
ISSUED	12/30/92	11/24		95		

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE
NUCLEAR ENGINEERING

SSO 0-F-90-101
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

0-F-90-101

	REVISION. R0	R1	R2	R3	R4	R5
	DATE					
PREPARED						
VERIFIED						
REVIEWED					PROCESS	
APPROVED						
TECH ED				R1.0		

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE
NUCLEAR ENGINEERING

SSO 2-F-90-112
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

2-F-90-112

	REVISION. PC	R1	R2	R3	R4	R5
	DATE					
PREPARED	M. D. Enfi					
VERIFIED	L. [illegible]					
REVIEWED	Ronald Jackson					
APPROVED	[illegible]					

FI000182

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SSO 1-F-90-112
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-F-90 112

	REVISION. R0	R1	R2	R3	R4	R5
	DATE					
PREPARED	M. D. Ends					
VERIFIED	L. Davidson					
REVIEWED	Ronald F. Jackson				F100 ISS	
APPROVED	[illegible]					

TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE
NUCLEAR ENGINEERING

SSO 2-F-90-106
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

2-F-90-106

	REVISION. R0	R1	R2	R3	R4	R5
	DATE					
PREPARED	M.D. Eng					
VERIFIED	L. Sandlin					
REVIEWED	Ronald Jackson					
APPROVED	[illegible]					

F1000 1SC

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TVA
TENNESSEE VALLEY AUTHORITY

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

NE NUCLEAR ENGINEERING

SSD 1-F-90-106
Page 3

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

1-F-90-106

	REVISION. R0	R1	R2	R3	R4	R5
	DATE					
PREPARED	M.D Engle					
VERIFIED	L. Sandahl					
REVIEWED	Ronald F Jackson				PROCESS	
APPROVED	[signature]					

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SE[illegible]T AND SCALING DOCUMENT

FOR INSTRUMENT LOOP NO.

2-F 90-119

SSD 2-F-90-119
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE					
PREPARED						
VERIFIED					E10001SC	
REVIEWED						
APPROVED						

TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR ENGINEERING

SEQUOYAH NUCLEAR PLANT

SET POINT AND SCALING DOCUMENT

FCV INSTRUMENT LOOP NO.

2-FT-90-99

SSD 2-FT-90-99
Page 3

	REVISION R0	R1	R2	R3	R4	R5
	DATE					
PREPARED	[signature]					
VERIFIED	[signature]					
REVIEWED	[signature]				FI0001S	
APPROVED	[signature]					

. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. S-92-080
II Action Item Sequence No. 11

I request that the referenced TROI action be [X] closed as complete.

[ ] extended to _____.

Basis for extension/closure:

Safety limits for the radiation monitors listed in TECH SPEC. 3.3.3.1 and Table 3.3-6 are provided in the attached 6.1.93 NE calculations.

r closure list supporting closure documentation as required per SSP.12.9 (Attach Copy).

VA Barnes / 6/1/93
SIGNATURE (II/ACTION SUPERVISOR) / DATE

[ ] This extension does not impact nulcear safety or plant operability.

[ ] Alternate Corrective Action.

R.W. Fortenberry / 6/1/93
EVENT MANAGER / DATE

_____ /
PLANT MANAGER / DATE
OR DEPT MGR FOR CATEGORY 3

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Category 3) is required for all action data extensions and for closure when action taken is difference from the approved corrective action in the Final Event Report.

PMB

L090205/1317

TROI updated 6-2-93 PLS

FI000190

Setpoint | PLANT/UNIT SQN 1&2

PREPARING ORGANIZATION	KEY NOUNS (Consult CCRIS LIST)
DNE/NEB/APS3	Radiation Monitor,MHA LOCA, FHA, Control Room
BRANCH/PROJECT IDENTIFIERS SQNAPS3-053	Each time these calculations are issued, preparers must ensure that the original (R0) RIMS accession number is filled in.
APPLICABLE DESIGN DOCUMENT(S) N/A	
SAR SECTION(S) 11.4 / UNID SYSTEM(S) 90	

Rev	(for RIMS use)	RIMS accession number
R0	870727F0013	B45 870530 238
R1		
R2		
R3		

	Revision 0	R1	R2	R3
ECN No. (or indicate Not Applicable)	N/A	N/A		
Prepared	M.C. Berg	6/1/93		
Checked	W.M. Bennett	6-1-93		
Reviewed	K.D. Keith, Jr.	6-1-93		
Approved	F.A. Koontz, Jr.	W.G. Ebell		
Date	5/30/87	6/1/93		
Use form TVA 10534 if more space required.	List all pages added by this revision	See Rev Log		
	List all pages deleted by this revision	See Rev Log		
	List all pages changed by this revision	See Rev Log		

Safety-related? Yes [X] No [ ]

Statement of Problem

Determine if the 400 cpm setpoint for the main control room air intake monitor (0RM-90-125, 126) is acceptable, exclusive c instrument and sampling inaccuracies. Furth determine the safety limit for the subject monitors.

These calculations contain unverified assumption(s) that must be verified later. Yes [ ] No [X]

Calculation contains special requirements or limiting conditions. Yes [ ] No [X]

Abstract

No documentation had been found to support the setpoint value given in the SQN Tech Spec 3.3.3.1 for the main control room intake monitors (0-RM-90-125, 126). These detectors were installed to protect the operators by isolating the control room in the event an accident released significant amounts of radioactivity. This calculation is performed to determine if the current setpoint of 400 counts per minute (cpm) is acceptable, exclusiv of instrument and sampling inaccuracies. R1 is performed to determine the safety limit for the subject monitors.

The procedure for this calculation consisted of several parts. The first part of this calculation determined the count rate expected at the beginning of a LOCA to see if this value was greater than the setpoint. The radio-active releases due to a maximum hypothetical loss of coolant accident (MHA-LOCA) were taken from the initial time intervals from a modification of the SQNAPS3-067 R1 STP run. These intervals were chosen to be representative of th accident spectrum at the beginning of the LOCA.

The second part of the calculation determined the count rate for the beginning of the fuel handling accident (FHA). This was done in the same manner as the first part. The activities were taken from the first three time steps of the STP un from GENNAL3-008.

(Continued on page 2)

84

F1000191

☐ Microfilm and store calculations in RIMS Service Center

Rev 5/21/93
mw 5.24.93

The third part of this calculation determined the control room operator doses for the entire duration of a MHA-LOCA as if the main control room never isolated. The ratio of the 10CFR50 Appendix A GDC 19 limit of 30 rem inhalation to this dose became a normalization factor. This normalization factor was then multiplied by the release during the 30-46 sec interval to obtain the normalized activity for which the count rate could be determined. The count rate determined in this way gave the initial average count rate at which the operators would receive 30 rem inhalation for the duration of the accident. R1

The current TS setpoint value of 400 cpm for the MCR intake monitors is sufficiently adequate to protect MCR operators in accordance with the 10 CFR 50, App.A, GDC-19 criteria.

Further, the following safety limits have been determined for the subject monitors in terms of MCR intake air concentration (uCi/cc) and MCR intake monitor count rate (cpm):

0-RM-90-125, 126 Safety Limits:

MCR Intake Air Conc.	**1.81E-3 uCi/cc**
MCR Intake Monitor	**9.94E4 cpm**

Total Pages R1: 42 R1

SQN 182

RM-90-106/112 and RM-90-130/131

PREPARING ORGANIZATION	KEY NOUNS (Consult CCRIS LIST)
M/NE Dept.	Rad Monitor, STP, FENCDOSE, COROD, Setpoint

BRANCH/PROJECT IDENTIFIERS

SQNAPS3-116

APPLICABLE DESIGN DOCUMENT(S)

N/A

SAR SECTION(S): 11.4 | UNID SYSTEM(S): 90

Each time these calculations are issued, preparers must ensure that the original (R0) RIMS accession number is filled in.

Rev	(for RIMS use)	RIMS accession number
R0	930419G0001	B87 930416 002
R1		
R2		
R3		

	Revision 0	R1	R2	R3
ECN No. (or indicate Not Applicable)	N/A			
Prepared	R.M. Nicoll	6/1/93		
Checked	M.C. Berg	6/1/93		
Reviewed	M.C. Berg	6/1/93		
Approved	R.H. Bryan	6/1/93		
Date	4/16/93	6/1/93		
Use form TVA ... spec required	List all pages added by this revision	See Rev Log		
	List all pages deleted by this revision	See Rev Log		
	List all pages changed by this revision	See Rev Log		

Safety-related? Yes [X] No [ ]

Statement of Problem

Determine the adequacy of existing Tech Spec setpoints, exclusive of instrument and sampling inaccuracies, for RM-90-106/112 and RM-90-130/131 for limiting doses to 10CFR10(and GDC 19 during a small LOCA with containment purge. Establish safety limits for the subject monitors.

These calculations contain unverified assumption(s) that must be verified later. Yes [ ] No [X]

Calculation contains special requirements or limiting conditions. Yes [ ] No [X]

Abstract

This calculation determines the adequa... existing SQN Tech Spec setpoints for containment (CTM) monitors RM-90-106/112 and RM-90-130/131, exclusi... of instrument a... d sampling inaccuracies. This was done as part of the corrective action to the radiation monitoring incident investig ti... reported in II-S-92-80. R1 was performed to establish safety limits for the subject monitors. These monitors initiate ... VI upon the detection of high radiation in CTM atmosphere and purge exhausts. This safety objective is spec... cally applicable to a small break LOCA event concurrent with CTM purging.

Source terms for the small LOCA consisted of a release of 10 ... % of the RCS activity with a factor of 10 iodine spike. Total release to the environment consisted of CTM leakage (0.25%/... ay, first 24 hr, 0.125%/day, thereafter) and CTM purge (14000 cfm of lower CTM, case 1 and 14000 cfm of upper CTM ... se 2).

STP was used to calculate radioactive purge co...centrations at various ... s post-small LOCA. These concentrations were compared with those in Table 3.3.6 of the ...N TSs. ... NCDOSE and COROD were used to calculate the control room and offsite doses due to the event to det... ne compliance with 10 CFR 100 and GDC 19.

F1000193

...ts of this calculation are given below.

Total pages R0: 36

Total pages R1: 40

☐ Microfilm and store calculations in RIMS Sen... ...nter

ABSTRACT (CONT'D)

The SQN TS setpoints (8.5E-3 µCi/cc, NG and 1.5E-5 µCi/cc, Particulate) for the RM-90-106 and RM-90-130 monitors are sufficiently low to initiate a timely CVI during a small LOCA with concurrent Lower CTM (LCTM) purging (Case 1). This event resulted in doses that are small fractions of the 10CFR100 and GDC 19 dose criteria. R1

Thus, the TS setpoints have substantial margin to limit offsite and control room doses to within the dose criteria of 10CFR100 and GDC 19 for this event.

For a small LOCA during UCTM purge (Case 2), the SQN TS setpoints for a CVI will not be exceeded for the noble gas channel of the RM-90-112 and RM-90-131 monitors. The maximum NG concentration attained during this event is 5.88E-3 µCi/cc vs. the 8.5E-3 µCi/cc T6 setpoint, of a factor of 0.69 below the TS setpoint. However, the doses due to this event are small fractions of the 10CFR100 and GDC 19 dose criteria. R1

Thus, although the SQN TS noble gas setpoint is not exceeded for this event, the setpoint is sufficiently low to provide a substantial margin in maintaining offsite and control room operator doses to well within the dose criteria of 10CFR100 and GDC 19.

This calculation also demonstrates that the SQN TS setpoints will be exceeded for the particulate channel of the RM-90-112 monitor during the small LOCA with UCTM purge. Therefore, the current particulate setpoints are adequately low to ensure a timely CVI during the event. R

In summary, all of the current SQN TS CTM monitor setpoints are adequate to ensure compliance with 10CFR100 and GDC 19

This calculation also establishes the following safety limits for the subject monitors: R1

SAFETY LIMITS

Monitor RM-90-	Safety Limit (µCi/cc)	Safety Limit (cpm)
106 Noble Gas	1.20E+0	4.49E+7
106 Part.	1.21E-2	1.09E+10
112 Noble Gas	9.71E-1	3.60E+6
112 Part.	1.18E-3	1.07E+9
130/131 Noble Gas	9.71E-2	1.58E+5

FI000194

TITLE	PLANT/UNIT
BASIS FOR DETERMINING AN ACCEPTABLE SET POINT FOR THE SPENT FUEL POOL RADIATION MONITOR SET POINT	Sequoyah 1 & 2

PREPARING ORGANIZATION	KEY NOUNS (Consult RIMS DESCRIPTORS LIST)
NE/M/NE/SQEP	Spent Fuel Pool, Monitor Set Point

BRANCH/PROJECT IDENTIFIERS

TI-RPS-181
RPS-3147

Each time these calculations are issued, preparers must ensure that the original (RO) RIMS accession number is filled in.

Rev	(for RIMS' use)	RIMS accession number
R0	8412207T0021	NEB 841206 237
R1	900212E0005(S)	B87 900116 007
R—		
R—		

APPLICABLE DESIGN DOCUMENT(S)

SQN-DC-V-9.0

SAR SECTION(S)	UNID SYSTEM(S)
N/A	90

	Revision 0	R1	R2	R3
ECN No. (or Indicate Not Applicable)	N/A	N/A		
Prepared	M. K. Brandon			
Checked	W. M. Bennett			
Reviewed	F. A. Koontz, Jr	12/7/84		
Approved	G. E. German			
Date	12/6/84	11-9-		
Use form 1-A 10534 if more space required.	List all pages added by this revision.	10.1.		
	List all pages deleted by this revision.	N/A		
	List all pages changed by this revision.	1-28		

Safety-related? Yes ☒ No ☐

Statement of Problem

Determine the relationship between the dose rate seen at the spent fuel pool radiation monitors (RE-90-102 and 103) due to a postulated fuel handling accident and the resulting unfiltered offsite thyroid dose.

Abstract

These calculations contain an unverified assumption(s) that must be verified later. Yes ☐ No ☒

An analysis was performed to determine the relationship between the dose rate seen at the spent fuel pool radiation monitors (RE-90-102 and 103) due to a postulated fuel handling accident and the resulting unfiltered offsite thyroid dose. The purpose of this analysis is to determine if a higher set point for the above monitors can be justified.

Occasional isolations of the auxiliary building ventilation systems have occurred due to "spurious" monitor readings in excess of the current set point, 10 mR/hr. It may be possible to avoid these "spurious" isolations by increasing the monitors' set point without raising the offsite dose to an unacceptable level from releases which do not trigger isolation. Failure to isolate the auxiliary building will affect only the thyroid dose since the auxiliary building gas treatment system (ABGTS) filters only affect the iodines. From the relationship between the monitor reading and the unfiltered offsite thyroid dose, the acceptability of a set point can be assessed on the basis of the offsite radiological consequences of a fuel handling accident. This analysis was requested by NUC PR.

F1000395

☐ Microfilm and store calculations in RIMS Service Center. ☐ Microfilm and destroy.

stract (continued)

The postulated fuel handling accident evaluated was based on the parameters presented in Regulatory Guide 1.25. The computer code STP was used to decay the activity in a fuel assembly for 100 hrs post shutdown. The photon spectrum also generated in the STP run was used in a modified version of QAD-P5Z which determined the exposure rate (mR/hr) at the monitors as the activity released in the accident rose to the surface of the spent fuel pool. The unfiltered offsite thyroid dose due to this release was calculated by hand.

The ratio of the monitor reading to the unfiltered offsite thyroid dose is 20 mR/hr/REM thyroid Based on this ratio a set point as high as 580 mR/hr would be sufficient to meet ANS 51.1 standards (i.e., 10 percent of 10CFR100 limits of 30 REM thyroid).

The computer output is stored on micro fiche Nos. TVA-F-H-501 and 502.

J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. II-S-92-080
II Action Item Sequence No. 01

I request that the referenced TROI action be [ ] closed as complete.

[X] extended to 11/30/92.

Basis for extension/closure:

Addl. Time is need to get Concurrence on Actions

For closure list supporting closure documentation as required per SSP.12.9 (Attach Co

R. W. Fortenberry / 11/24/92
SIGNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated
11-25-92
PLS

[X] This extension does not impact nuclear safety or plant operability.

[ ] Alternate Corrective A ion.

N/A / RESPONSIBLE ORG. / DATE

PLANT MANAGER OR DEPT MGR FOR CATEGORY 3 / 11-24 / DATE

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Catego 3) is required for all action date extensions and for closure when action taken is different from the approved corrective action in the Final Event Report.

JHH:PMB

FI00019?

1159y

H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. II592080
II Action Item Sequence No. 01

I request that the referenced TROI action be [ ] closed as complete.

[X] extended to 12/8/92.
SHH per telecon w/RSB 12/2/92

Basis for extension/closure:

Please extend sequence 01 to allow additional time for Plant Manager - Site Vice President and approval. PERP has been completed and comments received.

For closure list supporting documentation as required per SSP.12.9 (Attach Copy).

R.W. Fortenberry 12/1/92
SIGNATURE (II/ACTION SUPERVISOR) / DATE

TROI updated 12-2-92

[X] This extension does not impact nuclear safety or plant operability.

[ ] Alternate Corrective Action.

N/A / DATE
RESPONSIBLE ORG.

Buck 12-1-92
PLANT MANAGER / DATE
OR DEPT MGR FOR CATEGORY 3

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Category 3) is required for all action date extensions and for closure when action taken is different from the approved corrective action in the Final Event Report.

JPMB

1159y

FI000138

01

J. H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. II592080
II Action Item Sequence No. 09

I request that the referenced TROI action be [ ] closed as complete.
[X] extended to 7/2/93.

Basis for extension/closure:

See that Attached

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy

R.W. Fatenberry 14/2/93 per Telecon with Vince Bivens and Eddie Turner.
SIGNATURE (II/ACTION SUPERVISOR) / DATE

[ ] This extension does not impact nuclear safety or plant operability.

[X] Alternate Corrective Action.

R.W. Fatenberry 14/2/93 — RESPONSIBLE ORG. / DATE

per 4/22/93
R R W. Fatenberry 14/22/
PLANT MANAGER / DATE
OR DEPT MGR FOR CATEGORY 3

The responsible organization's and Plant Manager's approval (or Dept. Mgr's for Category 3) is required for all action date extensions and for closure when action taken is different from the approved corrective action in the Final Event Report.

TROI updated

HH:PMB

1159y

FI000199

02

The work performed as a results of the action in Sequence No. 08 was not adequate to meet the intent of the action. Open a new action reading "Define the rad monitor safety limits for the rad monitors in Tech Spec 3.3.3.1 and Table 3.3-6." This action has been coordinate with VAB and is due 6/1/93. The action of Sequence No. 09 follows this new action and should be extended to 7/2/93. This extension has been coordinated with EMT.

4/22/93

FI000200

93

H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. S-92-80

II Action Item Sequence No. 8,9

I request that the referenced TROI action be ☐ closed as complete.

☒ extended to Item 9 -- 5/20/93 Item 8 -- 4/16/93

Basis for extension/closure:

Due to the current work load including the forced outage, an extension request from 4/1/93 to 4/16/93 for Item 9 and from 4/30/93 to 5/20/93 for Item 9 is necessary. A technical basis for this extension is attached.

For closure list supporting closure documentation as required per SSP.12.9 (Attach Copy).

3/24/93 V.A. Binns / 3/24/93

SIGNATURE (II/ACTION SUPERVISOR) / DATE

☒ This extension does not impact nuclear safety or plant operability.

☐ Alternate Corrective Action.

R.W. Fortenberry / 3/26/93

for PLANT MANAGER / DATE

TROI updated 3-25-93 PJF

The plant managers approval is required for all action date extensions and for closure when action is different from the approved corrective action in the Final Event Report.

MDC:VGT

R025N08--ID 51

FI000307

H. Holland, OPS 4D-SQN

SEQUOYAH NUCLEAR PLANT - INCIDENT INVESTIGATION (II) ACTION ITEM EXTENSION/CLOSURE

Reference: II Item No. II-S-92-80

II Action Item Sequence No. 8, 9

I request that the referenced TROI action be [ ] closed as complete. 4-30-93 (9)

[X] extended to 4-1-93. (8)

Basis for extension/closure:

See the attached

for closure list supporting closure documentation as required per SSP.12.9 (Attach Copy).

VA Barnes / 1/26/93
SIGNATURE (II/ACTION SUPERVISOR) / DATE

[X] This extension does not impact nuclear safety or plant operability.

[ ] Alternate Corrective Action.

R.H. Fortenberry / 2/8/93
for PLANT MANAGER / DATE

The plant managers approval is required for all action date extensions and for closure when action is different from the approved corrective action in the Final Event Report.

MDC:VGT
PL025N08--ID 51

FI000202

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Resolving the subject task will require an extensive review of each TECH SPEC radiation monitor setpoint support documentation; see the attached TECH SPEC Tables 3.3-6 for Units 1 and 2. A preliminary review of the supporting documentation for the Control Room radiation monitors setpoint indicates a TECH SPEC Change Request in accordance with SSP-4.1 will be required. Due to the current work load and the approaching U1C6 refueling outage, an extension request until ~~July 16,~~ April 1, 1993 is warranted.

Delaying this task until the said date will not have an impact on plant hardware, procedures, safety, or operability. A brief discussion for each TECH SPEC setpoint is provided below to support this position.

FUEL STORAGE POOL AREA MONITOR

The setpoint for the subject monitor was changed from 15 to 200 mr/hr by TECH SPEC CHANGE NO 104 (S01 850529904). This change was necessary to eliminate spurious actuations of the Auxiliary Building Gas Treatment System. The 200 mr/hr setpoint was determined to be more than reasonably conservative and would not result in a risk to public health and safety. Therefore, the existing TECH SPEC for these monitors will not present a risk to plant personnel or the public.

CONTAINMENT PURGE AND [illegible]S MONITORS

The setpoint of these effluent monitors has been less than or equal to 8.5E-3 uCi/cc based on Xe-133 since Sequoyah Units 1 and 2 were originally licensed, see Reference NUREG-0658 and NUREG-0789, respectively. The Offsite Dose Calculation Manual (ODCM) indicates the total body dose shall be limited to 500 mr/yr which is equivalent to 3.32E+5 uCi/sec to comply with NRC 10CFR20.106 criteria. The following equation will convert the setpoint value from uCi/cc to uCi/sec so a comparison can be made

SETPOINT VALUE	PURGE MAX FLOWRATE	UNIT CONVERTER	UNIT CONVERTER

$(8.5E\text{-}3\ uCi/cc)(14,000 ft^3/min)(min/60sec)(28317 CC/ft^3)$.

This equation indicates the containment monitors setpoint value is equivalent to 5.62E+4 uCi/sec which is approximately 17% of 10CFR20.106 equivalent value. The above equation and equivalent values of Xe-133 are consistent with the methodologies used in TI-30 , Manual (ODCM) Compliance- Method A.

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CONTAINMENT PARTICULATE MONITORS

The setpoint of these effluent monitors has been less than equal to 1.5E-5 uCi/cc based on Co-58 since Sequoyah Units 1 and 2 were originally licensed. ODCM indicates the total dose to any organ shall be limited to 1500 mr/yr which is equivalent to 9.74E+1 uCi/sec to comply with NRC 10CFR20.106 criteria. In the same manner, the above equation was used to convert the cobalt dose rate for comparison purposes. Thus, 1.5E-5 uCi/cc equivalent value was determined to be 9.91E+2 uCi/sec, however, the radiation monitor is presently set at 40% of this value (3.96E+1 uCi/cc). Clearly the current TECH SPEC value is bounded by the release rate criteria specified by the NRC. It is also noted these monitors are required for Reactor Coolant Leakage Detection as specified by 10CFR50 Appendix A GDC-30 and are not required for adherence to 10CFR20 or 10CFR100.

CONTROL ROOM ISOLATION MONITORS

The setpoint of these effluent monitors has been less than or equal to 400 cpm since Sequoyah Units 1 and 2 were originally licensed. The NRC 10CFR50 GDC-19 specifies that an operator in the MCR shall not exceed a dose of 5 rem to the whole body for the duration of an accident. Using the methodologies in the ODCM, 5 rem was converted to an equivalent value in cpm for comparison purposes. Based on a 40 hour work week for 52 weeks, 5 rem was determined to be equivalent to 386 cpm. This value does not bound the 400 cpm value provided in the TECH SPEC. However, the current setpoints of the MCR monitors were reduced to 253 cpm (+/- 129 cpm due to sensing pressure inaccuracy) by TI-18 Radiation Monitors Revision 24 prior to II-S-92-80. Therefore, no immediate actions are required.

CONCLUSION

The setpoint for the Fuel Pool Storage Area was documented in TECH SPEC CHANGE NO 104 to eliminate spurious actuations of the Auxiliary Building Gas Treatment System. The setpoint was changed from 15 to 200 mr/hr. The Containment Purge, Gaseous, and Particulate Monitors setpoints have remained the same since Sequoyah Units 1 and 2 were originally licensed. The above evaluation has determined the existing setpoints will not result in a dose that will exceed the NRC's 10CFR20 or 10CFR100 criteria. Further reviews are necessary to provide the documentation to support the setpoint values of the above monitors.

This evaluation has also determined the MCR monitors setpoint value of 400 cpm remained the same since Sequoyah Units 1 and 2 were originally licensed. This value was determined not to be bounded by 386 cpm which is equivalent to the 5 rem operator dose specified by 10CFR50 Appendix A

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IIS92080 TROI SEQUENCE 8:

GDC-19. However, the current setpoints of the MCR monitors were reduced to 253 cpm by TI-18 , Radiation Monitors. Therefore, no immediate actions are required however, a TECH SPEC change is warranted to reduce the existing TECH SPEC value.

1/25/93
Don Amos
Nuclear Chemistry
Reviewer

1/25/93
Betsy Elford-Lee
Corp. Environmental Protection
Reviewer

1-25-93
Jeff R. Newt
Technical Supp
Reviewer

1/25/93
Calvin W. Burrell Jr./Date
Nuclear Engineering
Paperer

1/26/93
Vinc A. Bianco/Date
Nuclea Engineering
Reviewer

FI000205

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITOR					
a. Fuel Storage Pool Area	1	*	$\leq$ 200 mR/hr	10^{-1} -10^{4} mR/hr	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	$\leq 8.5 \times 10^{-3}$ µCi/cc	10 - 10^{7} cpm	28
b. Containment					
i. Gaseous Activity					
a)Ventilation Isolation	1	ALL MODES	$\leq 8.5 \times 10^{-3}$ µCi/cc	10 - 10^{7} cpm	28
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
ii. Particulate Activity					
a)Ventilation Isolation	1	ALL MODES	$\leq 1.5 \times 10^{-5}$ µCi/cc	10 - 10^{7} cpm	28
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
c. Control Room Isolation	1	ALL MODES	$\leq$ 400 cpm**	10 - 10^{7} cpm	29

*With fuel in the storage pool or building
**Equivalent to 1.0 x 10^{-5}µCi/cc

R116 R64 R116 R16 R116 R116

SEQUOYAH - UNIT 1

3/4 : 40

Amendment No. 12, 60, 112
April 28, 1989

9003300164

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION	
1. AREA MONITOR						R102
a. Fuel Storage Pool Area	1	*	$\leq$200 mR/hr	10^{-1} - 10^{4} mR/hr	26	R52
2. PROCESS MONITORS						R102
a. Containment Purge Air	1	1, 2, 3, 4 & 6	$\leq 8.5 \times 10^{-3}$ µCi/cc	10 - 10^{7} cpm	28	
b. Containment						
i. Gaseous Activity						
a)Ventilation Isolation	1	ALL MODES	$\leq 8.5 \times 10^{-3}$ µCi/cc	10 - 10^{7} cpm	28	
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27	
ii. Particulate Activity						
a)Ventilation Isolation	1	ALL MODES	$\leq 1.5 \times 10^{-5}$ µCi/cc	10 - 10^{7} cpm	28	
b)RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27	
c. Control Room Isolation	1	ALL MODES	$\leq$ 400 cpm**	10 - 10^{7} cpm	29	R102

* With fuel in the storage pool or building

** Equivalent to 1.0×10^{-5} µCi/cc. R102

Amendment No. 52, 102
April 28, 1989

NER ITEM EVALUATION

NER NO. _____
TROI ID _____

(A) APPLICABILITY EVALUATION

(1) TITLE: II-5-92-080, Inadequate Setpoint Calculation For Radiation Monitors.

(2) Keyword(s): SETPOINT, CALIBRATION, RADIATION MONITOR

(3) Actions: BFN A BLN A SQN PA WBN *A Other ___

(4) Action Priority: 30 days ___ 90 days ✓ Other ___

(A) - Action
(I) - Info
(NA) - Not Applicable
(PA) - Previously Addressed

(5) Initial Screening Reviewer: W.C. Lindsay Date: 1/6/93

(6) Screening Mtg Date: 1/7/93

Applicability Explanation/Required Action: Potential exists for a similar interpretation of IN 82-49 at each site. Action to BFN and BLN. *Additional information to WBN under the current evaluation of IN 82-49.

(7) Related Documents: IEN 82-049, 327/92019

(8) Incident Investigations/NOVs:
Network Entry Required: YES [ ] NO [✓]
Repeat Event: YES [ ] NO [✓]

Key Issues Code: X, XA, XB UB

(9) Significance Code: S-III Root Cause Code: CA, CB, CD, CF, AP, AU

NER Preparer: _____ Ext _____ Date _____
NER Manager: _____ Ext 6672 Date 1/10/93

(B) NER ITEM RESPONSE SUMMARY

(1) NER item is applicable: Y [ ] N [ ]
(2) SCAR/PER Initiated: Y [ ] N [ ]
(3) Implementation Date: _____
(4) Item Needs Further Review: YES [ ]] (If yes, explain below.)
(5) Action: P [ ] M [ ] T [ ]] O [ ]
(6) Response Summary: _____

(7) Item Closed: YES [ ] NO [ ]

(8) Responsible Manager: _____ Ext _____ Date _____

FI000208

NER DATA ENTRY FORM

NER No.: _____ TROI I.D. No.: _____

Category Subject: INHOUSE EV Document No.: II-5-92-080

Responsible Organization: _____

NER Subject/Site/Responsible Organization: Inadequate Setpoint Calculations for Radiation Monitors/SGN/RC

NER Description: It was discovered that certain Technical Specification Gaseous Radiation Monitors could have had their setpoints calculated in a non-conservative manner. The subject Radiation Monitors setpoints do not account for the system design which has the gas pump upstream of the sample chamber thus creating a vacuum in the detector gas chamber.

EQIS Information:

Function: MON System: 090 Manufacturer: G063

Key Issues: _____

References:

CAR 327/92019

FI000205

12/03/91

TO : Those indicated

FROM : M. J. Fecht, Manager, Nuclear Experience Review, LP 5B-C

DATE :

SUBJECT: TRANSMITTAL OF NER ITEM FOR ACTION OR INFORMATION - II-5-92-080

Attached is an NER item being forwarded to each of the indicated organizations for action or information as required. Please provide your response, if action is required for your organization, by _____. If action is taken on an NER item that was sent to you for information, notify Corporate NER to correct the assignment.

	ACTION	INFORMATION
Browns Ferry Nuclear Plant, NER Supervisor	[✓]	[ ]
Sequoyah Nuclear Plant, NER Supervisor	[ ]	[ ]
Watts Bar Nuclear Plant, NER Supervisor	[ ]	[✓]
Bellefonte Nuclear Plant, J. E. Wills, OSE-1, BLN	[✓]	[ ]
_____	[ ]	[ ]
Nuclear Assurance, Licensing and Fuels:		
R. R. Clabo, BR 6A-C	[ ]	[ ]
M. G. Stevens, BR 4E-C	[ ]	[ ]
M. L. Turner, STC 1I, Sequoyah	[ ]	[ ]
Nuclear Projects:		
F. C. Prawlocki, LP 4J-C (xc: _____)	[ ]	[ ]
Operations Services:		
G. L. Piser, LP 5D-C	[ ]	[ ]
C. L. Kelley, CST 7A-C	[ ]	[ ]
C. G. Hudson, LP 5D-C	[ ]	[ ]
R. J. Kitts, LP 6B-C	[ ]	[ ]
W. R. Lagergren, LP 3B-C	[ ]	[ ]
R. M. McMillan, LP 5A-C	[ ]	[ ]
E. L. Wisseman, BR 4E-C	[ ]	[ ]
D. F. Goetcheus, BR 5A-C	[ ]	[ ]
G. J. Pitts, BR 5A-C	[ ]	[ ]
J. A. Teague, BR 5A-C	[ ]	[ ]
K. Zimmerman, CST 7B-C	[ ]	[ ]
Nuclear Materials:		
L. Moerland, LP 3D-C	[ ]	[ ]
Independent Safety Engineering		
J. D. Robertson, SB 2B, SQN	[ ]	[ ]
D. W. Norwood, PSB-2, BFN	[ ]	[ ]
W. F. Skiba, NPB 1F, WBN	[ ]	[ ]
Other:		
R. H. Rogers, SP 4A-C	[ ]	[ ]
NSRB Support, LP 4A-C	[ ]	[ ]
G. A. Yelliott, LP 4K-C	[ ]	[ ]
J. P. Jackson, Hartsville District Center	[ ]	[ ]

cc: RIMS, MR 2F-C

PLNUCBJG/66

10/13/92

FI000210

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