

**2.6.5 Nuclear Auxiliary Building Ventilation System (NABVS)**

**Design Description**

**1.0 System Description**

The nuclear auxiliary building ventilation system (NABVS) provides conditioned air to the Nuclear Auxiliary Building (NAB), Fuel Building (FB), Containment Building, and the annulus area between the Containment Building and the Shield Building.

The exhaust air from the NAB, FB, Safeguard Building (SB), Containment Building, and the annulus is processed through the NABVS filtration trains prior to release to the environment via the vent stack.

The NABVS is classified as a non-safety related and non-seismic system, except the backdraft damper located at the discharge into the vent stack.

The NABVS performs the following safety-related function:

- A safety-related Seismic Category I backdraft damper is located at the NABVS exhaust duct into the vent stack. This backdraft damper isolates the NABVS as required from other safety systems exhausting to the vent stack during accident operation.
- During accident conditions, the NABVS is shut down while the safety related systems SBVS and AVS operate. The backdraft damper shuts by a differential pressure between the vent stack and NABVS duct.

The NABVS performs the following non-safety-related function:

- A high radioactivity signal from the radiation monitors (R-11, R-12, R-13) activates an alarm in the main control room (MCR) and diverts the exhaust to iodine filtration.

**2.0 Arrangement**

2.1 The functional arrangement of the NABVS exhaust backdraft damper at the vent stack is as described in the Design Description of Section 2.6.5, Table 2.6.5-1—Nuclear Auxiliary Building Ventilation System Equipment Mechanical Design, and as shown on Figure 2.6.5-1—Nuclear Auxiliary Building Exhaust Filtration Trains Subsystem Functional Arrangement.

2.2 Deleted.

**3.0 Mechanical Design Features**

3.1 The NABVS exhaust backdraft damper will function to change position as listed in Table 2.6.5-1 under normal and post-accident operating conditions.

3.2 Equipment identified as Seismic Category I in Table 2.6.5-1 can withstand seismic design basis loads without a loss of safety function(s).

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3.5 Equipment listed in Table 2.6.5-1 as ASME AG-1 Code are fabricated, inspected, and tested in accordance with ASME AG-1 Code requirements.

#### **4.0 I&C Design Features, Displays, and Controls**

4.1 Displays listed in Table 2.6.5-2 are indicated on the PICS operator workstations in the MCR.

#### **5.0 Equipment and System Performance**

5.1 Upon receipt of a containment isolation signal, the NABVS is shut down, and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.

5.2 Upon receipt of a high radioactivity signal from the radiation monitors (R-11, R-12, R-13), the NABVS exhaust diverts to iodine filtration.

#### **Inspections, Tests, Analyses, and Acceptance Criteria**

Table 2.6.5-3 lists the NABVS ITAAC.

**Table 2.6.5-1—NABVS Equipment Mechanical Design**

<b>Description</b>	<b>Tag Number</b>	<b>Location</b>	<b>ASME AG-1 Code</b>	<b>Function</b>	<b>Seismic Category</b>
Backdraft Damper	30KLE50AA001	Fuel Building	Yes	Close	I

**Table 2.6.5-2—NABVS Equipment I&C and Electrical Design**

Description	Tag Number <sup>(1)</sup>	Location	MCR Displays
Radiation Monitors (R-11)	30KLLK30CR001 30KLLK30CR071 30KLLK30CR031	Nuclear Auxiliary Building	Radioactivity level
Radiation Monitors (R-12)	30KLLK31CR001 30KLLK31CR071 30KLLK31CR031	Nuclear Auxiliary Building	Radioactivity level
Radiation Monitors (R-13)	30KLLK32CR001 30KLLK32CR071 30KLLK32CR031	Nuclear Auxiliary Building	Radioactivity level
Radiation Monitor (R-14)	30KLLK33CR031	Nuclear Auxiliary Building	Radioactivity level
Radiation Monitor (R-15)	30KLLK41CR031	Nuclear Auxiliary Building	Radioactivity level

**Table 2.6.5-3—Nuclear Auxiliary Building Ventilation System ITAAC  
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	<b>Commitment Wording</b>	<b>Inspection, Tests, Analyses</b>	<b>Acceptance Criteria</b>
2.1	The functional arrangement of the NABVS exhaust backdraft damper at the vent stack is as described in the Design Description of Section 2.6.5, Table 2.6.5-1, and as shown on Figure 2.6.5-1.	An inspection of the as-built NABVS exhaust backdraft damper at the vent stack functional arrangement will be performed.	The NABVS exhaust backdraft damper at the vent stack conforms to the functional arrangement as described in the Design Description of Section 2.6.5, Table 2.6.5-1, and as shown on Figure 2.6.5-1.
2.2	Deleted.	Deleted.	Deleted.
3.1	The NABVS exhaust backdraft damper will function to change position as listed in Table 2.6.5-1 under normal and post-accident operating conditions.	Tests will be performed to verify the ability of the NABVS exhaust backdraft damper to change position under normal and post-accident operating conditions.	The NABVS exhaust backdraft damper changes position as listed in Table 2.6.5-1 under normal and post-accident operating conditions.
3.2	Equipment identified as Seismic Category I in Table 2.6.5-1 can withstand seismic design basis loads without a loss of safety function(s).	<ul style="list-style-type: none"> <li>a. Type tests, analyses, or a combination of type tests and analyses will be performed on the equipment identified as Seismic Category I in Table 2.6.5-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements.</li> <li>b. An inspection will be performed of the as-built equipment identified as Seismic Category I in Table 2.6.5-1 to verify that the equipment, including anchorage, are installed in a condition bounded by the tested or analyzed condition.</li> </ul>	<ul style="list-style-type: none"> <li>a. Test/analysis reports conclude that the equipment identified as Seismic Category I in Table 2.6.5-1 can withstand seismic design basis loads without a loss of safety function(s).</li> <li>b. Inspection reports conclude that the equipment identified as Seismic Category I in Table 2.6.5-1, including anchorage, are installed in a condition bounded by the tested or analyzed condition.</li> </ul>
3.3	Deleted.	Deleted.	Deleted.
3.4	Deleted.	Deleted.	Deleted.

**Table 2.6.5-3—Nuclear Auxiliary Building Ventilation System ITAAC  
Sheet 2 of 2**

<b>Commitment Wording</b>		<b>Inspection, Tests, Analyses</b>	<b>Acceptance Criteria</b>
3.5	Equipment listed in Table 2.6.5-1 as ASME AG-1 Code are fabricated, installed, inspected, and tested in accordance with ASME AG-1 Code requirements.	An inspection of the as-built construction activities and documentation for ASME AG-1 Code equipment will be conducted.	A report concludes that ASME AG-1 Code equipment listed in Table 2.6.5-1 are fabricated, installed, inspected, and tested in accordance with ASME AG-1 Code requirements.
4.1	Displays listed in Table 2.6.5-2 are indicated on the PICS operator workstations in the MCR.	Tests will be performed to verify that the displays listed in Table 2.6.5-2 are indicated on the PICS operator workstations in the MCR.	Displays listed in Table 2.6.5-2 are indicated on the PICS operator workstations in the MCR.
5.1	Upon receipt of a containment isolation signal, the NABVS is shut down, and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.	A test will be performed to verify that upon receipt of a containment isolation test input signal, that the NABVS is shut down and the backdraft damper prevents the SBVS and AVS exhaust air flow discharging into NABVS.	Upon receipt of a containment isolation test input signal from the PACS module, the NABVS is shut down and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.
5.2	Upon receipt of a high radioactivity signal from the radiation monitors (R-11, R-12, R-13), the NABVS exhaust diverts to iodine filtration.	A test will be performed to verify that the NABVS exhaust diverts to iodine filtration upon receipt of a high radioactivity signal from the radiation monitors (R-11, R-12, R-13).	The NABVS exhaust diverts to iodine filtration upon receipt of a high radioactivity signal from the radiation monitors (R-11, R-12, R-13) using an established trip setpoint.

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