Sequoyah Nuclear Plant

SURVEILLANCE INSTRUCTIONS

SI-417

RADIATION MONITOR SETPOINT EVALUATION - NOBLE GASES - GASEOUS EFFLUENTS

Units 1 and 2

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PORC Review: 10/16/79
Date

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for Superintendent

Date Approved: 10/16/79

DISTRIBUTION

1C Plant Master File
Superintendent
1U Assistant Superintendent (Oper.)
Assistant Superintendent (Maint.)
Administrative Supervisor
Maintenance Supervisor (M)
Assistant Maintenance Supervisor (M)
Maintenance Supervisor (E)
Assistant Maintenance Supervisor (E)
Maintenance Supervisor (I)
1U Results Supervisor
1C Operations Supervisor
1U Quality Assurance Supervisor
Health Physics
Public Safety Services Supv.
Chief Storekeeper
Preop Test Program Coordinator
Outage Director
1U Chemical Engineer
1C Radiochem Laboratory
Instrument Shop
Reactor Engineer
Instrument Engineer
Mechanical Engineer
1U Staff Industrial Engineer
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PSO - Chickamauga Engrg Unit - SNP
Public Safety Services - SNP
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QA&A Rep. - SNP
Health Physics Laboratory
1U Chief, Nuclear Generation Branch
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Superintendent, BFNP
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1U EN DES - MEB NEG
Supv., NPHPS ROB, MS
1U NRC-IE:II
Power Security Officer, 604 PRB-C
Nuclear Materials Coordinator
Manager, OP-QA&A Staff
1U P Prod Plant Eng. Branch

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	10/16/79	All			

The last page of this instruction is Number 9

PUNCHLIST

1. Section instruction letter for setpoint logbook.

2. Plant procedures should be changed to comply with SI-417 (IMI's; SI's 82, 83; etc).

Warren H. Kinsey Jr
10-16-79

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RADIATION MONITOR SETPOINT EVALUATION - NOBLE GASES - GASEOUS EFFLUENTS

1.0 SCOPE

1.1 Description

1.1.1 Establish and document the noble gas radiation monitor setpoint evaluation required by the technical specifications. The surveillance instruction (SI) will set and document initial setpoints (noble gas) and document adjustment of setpoints.

1.2 Objective

1.2.1 Satisfy limiting conditions for operations requirements for evaluating radiation monitor setpoints for gaseous effluents (LCO 3.3.3.10)

1.3 Frequency - Conditional

1.3.1 All modes

a. Determine the noble gas setpoint(s) for the shield building(s), auxiliary building, service building, and condenser vacuum exhaust radiation monitors for initial operation.

b. Determine the noble gas setpoint(s) for the shield building(s), auxiliary building, service building, and condenser vacuum exhaust radiation monitors as required by SI 410 and SI 415.

1.4 Logic Sequence

1.4.1 Initial Setpoint(s)

a. Evaluate monitor setpoint for the shield building exhaust(s), auxiliary building exhaust, service building exhaust, and condenser vacuum exhaust(s) using a fraction of the individual vent exhaust limit, as noted in Appendix A of TI 18. This fraction was initially set at 0.2 for systems without automatic isolation features (shield, service, and condenser vacuum exhausts) and 0.5 for system with automatic isolation features (auxiliary building).

1.4.2 Conditional

a. Shield Building

(1) Due to the need to purge containment (SI-410), release a waste gas decay tank (SI-410), or increase in background during operations (SI-415) the shield building alarm setpoint may require readjustment to a setpoint value that would

1.0 1.4 1.4.2 (Continued)

a.

(1) exceed the initial setpoint criteria. To alter or change setpoint above the initial value, requires authorization by the cognizant or lead chemical engineer. The person who authorizes the change will establish the criteria for reevaluating the setpoint. Note in the remarks section of data sheet who authorized the change and the reason for changing the setpoint. Re-adjust (MR) the setpoint to the setpoint value prior to the containment purge or waste gas decay tank release.

NOTE: The setpoint readjustment will normally be initiated by a SI-410 or SI-415 performance using maintenance requests.

b. Condenser Vacuum, Service Building, Auxiliary Building

(1) Due to operational conditions, the exhaust monitor may alarm frequently. If monitor alarms on a frequent basis. an investigation is required to evaluate the cause. If it can be proven that the monitor is responding to background changes, the setpoint can be readjusted to a value that would not exceed limiting value based on TI-18 Appendix A (ODCM).

NOTE: The setpoint readjustment will be normally initiated by SI-415 performance(s) using maintenance requests.

2.0 INSTRUCTIONS

2.1 Shield Building Exhaust - Noble Gas (RM-90-100B)

a. Initial

(1) Using 1/10 of the allowable containment shield building limit (TI-18, Appendix A) and the vent maximum design flowrate (TI-18, Appendix B), evaluate the noble gas (based on Xe 133) setpoint according to TI-18, Section C.1. Record setpoint value in setpoint logbook (punchlist) and corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37, Appendix B Logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the monitor setpoint using a SIL C10 form, Attachment F, (include MR number), and initiate a (MR) to adjust setpoint to calculated value and record MR number on SI data sheet 2.0, setpoint logbook (punchlist), and attach a copy of MR to the SI data package.

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2.0 2.1 b. Conditional

NOTE: SI-410 or SI-415 will normally initiate the conditional performance for SI-417 (shield building exhaust).

(1) Contact the cognizant chemical engineer or lead chemical engineer to discuss the need for setpoint readjustment. If it can be deemed necessary to change the setpoint the following criteria will be used to reestablish the setpoint:

(a) Establish a value which is a fraction of the allowable release rate limit for that exhaust ($\geq$ 1/10 $\leq$ 1/2 of TI-18 Appendix A value). The cognizant or lead chemical engineer will establish this value. Record the value, the reason for establishing that value, and who authorized the change on data sheet 2.0 and applicable TI-37, Appendix B logsheet.

(b) Using value in 2.1.b.1a, the maximum vent design flowrate (TI-18 Appendix B), reevaluate the noble gas setpoint (based on Xe 133) according to TI-18 Section C.1 and record setpoint in setpoint logbook (punchlist) and corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 Appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the monitor setpoint using a SIL C10 form, Attachment F (include MR number), and initiate a MR to adjust setpoint to calculated value and record MR number on SI data sheet 2.0 and setpoint logbook and attach a copy of MR to the SI data package.

NOTE: Technical specifications are not exceeded unless the total plant (6 vents) exceed 0.26 Ci/sec for noble gases (TI-18, Appendix A).

2.2 Auxiliary Building Exhaust - Noble Gas (RM-90-101B)

a. Initial

(1) Using 1/2 of the allowable auxiliary building limit (TI-18, Appendix A) and the vent maximum design flowrate (TI-18, Appendix B) evaluate the noble gas (based on Xe 133) setpoint according to TI-18, Section C.1. Record setpoint value in setpoint logbook (punchlist) and corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the monitor setpoint using a SIL C10 form, Attachment F (include MR number) and initiate a MR to adjust setpoint to calculated value and record MR number on data sheet 2.0, setpoint logbook (punchlist) and attach a copy of MR to the SI data package.

b. Conditional

NOTE: SI-415 will normally initiate the conditional performance for SI-417 (auxiliary building).

(1) Contact the cognizant chemical engineer or lead chemical engineer to discuss the need for setpoint readjustment. If it can be deemed necessary to change the setpoint, the following criteria will be used to resestablish the setpoint.

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2.0 2.2 b. (1) (Continued)

(a) Establish a value which is a fraction of the allowable release rate limit for that exhaust ($\geq$ 1/2 $\leq$ 0.99 of TI-18, Appendix A value). The cognizant or lead chemical engineer will establish this value. Record the value, the reason for establishing value and who authorized the change on data sheet 2.0 remarks section and applicable TI-37, Appendix B logsheet.

NOTE: Technical specifications are not exceeded unless the total plant (6 vents) exceed 0.26 Ci/sec for noble gases (TI-18, Appendix A).

(b) Using value in 2.2.b.1.a, the maximum vent design flowrate (TI-18, Appendix B), reevaluate the noble gas setpoint (based on Xe 133) according to TI-18 Section C.1 and record setpoint in setpoint logbook and corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 Appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the setpoint using an SIL C10 form, (include MR Number), attachment F and initiate a MR to adjust setpoint to calculated value and record MR number on data sheet 2.0, setpoint logbook (punchlist) and attach a copy of the MR to the SI data package.

2.3 Service Building Exhaust - Noble Gas (RM-90-132B)

a. Initial

(1) Using 1/5 of the allowable service building limit (TI-18 Appendix A) and the vent design flowrate that passes the radiation monitor (TI-18 Appendix B) evaluate the noble gas (based on Xe 133) setpoint according to TI-18 section C.1. Record setpoint value in setpoint logbook (punchlist), corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the monitor setpoint using a SIL C10 form, Attachment F and initiate a MR to adjust setpoint to calculated value and record MR number on data sheet 2.0, setpoint logbook (punchlist) and attach a copy of MR to the SI data package.

b. Conditional

NOTE: SI-415 will normally initiate the conditional performance of SI-417 (service building).

(1) Contact the cognizant or lead chemical engineer to discuss the need for setpoint readjustment. If it can be deemed necessary to change the setpoint, the following criteria will be used to reestablish the setpoint.

2.0 2.3 b. (1) Continued

(a) Establish a value which is a fraction of the allowable release rate limit for that exhaust ($\geq$ 1/5 $\leq$ 0.99 of TI-18 Appendix A value). The cognizant or lead chemical engineer will establish this value. Record the value, the reason for reestablishing the value and who authorized the change on data sheet 2.0 remarks section and applicable TI-37 appendix B logsheet.

NOTE: Technical specifications are not exceeded unless the total plant (6 vents) exceed 0.26 Ci/sec for noble gases (TI-18, Appendix A).

(b) Using value in 2.3.b.1.a, the vent design flowrate that passes the radiation monitor (TI-18, Appendix B), reevaluate the noble gas setpoint (based on Xe 133) according to TI-18 Section C.1 and record setpoint value in setpoint logbook (punchlist), and corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the setpoint using a SIL C10 form, attachment F (include MR number), and initiate a MR to adjust setpoint to calculated value and record MR number on data sheet 2.0 setpoint logbook (punchlist) and attach a copy of MR to SI data package.

2.4 Condenser Vacuum Exhaust (RM-90-119)

a. Initial

(1) Using 1/10 of the allowable condenser vacuum (TI-18, Appendix A) and a vent maximum flowrate of 100 CFM (TI-18, Appendix B) evaluate the noble gas (based on Xe 133) setpoint according to TI-18 Section C.1. Record setpoint value in setpoint logbook (punchlist) and corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the monitor setpoint using a SIL C10 form, Attachment F, and initiate a MR to adjust setpoint to calculated value and record MR number on data sheet 2.0 setpoint logbook (punchlist) and attach a copy of MR to SI data package.

b. Conditional

NOTE: SI-415 will normally initiate the conditional performance of SI-417 (condenser vacuum exhaust).

(1) Contact the cognizant or lead chemical engineer to discuss the need for setpoint readjustment. If it can be deemed necessary to change the setpoint, the following criteria will be used to reestablish the setpoint.

2.0 2.4 b. (1) Continued

(a) Establish a value which is a fraction of the allowable release rate limit for that exhaust ($\geq$ 1/10 $\leq$ 1/2 of TI-18 Appendix A value). The cognizant or lead chemical engineer will establish this value. Record the value, the reason for reestablishing the value and who authorized the change (remarks section) on data sheet 2.0 and applicable TI-37 appendix B logsheet.

NOTE: Technical specifications are not exceeded unless the total plant (6 vents) exceed 0.26 Ci/sec for noble gases (TI-18, Appendix A).

(b) Using value in 2.4.b.1.a, the vent design flowrate that passes the radiation monitor (TI-18, Appendix B), reevaluate the noble gas setpoint (based on Xe 133) according to TI-18 Section C.1 and record setpoint value in setpoint logbook (punchlist) corresponding release rate and setpoint value on data sheet 2.0 and applicable TI-37 appendix B logsheet. Attach the TI-18 evaluation to the SI data package. Notify the shift engineer of the setpoint using a SIL C10 form, attachment F (include MR number), and initiate a MR to adjust setpoint to calculated value and record MR number on data sheet 2.0 setpoint logbook (punchlist) and attach a copy of MR to SI data package.

3.0 ACCEPTANCE CRITERIA

3.1 Acceptance criteria is given on the data sheet for each parameter monitored.

4.0 ACTIONS REQUIRED

4.1 Notify cognizant or lead chemical engineer if a setpoint adjustment is requested (caused by performance of SI 410 or SI 415. Obtain permission to readjust setpoint and criteria to be used during the conditional performance of SI 417.

4.2 Notify the shift engineer of any setpoint adjustment using an SI C10 form, Attachment F (include MR for shift engineers approval for scheduling), and prepare MR to readjust monitor setpoint. Note on SILC10 form, attachment F that the shift engineer will make available the latest alarm/trip setpoint for functional testing and setpoint verification.

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SI DATA PACKAGE COVER SHEET

RADIATION MONITOR SETPOINT EVALUATION - NOBLE GAS - GASEOUS EFFLUENTS

Unit _____

Performed by _____ Date _____
Analyst(s)

List of data sheets attached.

Instruction No.	Data Sheet No.	Pages
SI 417	2.0	1
SI 417	2.0	2
TI 18	Evaluation	NA
MR Number	Copy	NA

Were technical specification criteria satisfied? _____ Yes _____ No
If criteria were not satisfied, notify the shift engineer who completes the following:

Was a limiting condition for operation violated?
_____ Yes (explain in remarks) _____ No (explain in remarks)
Verified By _____ Date _____
Shift Engineer

Reason for test:

_____ Initial setpoint for monitor(s) _____
_____
_____ Plant condition (explain) _____
_____ Other (explain) _____

Review of Test Results

_____ Date _____
Chemical Engineering Associate

Review and Approval of Test Results

_____ Date _____
Lead Chemical Engineer

_____ Date _____
Cognizant Chemical Engineer

QA Review of Test Results

QA Staff _____ Date _____

Remarks: _____

_____

Unit 1
Power _____ MWt (4)
Mode _____ (4)
Date/Time _____

DATA SHEET 2.0

RADIATION MONITOR SETPOINT EVALUATION - NOBLE GASES - GASEOUS EFFLUENTS

All Sections are Chemical Responsibility

Procedure Step	Sample Location	Mode	Maintenance Request No.	Units	Operational Limit-INITIAL (1)	Operational Limit-CONDI. (5)(2)	Acceptance Criteria(3)	Analyst Initials	Remarks/ Footnotes
2.1	Shield Bldg. Monitor RM-90-100	1,2,3,4, 5,6	_____ (6)	μCi/sec	_____	_____	≤ 1.1×10^{5} μCi/sec	_____	_____
				CPM	_____	_____	NA	_____	_____
2.4	Condenser Vacuum Exh. Monitor RM-90-119	1,2,3,4, 5,6	_____ (6)	μCi/sec	_____	_____	≤ 7.5×10^{3} μCi/sec	_____	_____
				CPM	_____	_____	NA	_____	_____
2.2	Aux.Bldg. Exh.Monitor O-RM-90-101	1,2,3,4, 5,6	_____ (6)	μCi/sec	_____	_____	≤ 2.3×10^{4} μCi/sec	_____	_____
				CPM	_____	_____	NA	_____	_____
2.3	ServiceBldg. Exh.Monitor O-RM-90-132	1,2,3,4, 5,6	_____ (6)	μCi/sec	_____	_____	≤ 2.6×10^{3} μCi/sec	_____	_____
				CPM	_____	_____	NA	_____	_____

Remarks: _____

Notes: General: As soon as any parameter is exceeded, immediately notify the cognizant or lead chem. engr. and note in the remarks section.

(1) Based on a fraction of ODCM dose limits (1/5 or 1/10 for vent monitor(s) with alarm function only--all except aux.bldg. and (1/2 for vent monitor--aux.bldg--with automatic isolation) based on Xe 133 as the controlling isotope)) evaluation of 10CFR20 (Memo. from G. F. Stone to J. R. Calhoun, dated 9/28/79, concerning alarmed trip setpoints for gaseous effluent monitors) can be performed. Table included in TI-18 Appendix A for release rate limits and reason for change.

(2) Value supplied by chemical engineer and noted (date and times) in remarks section.

(3) Acceptance criteria is based on ODCM maximum limit(s) for each vent.

(4) Obtain from unit operator.

(5) Notify the shift engineer using a SIL C10 form, Attachment F (include MR for shift engineer's approval for scheduling).

(6) Attach copy to SI data package and note on data coversheet.

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Unit 2
Power _____ MWt (4)
Mode _____
Date/Time _____

DATA SHEET 2.0

RADIATION MONITOR SETPOINT EVALUATION - NOBLE GASES - GASEOUS EFFLUENTS

All Sections are Chemical Responsibility

Procedure Step	Sample Location	Mode	Maintenance Request No.	Units	Operational Limit-INITIAL (1)	Operational Limit-CONDI. (5)(2)	Acceptance Criteria(3)	Analyst Initials	Remarks/ Footnotes
2.1	Shield Bldg. Monitor RM-90-100	1,2,3,4, 5,6	_____ (6)	μCi/sec	_____	_____	$\leq 1.1 \times 10^{5}$ μCi/sec	_____	_____
				CPM	_____	_____	NA	_____	_____
2.4	Condenser Vacuum Exh. Monitor RM-90-119	1,2,3,4, 5,6	_____ (6)	μCi/sec	_____	_____	$\leq 7.5 \times 10^{3}$ μCi/sec	_____	_____
				CPM	_____	_____	NA	_____	_____

Remarks: _____

Notes: General: As soon as any parameter is exceeded, immediately notify the cognizant or lead chem. engr. and note in the remarks section.

(1) Based on a fraction of ODCM dose limits (1/5 or 1/10 for vent monitor(s) with alarm function only--all except aux.bldg. and (1/2 for vent monitor--aux.bldg--with automatic isolation) based on Xe 133 as the controlling isotope)) evaluation of 10CFR20 (Memo. from G. F. Stone to J. R. Calhoun, dated 9/28/79, concerning alarmed trip setpoints for gaseous effluent monitors) can be performed. Table included in TI-18 Appendix A for release rate limits and reason for change.

(2) Value supplied by chemical engineer and noted (date and times) in remarks section.

(3) Acceptance criteria is based on ODCM maximum limit(s) for each vent.

(4) Obtain from unit operator.

(5) Notify the shift engineer using a SIL C10 form, Attachment F (include MR Number for shift engineer's approval for scheduling.

(6) Attach copy to SI data package and note on data coversheet.