



Rocky Mountain
Remediation Services, L.L.C
... protecting the environment

PROCEDURE

BUILDING 774 HOUSE VACUUM SYSTEM OPERATION

RMRS/OPS-PRO.050

REVISION 0

Date Effective: 12/04/98

Page 1 of 13

APPROVED BY: 

Building 774 WM&T Manager

1. PURPOSE

This procedure contains the instructions for supplying vacuum to processes in Building 774 using the House Vacuum System Nash Pump.

2. SCOPE

This procedure applies to all Building 774 personnel requiring house vacuum for the bottle box process, Miscellaneous Aqueous Waste Handling and Solidification 4-A73-POPM-774-WO-2005.

This procedure addresses the following topics:

- House Vacuum System Startup
- House Vacuum System Shutdown

3. OVERVIEW

The Building 774 House Vacuum System provides vacuum to the T-3 Vacuum Receiver and T-8 Vacuum Scrubber. These tanks are associated with the Building 774 processes; Liquid Waste Processing First-Stage, and Miscellaneous Aqueous Waste Handling and Solidification.

This procedure does not include instructions for using the SiHi Vacuum System which is currently not operational.

Figure 1-1, House vacuum System Flow diagram in Appendix 1 is provided for information only and is not intended to represent a detailed as-built configuration of the Building 774 House vacuum system.

ADMIN RECORD

4. LIMITATIONS AND PRECAUTIONS

4.1 General Area

- Eye showers, safety showers, and fire extinguishers shall be located in the area.
- To prevent tripping accidents, all tools and equipment are to be returned after usage.
- Alarms shall be responded to in accordance with 1-N02-HSP 18.15, Emergency Alarms and Response.

4.2 Criticality Safety Considerations

- Response to criticality safety infractions shall be in accordance with 1-T44-SWCSI-140, Nuclear Criticality Safety Infractions. Upon discovery of a real or potential criticality safety infraction, immediately perform the following:
 - Stop work.
 - Alert personnel in the immediate area of the potential infraction.
 - Clear the immediate area and keep personnel away, about 10 feet or more.
 - Notify operations supervision (Shift Manager of Facility supervision).
- All processing performed by this procedure shall meet the requirements of the bottlebox operations NMSL including posted, procedural, and engineered controls.
- No other operation requiring the use of the House Vacuum System shall be in progress during the bottlebox operation. Valve V-4 in Room 202, is to remain closed to ensure that this limit is met.

4.3 Compliance to Limiting Conditions for Operations (LCOs)

- Zone I enclosures are normally maintained at a pressure differential of -0.75 in. WG (range -0.50 to -1.25) with respect to Zone II.
 - The Shift Manager shall be notified when negative pressure in the glovebox reaches -0.5 in. WG to instigate the restoration of normal negative pressure in the glovebox.
 - At the minimum -0.25 in. WG, the affected operations shall be terminated and shall resume only when the normal differential is restored. Building 774 Final Safety Analysis Report FSAR 7.3.1.1, Zone I Enclosures- Gloveboxes

4.4 Vacuum System Operation

- Building 774 process cooling water system is out-of-service and no cooling water is supplied to the shell side of the house vacuum system heat exchanger. Operation of the house vacuum system is restricted to 4 hour periods.

5. PREREQUISITE ACTIONS

5.1 Planning and Coordination

Supervisor

- [1] Schedule the performance of this procedure on the building 771/774 Plan-of-the-Day.
- [2] Obtain authorization to perform this procedure from building 774 Operating Authority, for example, Configuration Control Authority (CCA).
- [3] Ensure that two qualified Process Specialists are available to perform this procedure.
- [4] Verify that the pre-operational surveillance has been completed in accordance with 4-B19-NSM-03.12, Nuclear Material Safety Limits and Criticality Safety Operation Limits Surveillance.
- [5] Verify that a Radiation Work Permit (RWP), as required, is obtained in accordance with 1-N71-HSP 6.07, Radiation Work Permit.

Process Specialist

- [6] Verify that supervision has authorized performance of this procedure.
- [7] Ensure that a pre-evolution briefing is performed in accordance with 1-31000-COOP-011, Pre-Evolution Briefing.

6. INSTRUCTIONS—HOUSE VACUUM SYSTEM STARTUP

NOTE *Section 6 is a Use Category 1 activity.*

6.1 House Vacuum System Operations

NOTE *The Building 774 House Vacuum System is in Room 102. This system furnishes vacuum for all transfers from Building 771 and can be used to furnish vacuum for Building 774 operations. This vacuum system is serviced when needed for use.*

Process Specialist

- [1] Obtain Appendix 1, Vacuum Valve Lineup.
- [2] Verify that the prerequisites in section 5.0, Prerequisite Actions have been completed, and document on appendix.
- [3] Perform and document the valve lineup in accordance with Appendix 1, Vacuum System Valve Lineup.

Second Process Specialist or Supervisor

- [4] Verify and document the valve lineup in accordance with Appendix 1, Vacuum System Valve Lineup.

Process Specialist

- [5] Open V-174, Water Header Valve.
- [6] Open V-173, Water Valve.
- [7] **WHEN** the Mist Tank T-74 water level reaches approximately 60% as indicated on the sight gage,
THEN close V-173, Water Valve.
- [8] **IF** caustic has previously been added to Mist Tank T-74 **OR** not required as determined by supervision,
THEN go to Step [13].

6.1 House Vacuum System Operations (continued)

[9] Open the following valves:

- V-199, Tank 42 Caustic Supply Valve in Room 203
- V-199A, Caustic Supply Valve to vacuum systems in Room 103.

[10] Open V-172, Caustic Supply Valve in Room 102.

[11] **WHEN** 1 inch of caustic is added as indicated on the Mist Tank T-74 sight gauge,
THEN close V-172, Caustic Supply Valve.

[12] Close the following valves:

- V-199A, Caustic Supply Valve to vacuum supply systems in Room 103.
- V-199, Tank 42 Caustic Supply Valve in Room 203.

[13] Close the V-174, Tank 74 Fill Valve in Room 102.

[14] Open the following valves in Room 102:

- V-157, Tank 74 Drain Valve
- V-158, Pump Bypass Valve
- V-166, Nash Pump Vacuum Header Valve

CAUTION

To prevent overheating the vacuum pump, operation of the House Vacuum System is restricted to periods of 4 hours.

NOTE: *Vacuum pump motor switch is between Glovebox 12 and the door in Room 102.*

[15] Place the vacuum pump motor switch to the ON position.

[16] Observe the flow indicator in the heat exchanger supply line to the vacuum pump.

6.1 House Vacuum System Operations (continued)

- [17] **IF** no flow is indicated,
THEN perform the following steps:
- [A] Turn off the vacuum pump motor.
 - [B] Notify the supervisor.
- [18] Observe the vacuum gage next to V-166, Vacuum Header Valve.
- [19] **IF** gage does **NOT** show a minimum reading of 14.5 inches of vacuum,
THEN:
- [A] Turn off the vacuum pump motor.
 - [B] Notify the supervisor.
- [20] Verify Mist Tank T-74 level by checking the sight gauge on the side of the tank.
- [21] **IF** the liquid level is low (below 60%),
THEN open water valves V-173 and V-174 to adjust the liquid level by adding water.
- [22] Document the time the House Vacuum System was started on Appendix 1.
- [23] Periodically check the Mist Tank T-74 level, and open water valves V-173 and V-174, as necessary while the House Vacuum System is in operation.

6.2 House Vacuum System Shutdown

Process Specialist

- [1] Obtain the original Appendix 1, Vacuum Valve Lineup.
- [2] Turn the vacuum pump motor on/off switch to the OFF position.
- [3] Close V-166, Nash Pump Vacuum Header Valve.
- [4] Document the House Vacuum System shutdown time on Appendix 1.
- [5] Open the following Mist Tank T-74 drain valves in Room 102 for the building's drain system (Sump-2), and drain the Mist Tank T-74:
 - V-156, Tank 74 Drain Valve
 - V-160, Tank 74 Drain Valve
- [6] Ensure that Sump-2 in Room 102 is operational:
 - [A] Verify Sump-102 is operating as Mist Tank T-74 is drained to Sump-2.
 - [B] **IF** Sump-2 is **NOT** operational,
THEN:
 - [a] Close the following valves:
 - V-156 , Tank 74 Drain Valve
 - V-160 , Tank 74 Drain Valve
 - V-158 , Pump Bypass Valve
 - [b] Notify supervision.
 - [C] **IF** Sump-2 is operational,
THEN allow Mist Tank T-74 to drain.

6.2 House Vacuum System Shutdown (continued)

[7] **WHEN** the Mist Tank T-74 is empty,
THEN close the following valves:

- V-156, Tank 74 Drain Valve
- V-157, Tank 74 Drain Valve
- V-158, Pump Bypass Valve
- V-160, Tank T-74 Drain Valve

[8] Forward Appendix 1 to supervision for review and disposition.

7. POST-PERFORMANCE ACTIVITY

7.1 Disposition

Supervisor

- [1] Review Appendix I for completeness, and sign and date as applicable.

- [2] Maintain and disposition documents generated by this procedure, in accordance with 1-V41-RM-001, Records Management Guidance for Records Sources.

8. REFERENCES

Building 774 OSR, Section 7.3.1.1, Zone I Enclosures - Gloveboxes

Building 774 JCO-95.0080-774-MAD, current revision

1-31000-COOP-011, Pre-Evolution Briefing

1-N71-HSP-6.07, Radiological Work Permits.

1-62200-HSP-7.03, Respiratory Protection

1-N02-HSP 18.15, Emergency Alarms and Response

4-A73-POPM-WO-2005, Miscellaneous Aqueous Waste Handling and Solidification,
current revision

4-B19-NSM-03.12, Nuclear Material Safety Limits and Criticality Safety Operating
Limits Surveillance

1-V41-RM-001, Records Management Guidance for Records Sources

1-T44-SWCSI-140, Nuclear criticality Safety Infractions

APPENDIX 1

Page 1 of 2

VACUUM SYSTEM VALVE LINEUP

(See Figure 1-1 for valve location)

<u>Valve No.</u>	<u>Position</u>	<u>Description</u>	<u>Performer</u>	<u>Verifier</u>
V-156	Shut	T-74 Drain Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-157	Shut	T-74 Drain Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-158	Shut	Pump Bypass Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-160	Shut	T-74 Drain Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-161	Shut	Bypass Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-162	Shut	Valve to Circ. Pump	<input type="checkbox"/>	<input type="checkbox"/>
V-163	Shut	Out of Service	<input type="checkbox"/>	<input type="checkbox"/>
V-164	Shut	Valve to floor	<input type="checkbox"/>	<input type="checkbox"/>
V-166	Shut	Vacuum Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-172	Shut	Caustic Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-173	Shut	Water Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-174	Shut	Water Header Valve	<input type="checkbox"/>	<input type="checkbox"/>
V-4	Shut	Room 202	<input type="checkbox"/>	<input type="checkbox"/>

6.1 [3] Performer: _____ / _____
Date

6.1 [4] Verifier: _____ / _____
Date

6.1 [22] Startup Time: _____

6.2 [4] Shutdown Time: _____

7.1 [1] Supervisor: _____ / _____
Date

APPENDIX 1

Page 2 of 2

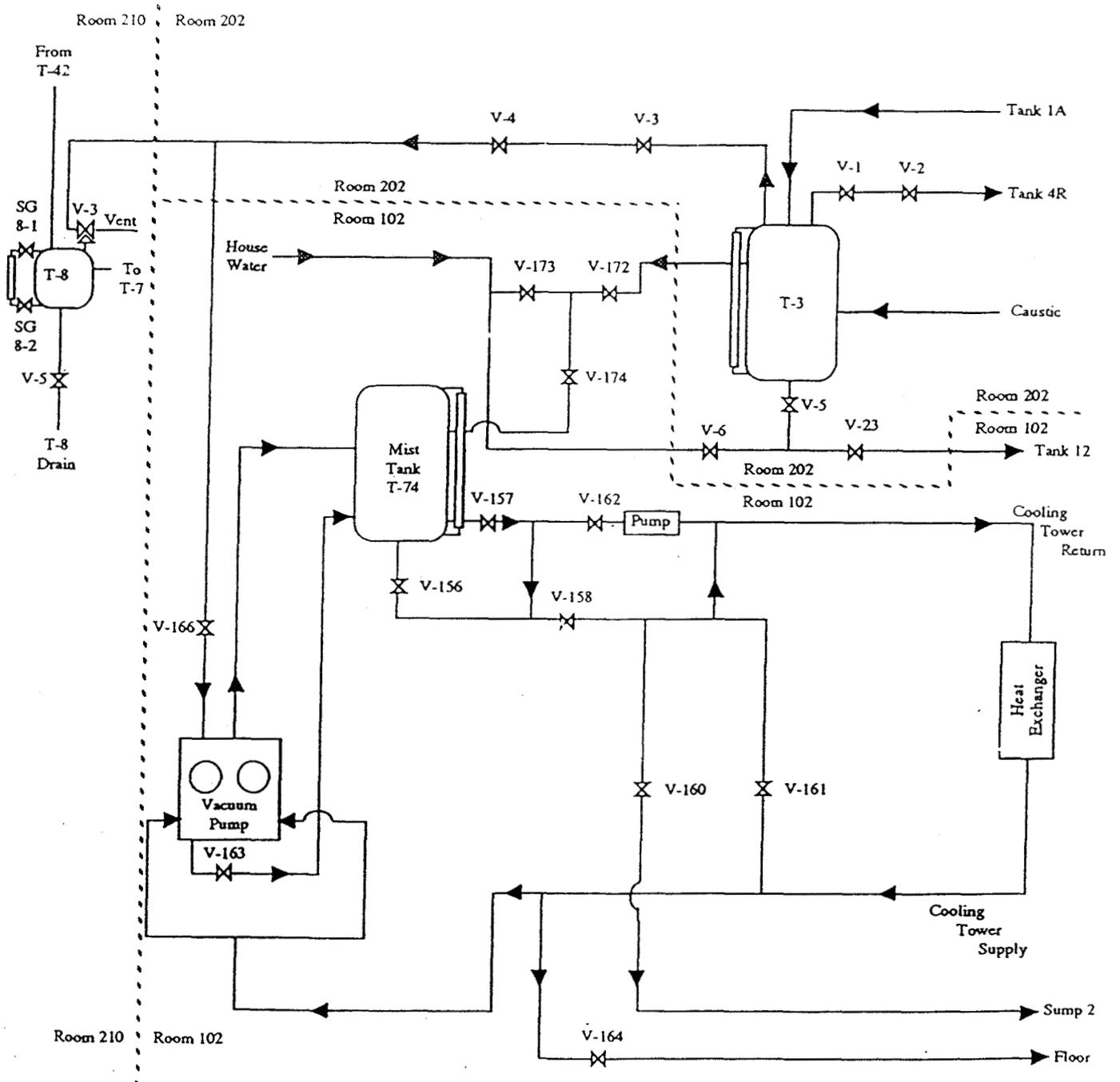


Figure 1-1, Vacuum System Valve Lincup