Unit 2 - C

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THREE MILE ISLAND NUCLEAR STATION
UNIT #2 OPERATING PROCEDURE 2104-5.10

CONTROL BUILDING AREA HVAC

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Approval NA Date —
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Unit 2 Staff Recommends Approval

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Unit 1 PORC Recommends Approval

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Unit 2 PORC Recommends Approval

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Unit 1 Superintendent Approval

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J J Mueller Date 9/16/77

Manager Generation Quality Assurance Approval NA Date —

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THREE MILE ISLAND NUCLEAR STATION - UNIT #2

CONTROL BUILDING AREA - HVAC 2104-5.10

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1.0 REFERENCES

1.1 Drawings Applicable for Operation

1.1.1 Control Building Area-AVAC (2040)

1.1.2 River Water Pump House-HVAC (2047)

1.1.3 Nuclear Services River Water (2033)

1.2 Operating Procedures Applicable for Operation

1.2.1 2104-2.3 (Instrument Air)

1.2.2 2104-1.1 (BOP Electrical)

1.2.3 2107-1.2 (Class IE Electrical System)

1.2.4 2104-3.1 (Nuclear Service River Water)

1.2.5 2104-6.1 (Fire Protection System)

1.3 Manufacturers Instruction Manuals

1.3.1 Mine Safety Instruction Manual, (63.03)

1.3.2 Buffalo Forge Instruction Manual, (63.05)

1.3.3 Chromalox Unit Heater Manual, (63.19)

1.3.4 Spot Cooler Manual (Later)

1.4 System Descriptions Applicable for Operation

1.4.1 Control Building Area HVAC. (Index No. 15)

1.4.2 River Water Pump House HVAC, (Index No. 39)

2.0 LIMITS AND PRECAUTIONS

2.1 Equipment

2.1.1 Ensure that filter media cartridges on each Rolle-type filters do not exceed maximum differential (0.5" WG) and that the filter is replaced when exhausted.

2.1.2 Ensure that moving parts are lubricated.

2.2 Administrative

2.2.1 At least one recirculation fan coil unit should be in operation at all times.

2.2.2 If power is lost, a fan coil unit must be manually restarted at Panel 317.

2.2.3 There is no high temperature alarm in the Control Building Area East Section. Neither Section has a low temperature alarm.

2.2.4 Do not reposition dampers throttled for air balancing.

Initial Each Step

3.0 PREREQUISITES (Initial Each Step Upon Satisfactory Completion)

____3.1 Instrument Air available per 2104-2.3

____3.2 Nuclear Service River Water available per 2104-3.1

____3.3 Electrical power is available to the following components.

Components	Bus	Unit #	Initial	Components	Bus	Unit #	Initial
AH-C-50A	2-12E	DC2	---	AH-C-52A	2-42C	3CF	---
AH-C-50B	2-22E	CD3	---	AH-C-52B	2-42C	3DR	---
AH-C-51(Fan)	2-37	DG1	---	AH-C-52C	2-42C	3EF	---
AH-C-51 (Heater)	2-42C	DR	---	AH-C-52D	2-42C	3FR	---
				AH-C-52E	2-42C	4CF	---
				AH-C-52F	2-42C	4DR	---
				AH-C-52G	2-42C	4EF	---
				AH-C-52H	2-42C	4FR	---
				AH-C-58A	2-42C	1CR	---
				AH-C-58B	2-31B	13A	---
				AH-C-58C	2-42C	3CR	---
				AH-C-58D	2-31B	14A	---

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AH-C-58E	2-42C 1ER	---
AH-C-58F	2-31B 14B	---
AH-C-58G	2-31B 14C	---
AH-C-58H	2-42C 3DF	---
AH-C-58I	2-31B 12A	---
AH-C-58J	2-42C 4ER	---

_____3.4 The control switch or pushbutton are in the position specified below. (Parenthesis) indicates local pushbutton or switch.

East Section

Component	Position	Initial
AH-C-50A	PULL-TO-LOCK	_____
AH-C-5CA	PULL-TO-LOCK	_____
AH-C-51 (Fan)	PULL-TO-LOCK	_____
AH-C-51 (Heater)	(OFF)	_____
AH-C-52A	(OFF)	_____
AH-C-52F	(OFF)	_____
AH-C-52G	(OFF)	_____
AH-C-52H	(OFF)	_____

West Section

Component	Position	Initial
AH-C-58A	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58B	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58C	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58D	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58E	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58F	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58G	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58H	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58I	(AUTO-Depressed) (MANUAL-Up) OFF	_____
AH-C-58J	(AUTO-Depressed) (MANUAL-Up) OFF	_____

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____3.5 Fire Protection System for the Control Building Area in operation per 2104-6.1 with all alarms cleared.

4.0 OPERATION

4.1 Control Building Area HVAC System Startup.

____4.1.1 Control Building Area East Section Startup.

____4.1.1.1 Place the local control switches for AH-F-22A and 22B in "AUTO". There is no status change.

____4.1.1.2 On Panel 317 hold the control switch for the lead recirculation fan coil unit, AH-C-50A or 50B in "START". The fan is running. Release the switch, place the control switch for the standby fan coil unit in "NORMAL". There is no status change.

____4.1.1.3 On Panel 317 place the control switches for the AH-C-51 fan heater in "START" and "ON" respectively. The fan will start. Indication is local and on Panel 317. The heater will not be energized and the local indicating light not be illuminated unless the incoming air is below 50°F.

____4.1.1.4 Place the local thermostat control switches for Unit Heaters AH-C-52A, F, G, & H in "AUTO". The fan and heater will be energized only if the ambient temperature is below 60°F.

____4.1.2 Control Building Area West Section Startup.

____4.1.2.1 Locally place the local thermostat control switches for AH-C-52B, C, D and E in "AUTO". The fan and heater will be energized only if the ambient temperature is below 60°F.

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____4.1.2.2 On Panel 317, place the control switches for AH-C-58A thru J in "AUTO". The fan will start only if the ambient temperature is above 80°F.

____4.1.2.3 Locally hold the control switch for AH-E-13, River Water Pump House Supply Fan, in "START". Observe indicating light. Release switch.

____4.1.2.4 Locally the pushbutton for AH-E-62, Stairwell Exhaust Fan, in "START". Observe location indicating light.

4.2 Control Building Area HVAC Normal Operation.

4.2.1 Control Building Area East Section Normal Operation.

____4.2.1.1 Fresh Air Supply Fan AH-C-51 is equally distributing air to the East and West Section. Most of the air directed to the West Section is returned to the East Section and exhausted with the East Section Air through the contaminated Drain Tank and Pump Room.

____4.2.1.2 Fresh Air Supply filter, AH-F-32 should be replaced with a DP of 0.5"WG. Local indication is available. There is no alarm for a dirty filter.

____4.2.1.3 The Fresh Air Supply Fan Preheater will be energized in steps with decreasing air inlet temperature, below 50°F.

____4.2.1.4 Either recirculation fan AH-C-50A or B is running. Both control switches are in "NORMAL". The idle fan will automatically start if the running fan motor stops.

____4.2.1.5 NR cooling water flow will be initiated through the AH-C-50A or B with increasing ambient temperature, above 75°F.

____4.2.1.6 The motors for AH-F-22A and 22B will progress the filter media with a high differential (0.5"WG) across the filters.

____4.2.1.7 With the ambient temperature decreasing below 60°F, Unit Heaters coils and fans AH-C-52A, F, G, and 52H, will be energized.

4.4.2 Control Building Area West Section Normal Operation.

____4.2.2.1 Air is received from and exhausted to the East Section via the Tendon Access Gallery.

____4.2.2.2 River Water Pump House Supply fan, AH-E-13, exhausts air to the River Water Pump House.

____4.2.2.3 With the ambient temperature decreasing below 60°F, Unit Heaters coils and fans AH-C-52B, C, D and E will be energized.

____4.2.2.4 With increasing ambient temperature spot cooler fans AH-C-58A through J will start. Cooling NR flow will be initiated through the individual fan coils. Local indication is available across the filters associated with each spot cooler. A common alarm (0.7"WG) is shared for high differential across all spot cooler. Local indication is available for each filter.

____4.2.2.5 AH-E-62, is circulating air in the stairwell.

4.3 Control Building Area HVAC Shutdown

4.3.1 Control Building Area HVAC East Section Shutdown

____4.3.1.1 Place the control switches for the components in the position specified below. (Parenthesis) indicated local control. There will be no circulation of status change

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for the filters, heaters, or spot coolers unless they were operating and stopped. Alarms will sound when AH-C-51, AH-C-50A, or AH-C-50B are stopped.

Component	Position	Initial
AH-F-22A	(OFF)	_____
AH-F-22B	(OFF)	_____
AH-C-50A (Fan)	PULL-TO-LOCK	_____
AH-C-50B (Fan)	PULL-TO-LOCK	_____
AH-C-51 (Fan)	PULL-TO-LOCK	_____
AH-C-51 (Heater)	(OFF)	_____
AH-C-52A	(OFF)	_____
AH-C-52F	(OFF)	_____
AH-C-52G	(OFF)	_____
AH-C-52H	(OFF)	_____

4.3.2 Control Building Area West Section Shutdown.

_____4.3.2.1 Place the control switches for the following components in the position specified below. (Parenthesis) indicates local control. These will be no indication of change for the spot coolers o· unit heaters they were operating and stopped.

Component	CS Position	Initial	Components	CS Position	Initial
AH-C-52B	(OFF)	_____	AH-C-58D	OFF	_____
AH-C-52C	(OFF)	_____	AH-C-58E	OFF	_____
AH-C-52D	(OFF)	_____	AH-C-58F	OFF	_____
AH-C-52E	(OFF)	_____	AH-C-58G	OFF	_____
AH-C-58A	(OFF)	_____	AH-C-58H	OFF	_____

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AH-C-58B	(OFF)	_____	AH-C-58I	OFF	_____
AH-C-58C	(OFF)	_____	AH-C-58J	OFF	_____
			AH-E-62	(STOP)	_____

_____4.3.2.2 On Panel 316 the control switch for River Water House Pump Supply fan, AH-E-13, in PULL-TO-LOCK. An alarm will sound on Panels 317 and 320 (RWPH) indicating lack of normal RWPH Air Supply.

4.4 Special or Infrequent Operations of the Control Building Area HVAC System

_____4.4.1 Operation of two recirculation fan coil units, AH-C-50A and B.

_____4.4.1.1 On Panel 317 hold the control switch for the standby fan in "START". When the fan has started, release the switch.

_____4.4.1.2 Return the fans to normal by holding one control switch in "STOP". Release the switch. Only one fan is running.

_____4.4.2 Manual Operation of the Unit Heaters, AH-C-52A through G.

_____4.4.2.1 If continual heating is desired, place the Unit heater thermostat local control switch in "ON". If idle the fan and resistance coil will be energized. Record heaters control switches repositioned Unit Heaters.

Unit Heater No.	Time/Date	Initial
AH-C-52_____	_____	_____
AH-C-52_____	_____	_____
AH-C-52_____	_____	_____

____4.4.2.2 If no heating is desired, place the Unit Heater local control switch in "OFF". Record the heater control switches repositioned Unit Heater.

Unit Heater No.	Time/Date	Initial
AH-C-52_____	_____	_____
AH-C-52_____	_____	_____
AH-C-52_____	_____	_____

____4.4.2.3 Return the unit heater to normal by placing the control switches in "AUTO". Record Heaters returned to normal.

Unit Heater No.	Time/Date	Initial
AH-C-52_____	_____	_____
AH-C-52_____	_____	_____
AH-C-52_____	_____	_____

4.4.3 Manual Operation of Spot Coolers AH-C-58A through J.

____4.4.3.1 If no spot cooler operation is required, either put the local "AUTO" pushbutton in "OFF" or Panel 317 control switch in "OFF". Record below what action was taken and which cooler(s) was changed.

Spot Cooler No.	Local Auto Pushbutton put in "OFF" (Yes or No)	Pnl. 317 CS Put in "OFF" (Yes or No)	Time/Date	Initial
AH-C-58_____	_____	_____	_____	_____
AH-C-58_____	_____	_____	_____	_____
AH-C-58_____	_____	_____	_____	_____

____4.4.3.2 If continual Spot Cooler operation is required, either "DEPRESS" the local "MAN" pushbutton, or put the Panel 317 control switch in "MAN". Record below what action was taken and which cooler was changed.

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Spot Cooler No.	Local Man Push-button put in "MAN" (Yes or No)	Pnl. 317 CS in "MAN" Yes or No	Time/Date	Initial
AH-C-58_____	_____	_____	_____	_____
AH-C-58_____	_____	_____	_____	_____

_____4.4.3.3 Return the Spot coolers to normal by repositioning the pushbutton, or control switch to its normal position. The normal position of the local "AUTO" and "MANUAL" pushbutton is "DEPRESS" and "OFF" respectively. The normal position of the Panel 317 control switch is "AUTO". If running, the spot cooler will stop if the ambient is cool. If idle, the spot cooler will start if the ambient is warm. Record status change below.

Spot Cooler No.	Local Man Push-button put in "MAN" (Yes or No)	Pnl. 317 CS in "MAN" Yes or No	Time/Date	Initial
AH-C-58_____	_____	_____	_____	_____
AH-C-58_____	_____	_____	_____	_____
AH-C-58_____	_____	_____	_____	_____

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