

Attachment No. 2 to AEP:NRC:0856G

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2

Proposed Technical Specification Changes

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PDR ADDCK 05000315
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ADMINISTRATIVE CONTROLS

6.8.3 Temporary changes to procedures of 6.8.1 above may be made provided:

- a. The intent of the original procedure is not altered.
- b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License on the unit affected.
- c. The change is documented, reviewed by the PNSRC and approved by the Plant Manager within 14 days of implementation.

6.8.4 A plant program for post-accident sampling shall be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant samples, containment atmosphere noble gas samples, and unit vent gaseous effluent samples for iodines and particulates under accident conditions. The program will include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis,
- c. Provisions for maintenance of sampling and analysis equipment.

ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS AND REPORTABLE OCCURRENCES

- 6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement unless otherwise noted.

STARTUP REPORT

- 6.9.1.1 A summary of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.
- 6.9.1.2 The startup report shall address each of tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
1. Modes 1, 2, 3, & 4				
A) Area Monitors				
i) Upper Containment ⁺ (VRS 1101/1201)	1	N/A	≤54 mR/hr	21
ii) Containment - High Range (VRA 1310/1410)	2	≤10R/hr	N/A	22A
B) Process Monitors				
i) Particulate Channel ⁺ (ERS 1301/1401)	1	N/A	≤2.52 uCi	20
ii) Noble Gas Channel ⁺ (ERS 1305/1405)	1	N/A	≤4.4 x 10 ⁻³ $\frac{\text{uCi}}{\text{cc}}$	20
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 1505)	----- (See T/S Section 3.3.3.10) -----			
b) Mid Range (VRS 1507)	1	N/A	N/A	22B
c) High Range (VRS 1509)	1	N/A	N/A	22B
ii) Steam Generator PORV				
a) MRA 1601 (Loop 1)	1	N/A	N/A	22B
b) MRA 1602 (Loop 4)	1	N/A	N/A	22B
c) MRA 1701 (Loop 2)	1	N/A	N/A	22B
d) MRA 1702 (Loop 3)	1	N/A	N/A	22B

TABLE 3.3-6 (Cont'd)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
ii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 1805)	----- (See T/S Section 3.3.3.10) -----			
iii) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 1905)	----- (See T/S Section 3.3.3.10) -----			
b) Mid Range (SRA 1907)	1	N/A	N/A	22B
c) High Range (SRA 1909)	1	N/A	N/A	22B
2. Mode 6				
A) Train A	any 2/3 channels			22
i) Containment Area Radiation ⁺ Channel (VRS 1101)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ⁺ (ERS 1301)		N/A	≤ 2.52 uCi	
iii) Noble Gas Channel ⁺ (ERS 1305)		N/A	≤ 4.4 x 10 ⁻³ $\frac{\text{uCi}}{\text{cc}}$	
B) Train B	any 2/3 channels			22
i) Containment Area ⁺ Radiation Channel (VRS 1201)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ⁺ (ERS 1401)		N/A	≤ 2.52 uCi	

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TABLE 3.3-6 (Cont'd)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE '</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
iii) Noble Gas Channel ⁺ (ERS 1405)		N/A	$\leq 4.4 \times 10^{-3} \frac{\mu\text{Ci}}{\text{cc}}$	22
3. Mode ***				
A) Spent Fuel Storage (RRC-330)	1	$\leq 15 \text{ mR/hr}$	$\leq 15 \text{ mR/hr}$	21

***With fuel in storage pool or building.

+ This specification applies only during purge.

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TABLE 3.3-6 (Continued)
TABLE NOTATION

- ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1.
- ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day.
- ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirements, comply with the ACTION requirements of Specification 3.9.9. This ACTION is not required during the performance of containment integrated leak rate test.
- ACTION 22A - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements:
1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or
 2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
 3. Technical Specification Sections 3.0.3, 3.0.4 and 6.9.1.13 Not Applicable.
- ACTION 22B - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements.
1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or
 2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
 3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.
 4. Technical Specification Sections 3.0.3, 3.0.4 and 6.9.1.13 Not Applicable.

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
1. Modes 1, 2, 3 & 4				
A) Area Monitors				
i) Upper Containment (VRS 1101/1201)	S*	R	M	1, 2, 3, 4
ii) Containment - High Range (VRS 1310/1410)	S	R	M	1, 2, 3, 4
B) Process Monitors				
i) Particulate Channel (ERS 1301/1401)	S*	R	M	1, 2, 3, 4
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 1505)-----				
(See Table 4.3-9, Item 3.a, 4a, 5a)-----				
b) Mid Range (VRS 1507)	S	R	N/A	1, 2, 3, 4
c) High Range (VRS 1509)	S*	R	N/A	1, 2, 3, 4
ii) Steam Generator PORV				
a) MRA 1601 (Loop 1)	S*	R	M	1, 2, 3, 4
b) MRA 1602 (Loop 4)	S*	R	M	1, 2, 3, 4
c) MRA 1701 (Loop 2)	S*	R	M	1, 2, 3, 4
d) MRA 1702 (Loop 3)	S*	R	M	1, 2, 3, 4

TABLE 4.3-3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
iii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 1805)-----	(See Table 4.3-9 Item 6.a)-----			
iv) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 1905)-----	(See Table 4.3-9, Item 2.a)-----			
b) Mid Range (SRA 1907)	S	R	M	1, 2, 3, 4
c) High Range (SRA 1909)	S*	R	N/A	1, 2, 3, 4
2. Mode 6				
A) Train A				6
i) Containment Area Radiation Channel (VRS 1101)	S*	R	M	
ii) Particulate Channel (ERS 1301)	S*	R	M	
iii) Noble Gas Channel (ERS 1305)	S*	R	M	
B) Train B				6
i) Containment Area Radiation Channel (VRS 1201)	S*	R	M	
ii) Particulate Channel (ERS 1401)	S*	R	M	

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TABLE 4.3-3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

D. C. COOK - UNIT 1	<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
3.	iii) Noble Gas Channel (ERS 1405)	S*	R	M	6
	Mode**				
1	A) Spent Fuel Storage (RRC-330)	S	R	M	**

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* To include Source Check per T/S Section 1.27.

** With fuel in storage pool or building.

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3/4.3 INSTRUMENTATION BASES

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and interlocks ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF proposes from diverse parameters.

The OPERABILITY of these system is required to provide the overall reliability, redundance and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these system is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

Noble gas effluent monitors provide information, during and following an accident, which is considered helpful to the operator in assessing the plant condition. It is desired that these monitors be OPERABLE at all times during plant operation, but they are not required for safe shutdown of the plant.

In addition, a minimum of two in containment radiation-level monitors with a maximum range of 10⁷ R/hr for photon only should be OPERABLE at all times except for cold shutdown and refueling outages. In case of failure of the monitor, appropriate actions should be taken to restore its operational capability as soon as possible.

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INSTRUMENTATION
BASES

Radiation Monitoring Instrumentation (Continued)

Table 3.3-6 is based on the following Alarm/Trip Setpoints and Measurement Ranges for each instrument listed. For the unit vent noble gas monitors, it should be noted that there is an automatic switchover from the low/mid-range channels to the high-range channel when the upper limits of the low- and mid-range channel measurement ranges are reached. In this case there is no flow to the low- and mid-range channels from the unit vent sample line. This is considered to represent proper operation of the this monitor. Therefore, if automatic switchover to the high-range should occur, and the low- and mid-range detectors are capable of functioning when flow is re-established, the low- and mid-range channels should not be declared inoperable and the ACTION statement in the Technical Specification does not apply. This is also true while purging the low- and mid-range chambers following a large activity excursion prior to resumption of low-level monitoring and establishment of a new background.

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
1) Area Monitor- Upper Containment (VRS 1101/1201)	The monitor trip setpoint is based on 10 CFR 20 limits. A homogeneous mixture of the containment atmosphere is assumed. The setpoint value is defined as the monitor reading when the purge is operating at the maximum flow rate.	10^{-4} R/hr to 10 R/hr.
2) Area Monitor- Containment High Range (VRA 1310/ 1410)	The monitor setpoint was selected to reflect the guidance provided in Generic Letter 83-37 for NUREG-0737 Technical Specifications	1 R/hr to 1×10^7 R/hr Photons.
3) Process Monitor Particulate (ERS 1301/1401)	The monitor trip setpoint is based on 10 CFR 20 The setpoint was determined using the Noble gas setpoint and historical monitor data of the ratio of particulates to Noble gases.	1.5×10^{-4} uCi to 7.5 uCi.

* This is the minimum required sensitivity of the instrument. Indicated values on these instruments above or below these minimum sensitivity ranges are acceptable and indicate existing conditions not instrument inoperability.

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INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
4) Process Monitor Noble Gas (ERS 1305/1405)	The monitor trip setpoint is based on 10 CFR 20 limits. A homogeneous mixture of the containment atmosphere is assumed. The setpoint value is defined as the monitor reading when the purge is operating at the maximum flow rate.	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/cc
5) Steam Generator PORV (MRA 1601) (MRA 1602) (MRA 1701) (MRA 1702)	Not Applicable.**	0.1uCi/cc to 1.0×10^2 uCi/cc.
6) Noble Gas Unit Vent Monitors		
a) Low Range (VRS 1505).	See Bases Section 3/4.3.3.10	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/ cc.
b) Mid Range (VRS 1507)	Not Applicable**	1.3×10^{-3} uCi/cc to 7.5×10^2 uCi/ cc.
c) High Range (VRS 1509)	Not Applicable**	2.9×10^{-2} uCi/cc to 1.6×10^4 uCi/ cc.
7) Gland Steam Condenser Vent Noble Gas Monitor		
a) Low Range (SRA 1805)	See Bases Section 3/4.3.3.10	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/ cc.

* This is the minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

** These monitors are used to provide data to assist in post-accident off-site dose assessment.

INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
8) Steam Jet Air Ejector Vent Noble Gas Monitor		
a) Low Range (SRA 1905)	See Bases Section 3/4.3.3.10	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/cc.
b) Mid Range (SRA 1907)	Not applicable.**	1.3×10^{-3} uCi/cc to 7.5×10^2 uCi/cc.
c) High Range (SRA 1909)	Not Applicable.**	2.9×10^{-2} uCi/cc to 1.6×10^4 uCi/cc.
9) Spent Fuel Storage (RRC-330)	The monitor setpoint is selected to alarm and trip consistent with 10 CFR 70.24(a) (2)	1×10^{-1} mR/hr to 1×10^4 mR/hr

The Radiation Monitoring Instrumentation Surveillance Requirements per Table 4.3-3 are based on the following interpretation:

- 1) The CHANNEL FUNCTIONAL TEST is successfully accomplished by the injection of a simulated signal into the channel, as close to the detector as practical, to verify the channel's alarm and/or trip function only.
- 2) The CHANNEL CALIBRATION as defined in T/S Section 1.9 permits the "known values" generated from radioactive calibration sources to be supplemented with "known values" represented by simulated signals for that subset of "known values" required for calibration and not practical to generate using the radioactive calibration sources.

* This is minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

** These monitors are used to provide data to assist in post-accident off-site dose assessment.

UNIT 2

TECHNICAL SPECIFICATIONS

ADMINISTRATIVE CONTROLS

6.8.3 Temporary changes to procedures of 6.8.1 above may be made provided:

- a. The intent of the original procedure is not altered.
- b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License on the unit affected.
- c. The change is documented, reviewed by the PNSRC and approved by the Plant Manager within 14 days of implementation.

6.8.4 A plant program for post-accident sampling shall be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant samples, containment atmosphere noble gas samples, and unit vent gaseous effluent samples for iodines and particulates under accident conditions. The program will include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis,
- c. Provisions for maintenance of sampling and analysis equipment.

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ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS AND REPORTABLE OCCURRENCES

- 6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement unless otherwise noted.

STARTUP REPORT

- 6.9.1.1 A summary of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.
- 6.9.1.2 The startup report shall address each of tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.
- 6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

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OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
1. Modes 1, 2, 3, & 4				
A) Area Monitors				
i) Upper Containment ⁺ (VRS 2101/2201)	1	N/A	≤54 mR/hr	21
ii) Containment - High Range (VRA 2310/2410)	2	≤10R/hr	N/A	22A
B) Process Monitors				
i) Particulate Channel ⁺ (ERS 2301/2401)	1	N/A	≤2.52 uCi	20
ii) Noble Gas Channel ⁺ (ERS 2305/2405)	1	N/A	≤4.4 x 10 ⁻³ $\frac{\text{uCi}}{\text{cc}}$	20
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 2505)	----- (See T/S Section 3.3.3.10) -----			
b) Mid Range (VRS 2507)	1	N/A	N/A	22B
c) High Range (VRS 2509)	1	N/A	N/A	22B
ii) Steam Generator PORV				
a) MRA 2601 (Loop 1)	1	N/A	N/A	22B
b) MRA 2602 (Loop 4)	1	N/A	N/A	22B
c) MRA 2701 (Loop 2)	1	N/A	N/A	22B
d) MRA 2702 (Loop 3)	1	N/A	N/A	22B

TABLE 3.3-6 (Cont'd)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
ii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 2805)	-----	(See T/S Section 3.3.3.10)	-----	
iii) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 2905)	-----	(See T/S Section 3.3.3.10)	-----	
b) Mid Range (SRA 2907)	1	N/A	N/A	22B
c) High Range (SRA 2909)	1	N/A	N/A	22B
2. Mode 6				
A) Train A	any 2/3 channels			22
i) Containment Area Radiation ⁺ Channel (VRS 2101)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ⁺ (ERS 2301)		N/A	≤ 2.52 uCi	
iii) Noble Gas Channel ⁺ (ERS 2305)		N/A	≤ 4.4 x 10 ⁻³ $\frac{\text{uCi}}{\text{cc}}$	
B) Train B	any 2/3 channels			22
i) Containment Area ⁺ Radiation Channel (VRS 2201)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ⁺ (ERS 2401)		N/A	≤ 2.52 uCi	

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TABLE 3.3-6 (Cont'd)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
iii) Noble Gas Channel ⁺ (ERS 2405)		N/A	$\leq 4.4 \times 10^{-3} \frac{\text{uCi}}{\text{cc}}$	22
3. Mode ***				
A) Spent Fuel Storage (RRC-330)	1	$\leq 15 \text{ mR/hr}$	$\leq 15 \text{ mR/hr}$	21

***With fuel in storage pool or building.

+ This specification applies only during purge.

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TABLE 3.3-6 (Continued)
TABLE NOTATION

- ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1.
- ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day.
- ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirements, comply with the ACTION requirements of Specification 3.9.9. This ACTION is not required during the performance of containment integrated leak rate test.
- ACTION 22A - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements:
1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or
 2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
 3. Technical Specification Sections 3.0.3, 3.0.4 and 6.9.1.13 Not Applicable.
- ACTION 22B - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements.
1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or
 2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
 3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.
 4. Technical Specification Sections 3.0.3, 3.0.4 and 6.9.1.13 Not Applicable.

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
1. Modes 1, 2, 3 & 4				
A) Area Monitors				
i) Upper Containment (VRS 2101/2201)	S*	R	M	1, 2, 3, 4
ii) Containment - High Range (VRS 2310/2410)	S	R	M	1, 2, 3, 4
B) Process Monitors				
i) Particulate Channel (ERS 2301/2401)	S*	R	M	1, 2, 3, 4
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 2505)-----				
(See Table 4.3-9, Item 3.a, 4a, 5a)-----				
b) Mid Range (VRS 2507)	S	R	N/A	1, 2, 3, 4
c) High Range (VRS 2509)	S*	R	N/A	1, 2, 3, 4
ii) Steam Generator PORV				
a) MRA 2601 (Loop 1)	S*	R	M	1, 2, 3, 4
b) MRA 2602 (Loop 4)	S*	R	M	1, 2, 3, 4
c) MRA 2701 (Loop 2)	S*	R	M	1, 2, 3, 4
d) MRA 2702 (Loop 3)	S*	R	M	1, 2, 3, 4

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TABLE 4.3-3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
iii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 2805)-----				(See Table 4.3-9 Item 6.a)-----
iv) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 2905)-----				(See Table 4.3-9, Item 2.a)-----
b) Mid Range (SRA 2907)	S	R	M	1, 2, 3, 4
c) High Range (SRA 2909)	S*	R	N/A	1, 2, 3, 4
2. Mode 6				
A) Train A				6
i) Containment Area Radiation Channel (VRS 2101)	S*	R	M	
ii) Particulate Channel (ERS 2301)	S*	R	M	
iii) Noble Gas Channel (ERS 2305)	S*	R	M	
B) Train B				6
i) Containment Area Radiation Channel (VRS 2201)	S*	R	M	
ii) Particulate Channel (ERS 2401)	S*	R	M	

TABLE 4.3-3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

D. C. COOK - UNIT 2	<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
	iii) Noble Gas Channel (ERS 2405)	S*	R	M	6
3.	Mode**				
	A) Spent Fuel Storage (RRC-330)	S	R	M	**

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* To include Source Check per T/S Section 1.27.

** With fuel in storage pool or building.

[illegible]

3/4.3 INSTRUMENTATION

BASES

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and interlocks ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF proposes from diverse parameters.

The OPERABILITY of these system is required to provide the overall reliability, redundance and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these system is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

Noble gas effluent monitors provide information, during and following an accident, which is considered helpful to the operator in assessing the plant condition. It is desired that these monitors be OPERABLE at all times during plant operation, but they are not required for safe shutdown of the plant.

In addition, a minimum of two in containment radiation-level monitors with a maximum range of 10⁷ R/hr for photon only should be OPERABLE at all times except for cold shutdown and refueling outages. In case of failure of the monitor, appropriate actions should be taken to restore its operational capability as soon as possible.

INSTRUMENTATION
BASES

Radiation Monitoring Instrumentation (Continued)

Table 3.3-6 is based on the following Alarm/Trip Setpoints and Measurement Ranges for each instrument listed. For the unit vent noble gas monitors, it should be noted that there is an automatic switchover from the low/mid-range channels to the high-range channel when the upper limits of the low- and mid-range channel measurement ranges are reached. In this case there is no flow to the low- and mid-range channels from the unit vent sample line. This is considered to represent proper operation of this monitor. Therefore, if automatic switchover to the high-range should occur, and the low- and mid-range detectors are capable of functioning when flow is re-established, the low- and mid-range channels should not be declared inoperable and the ACTION statement in the Technical Specification does not apply. This is also true while purging the low- and mid-range chambers following a large activity excursion prior to resumption of low-level monitoring and establishment of a new background.

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
1) Area Monitor- Upper Containment (VRS 2101/2201)	The monitor trip setpoint is based on 10 CFR 20 limits. A homogeneous mixture of the containment atmosphere is assumed. The setpoint value is defined as the monitor reading when the purge is operating at the maximum flow rate.	10^{-4} R/hr to 10R/hr.
2) Area Monitor- Containment High Range (VRA 2310/ 2410)	The monitor setpoint was selected to reflect the guidance provided in Generic Letter 83-37 for NUREG-0737 Technical Specifications.	1R/hr to 1×10^7 R/hr Photons.
3) Process Monitor Particulate (ERS 2301/2401)	The monitor trip setpoint is based on 10 CFR 20 The setpoint was determined using the Noble gas setpoint and historical monitor data of the ratio of particulates to Noble gases.	1.5×10^{-4} uCi to 7.5 uCi.

* This is the minimum required sensitivity of the instrument. Indicated values on these instruments above or below these minimum sensitivity ranges are acceptable and indicate existing conditions not instrument inoperability.

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INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
4) Process Monitor Noble Gas (ERS 2305/2405)	The monitor trip setpoint is based on 10 CFR 20 limits. A homogeneous mixture of the containment atmosphere is assumed. The setpoint value is defined as the monitor reading when the purge is operating at the maximum flow rate.	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/cc
5) Steam Generator PORV (MRA 2601) (MRA 2602) (MRA 2701) (MRA 2702)	Not Applicable.**	0.1uCi/cc to 1.0×10^2 uCi/cc.
6) Noble Gas Unit Vent Monitors		
a) Low Range (VRS 2505)	See Bases Section 3/4.3.3.10	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/ cc.
b) Mid Range (VRS 2507)	Not Applicable**	1.3×10^{-3} uCi/cc to 7.5×10^2 uCi/ cc.
c) High Range (VRS 2509)	Not Applicable**	2.9×10^{-2} uCi/cc to 1.6×10^4 uCi/ cc.
7) Gland Steam Condenser Vent Noble Gas Monitor		
a) Low Range (SRA 2805)	See Bases Section 3/4.3.3.10	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/ cc.

* This is the minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

**These monitors are used to provide data to assist in post-accident off-site dose assessment.

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INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
8) Steam Jet Air Ejector Vent Noble Gas Monitor		
a) Low Range (SRA 2905)	See Bases Section 3/4.3.3.10	5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/ cc.
b) Mid Range (SRA 2907)	Not Applicable.**	1.3×10^{-3} uCi/cc to 7.5×10^2 uCi/ cc.
c) High Range (SRA 2909)	Not Applicable.**	2.9×10^{-2} uCi/cc to 1.6×10^4 uCi/ cc.
9) Spent Fuel Storage (RRC-330)	The monitor setpoint is selected to alarm and trip consistent with 10 CFR 70.24(a) (2)	1×10^{-1} mR/hr to 1×10^4 mR/hr

The Radiation Monitoring Instrumentation Surveillance Requirements per Table 4.3-3 are based on the following interpretation:

- 1) The CHANNEL FUNCTIONAL TEST is successfully accomplished by the injection of a simulated signal into the channel, as close to the detector as practical, to verify the channel's alarm and/or trip function only.
- 2) The CHANNEL CALIBRATION as defined in T/S Section 1.9 permits the "known values" generated from radioactive calibration sources to be supplemented with "known values" represented by simulated signals for that subset of "known values" required for calibration and not practical to generate using the radioactive calibration sources.

* This is minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

**These monitors are used to provide data to assist in post-accident off-site dose assessment.

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INSTRUMENTATION

BASES

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensure that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility.

3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public.

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident.

3/4.3.3.7 AXIAL POWER DISTRIBUTION MONITORING SYSTEM (APDMS)

OPERABILITY of the APDMS ensures that sufficient capability is available for the measurement of the neutron flux spatial distribution within the reactor core. This capability is required to 1) monitor the core flux patterns that are representative of the peak core power density and 2) limit the core average axial power profile such that the total power peaking factor F_Q is maintained within acceptable limits.

[illegible]

INSTRUMENTATION

BASES

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY. Use of containment temperature monitoring is allowed once per hour if containment fire detection is inoperable.

3/4.3.3.9 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

The radioactive liquid effluent instrumentation is provide to monitor and control, as applicable, the release of radioactive material in liquid effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approval methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.3.3.10 RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluent during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approval methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generator potentially damaging missiles which could impact and damage safety related components, equipment or structures.

Attachment 3 to AEP:NRC:0856G

Copies of Documents Referenced in Attachment 1