

## 2.6.6 Safeguard Building Controlled-Area Ventilation System

### 1.0 Description

The safeguard building controlled-area ventilation system (SBVS) provides cooling, heating, and ventilation for the hot areas of the four divisions of the Safeguard Buildings to remove equipment heat and heat generated from other sources. The SBVS also provides heat to maintain a minimum temperature in areas of the Safeguard Buildings. The SBVS provides a minimal air change rate for the buildings and controls the building pressurization to reduce spreading of contamination.

The SBVS provides the following safety related functions:

- Isolates the volume of the hot mechanical area of the Safeguard Buildings and confines this volume by maintaining a negative pressure and removing the iodine that might be released due to post-accident operation of the safety injection system (SIS).
- Removes heat generated by equipment of the safety injection / residual heat removal systems in the hot mechanical rooms to maintain ambient temperatures during accident conditions.
- Removes heat generated by piping and equipment of the component cooling water and emergency feedwater systems in the valve rooms to maintain ambient temperatures during accident conditions.
- Removes heat generated by equipment of the hydrogen monitoring and post accident atmosphere sampling systems to maintain ambient temperatures during accident conditions.
- Maintains a negative pressure in the Fuel Building (FB) to direct the air from the FB to the SBVS iodine filtration trains when the FB is isolated from the nuclear auxiliary building ventilation system (NABVS) on receipt of a containment isolation signal or high radiation signal in the Reactor Building.

The SBVS provides the following non-safety related functions:

- Ventilates the hot mechanical areas of the Safeguard Buildings and provide a minimum required air change rate during normal operation.
- Maintains acceptable ambient conditions in the hot mechanical areas of the Safeguard Buildings during normal operation.
- Maintains negative pressure and direction of flow with the supply air from the electrical division of safeguard building ventilation system, and exhaust air to the NABVS during normal operation.
- Confines the volume of the fuel pool hall by maintaining negative pressure and removing iodine released in the event of a fuel handling accident in the Fuel Building.

- Confines the volume of the containment by maintaining negative pressure and removing iodine released in the event of a fuel handling accident in the Reactor Building.

## **2.0 Arrangement**

2.1 The functional arrangement of the SBVS is as shown in the following figures:

- Figure 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Air Supply Functional Arrangement.
- Figure 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Exhaust Air Functional Arrangement.

2.2 The location of the SBVS is as listed in Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design.

2.3 Physical separation exists between the SBVS iodine filtration trains located in the Fuel Building.

## **3.0 Mechanical Design Features**

3.1 Equipment listed in the Table 2.6.6-1 as ASME AG-1 is designed, inspected and tested in accordance with ASME AG-1.

3.2 Equipment listed in Table 2.6.6-1 performs the function listed in Table 2.6.6-1.

3.3 Equipment identified as Seismic Category I in Table 2.6.6-1 can withstand a design basis seismic load without loss of safety function as listed in Table 2.6.6-1.

## **4.0 Displays and Controls**

4.1 Displays listed in Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design, are retrievable in the main control room (MCR) and the remote shutdown station (RSS) as listed.

4.2 The SBVS equipment controls that are provided in the MCR and RSS are as listed in Table 2.6.6-2.

4.3 Actuators listed as being controlled by a priority actuator control system (PACS) module in Table 2.6.6-2 are controlled by a PACS module.

## **5.0 Electrical Power Design Features**

5.1 The equipment designated as Class 1E in Table 2.6.6-2 are powered from the Class 1E division as listed in Table 2.6.6-2 in a normal or alternate feed condition.

5.2 Motor operated dampers listed in Table 2.6.6-2 fail to the position as shown in Table 2.6.6-2 on loss of power.

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**6.0 Environmental Qualifications**

- 6.1 Electrical drivers for equipment listed in Table 2.6.6-2 for harsh environment can perform the safety function in Table 2.6.6-1 following exposure to the design basis environments for the time required.

**7.0 Equipment and System Performance**

- 7.1 The SBVS maintains a negative pressure in the Safeguard Buildings relative to the outside environment.
- 7.2 Upon receipt of a high radiation alarm in the hot mechanical areas of the Safeguard Buildings, the SBVS iodine filtration train starts automatically, and the accident air is directed through iodine filtration train.
- 7.3 Upon receipt of a high radiation alarm as a result of fuel handling accident in the FB, or fuel handling accident in the Reactor Building, the SBVS iodine filtration train starts automatically, and the accident air is directed through the iodine filtration train.
- 7.4 Upon receipt of a containment isolation signal or high radiation signal in the Reactor Building, SBVS maintains a negative pressure inside the FB and SB. The SBVS iodine filtration train starts automatically, and the FB air is directed through the iodine filtration train.

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

The inspections, tests, analyses, and acceptance criteria (ITAAC) for the SBVS are specified in Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC.

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design  
(5 Sheets)**

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>ASME AG-1 Code</b>	<b>Function</b>	<b>Seismic Category</b>
<b>Air Supply Safeguard Building Division 1</b>					
Motor operated dampers	30KLC11 AA003 30KLC11 AA004 30KLC11 AA005 30KLC11 AA007	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1 Safeguard Building 1	Yes	Close	I
Motor Operated damper	30KLC11AA008	Safeguard Building 1	Yes	Close	II
<b>Air Supply Safeguard Building Divisions 2 and 3</b>					
Motor Operated dampers	30KLC12 AA003 30KLC12 AA004 30KLC12 AA005 30KLC13 AA003 30KLC13 AA004 30KLC13 AA005	Safeguard Building 2 Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3 Safeguard Building 3	Yes	Close	I
<b>Air Supply Safeguard Building Division 4</b>					
Motor Operated dampers	30KLC14 AA003 30KLC14 AA004 30KLC14 AA005 30KLC14 AA007	Safeguard Building 4 Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Yes	Close	I
Motor Operated damper	30KLC24 AA002	Safeguard Building 4	Yes	Close	I

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design  
(5 Sheets)**

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>ASME AG-1 Code</b>	<b>Function</b>	<b>Seismic Category</b>
	30KLC24 AA003 30KLC24 AA004	Safeguard Building 4 Safeguard Building 4			
<b><u>Operational Air Exhaust</u></b>					
Motor Operated dampers	30KLC21 AA006 30KLC21 AA007 30KLC21 AA008 30KLC22 AA006 30KLC22 AA007 30KLC22 AA008 30KLC23 AA006 30KLC23 AA007 30KLC23 AA008 30KLC24 AA006 30KLC24 AA007 30KLC24 AA008	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1 Safeguard Building 2 Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3 Safeguard Building 3 Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Yes	Close	I
Motor Operated dampers	30KLC21 AA005 30KLC24 AA005	Safeguard Building 1 Safeguard Building 4	Yes	Close	I
<b><u>Accident Air Exhaust</u></b>					
Motor Operated dampers	30KLC31 AA001 30KLC32 AA001 30KLC33 AA001 30KLC34 AA001	Safeguard Building 1 Safeguard Building 2 Safeguard Building 3 Safeguard Building 4	Yes	Open	I
Motor Operated dampers	30KLC45 AA001	Fuel Building	Yes	Open	I

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design  
(5 Sheets)**

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>ASME AG-1 Code</b>	<b>Function</b>	<b>Seismic Category</b>
	30KLC45 AA002 30KLC45 AA003 30KLC45 AA004 30KLC45 AA005 30KLC45 AA006	Fuel Building Fuel Building Fuel Building Fuel Building Fuel Building			
<b>Personnel Air Lock Area</b>					
Motor Operated damper	30KLC12 AA009 30KLC12 AA010	Safeguard Building 2 Safeguard Building 2	Yes	Close	I
Motor Operated damper	30KLC22 AA010	Safeguard Building 2	Yes	Close	I
<b><u>Iodine Filtration Trains</u></b> <b><u>30KLC41/42</u></b>					
Motor Operated dampers	30KLC41 AA001 30KLC42 AA001	Fuel Building Fuel Building	Yes	Open	I
Electric Heaters	30KLC41 AH001 30KLC42 AH001	Fuel Building Fuel Building	Yes	On / Off (based on ambient conditions)	I
Prefilters	30KLC41 AT001 30KLC42 AT001	Fuel Building Fuel Building	Yes	N/A	I
Upstream HEPA Filters	30KLC41 AT002 30KLC42 AT002	Fuel Building Fuel Building	Yes	N/A	I
Carbon Adsorbers	30KLC41 AT003 30KLC42 AT003	Fuel Building Fuel Building	Yes	N/A	I
Downstream HEPA Filters	30KLC41 AT004	Fuel Building	Yes	N/A	I

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design  
(5 Sheets)**

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>ASME AG-1 Code</b>	<b>Function</b>	<b>Seismic Category</b>
	30KLC42 AT004	Fuel Building			
Motor Operated dampers	30KLC41 AA002 30KLC42 AA002	Fuel Building Fuel Building	Yes	N/A	I
Exhaust Fans	30KLC41 AN001 30KLC42 AN001	Fuel Building Fuel Building	Yes	Run	I
Backdraft dampers	30KLC41 AA003 30KLC42 AA003	Fuel Building Fuel Building	Yes	N/A	I
<b>Recirculation Cooling Units Safeguard Building Divisions 1 and 4</b>					
Air Cooling Coils	30KLC51 AC001 30KLC51 AC002 30KLC51 AC003 30KLC54 AC001 30KLC54 AC002 30KLC54 AC003	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1 Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Yes	N/A	I
Moisture Separators	30KLC51 AT001 30KLC51 AT002 30KLC51 AT003 30KLC54 AT001 30KLC54 AT002 30KLC54 AT003	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1 Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Yes	N/A	I
Recirculation Fans	30KLC51 AN001 30KLC51 AN002	Safeguard Building 1 Safeguard Building 1	Yes	Run	I

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design  
(5 Sheets)**

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>ASME AG-1 Code</b>	<b>Function</b>	<b>Seismic Category</b>
	30KLC51 AN003 30KLC54 AN001 30KLC54 AN002 30KLC54 AN003	Safeguard Building 1 Safeguard Building 4 Safeguard Building 4 Safeguard Building 4			
<b>Recirculation Cooling Units Safeguard Building Divisions 2 and 3</b>					
Air Cooling Coils	30KLC52 AC001 30KLC52 AC002 30KLC53 AC001 30KLC53 AC002	Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3	Yes	N/A	I
Moisture Separators	30KLC52 AT001 30KLC52 AT002 30KLC53 AT001 30KLC53 AT002	Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3	Yes	N/A	I
Recirculation Fans	30KLC52 AN001 30KLC52 AN002 30KLC53 AN001 30KLC53 AN002	Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3	Yes	Run	I

1) Equipment tag numbers are provided for information only and are not part of the certified design.



**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
<b>Air Supply Safeguard Building Division 1</b>								
Motor Operated dampers	30KLC11 AA003 30KLC11 AA004	Safeguard Building 1 Safeguard Building 1	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC11 AA005	Safeguard Building 1	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC11 AA007 30KLC11 AA008	Safeguard Building 1 Safeguard Building 1	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Air Supply Safeguard Building Division 2</b>								
Motor Operated dampers	30KLC12 AA003 30KLC12 AA004	Safeguard Building 2 Safeguard Building 2	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC12 AA005	Safeguard Building 2	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Air Supply Safeguard Building Division 3</b>								

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Motor Operated damper	30KLC13 AA003 30KLC13 AA004	Safeguard Building 3 Safeguard Building 3	Division 3 <sup>N</sup> Division 4 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC13 AA005	Safeguard Building 3	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Air Supply Safeguard Building Division 4</b>								
Motor Operated dampers	30KLC14 AA003 30KLC14 AA004	Safeguard Building 4 Safeguard Building 4	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC14 AA005	Safeguard Building 4	Division 3 <sup>N</sup> Division 4 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC14 AA007	Safeguard Building 4	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC24 AA002 30KLC24 AA003 30KLC24 AA004	Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Operational Air Exhaust</b>								
Motor Operated dampers	30KLC21 AA005 30KLC21 AA006	Safeguard Building 1 Safeguard Building 1	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
	30KLC21 AA007	Safeguard Building 1						Close
Motor Operated damper	30KLC21 AA008	Safeguard Building 1	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC22 AA006 30KLC22 AA007	Safeguard Building 2 Safeguard Building 2	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC22AA008	Safeguard Building 2	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC23 AA006 30KLC23 AA007	Safeguard Building 3 Safeguard Building 3	Division 3 <sup>N</sup> Division 4 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC23AA008	Safeguard Building 3	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC24 AA005 30KLC24 AA006 30KLC24 AA007	Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC24 AA008	Safeguard Building 4	Division 3 <sup>N</sup> Division 4 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Accident Air Exhaust</b>								
Motor Operated	30KLC31 AA001	Safeguard Building 1	Division 1 <sup>N</sup>	Open	Yes	Yes	Position /	Open-Close

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
damper			Division 2 <sup>A</sup>				Position	/ Open-Close
Motor Operated damper	30KLC32 AA001	Safeguard Building 2	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC33 AA001	Safeguard Building 3	Division 3 <sup>N</sup> Division 4 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC34 AA001	Safeguard Building 4	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA001	Fuel Building	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA002	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA003	Fuel Building	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA004	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA005	Fuel Building	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Motor Operated damper	30KLC45 AA006	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Personnel Air Lock Area</b>								
Motor Operated damper	30KLC12 AA009	Safeguard Building 2	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC12 AA010	Safeguard Building 2	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC22 AA010	Safeguard Building 2	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
<b>Iodine Filtration Train 30KLC41</b>								
Motor Operated damper	30KLC41 AA001	Fuel Building	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Electric Heater	30KLC41 AH001	Fuel Building	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Motor Operated damper	30KLC41 AA002	Fuel Building	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Exhaust Fan	30KLC41 AN001	Fuel Building	Division 1 <sup>N</sup>	N/A	Yes	Yes	On-Off /	Run-Stop /

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
			Division 2 <sup>A</sup>				On-Off	Run-Stop
<b>Iodine Filtration Train 30KLC42</b>								
Motor Operated damper	30KLC42 AA001	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Electric Heater	30KLC42 AH001	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Motor Operated damper	30KLC42 AA002	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Exhaust Fan	30KLC42 AN001	Fuel Building	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
<b>Recirculation Cooling Units</b>								
Recirculation Fans	30KLC51 AN001 30KLC51 AN002 30KLC51 AN003	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1	Division 1 <sup>N</sup> Division 2 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Recirculation Fans	30KLC52 AN001 30KLC52 AN002 30KLC52 AN003	Safeguard Building 2 Safeguard Building 2 Safeguard Building 2	Division 2 <sup>N</sup> Division 1 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Recirculation Fans	30KLC53 AN001 30KLC53 AN002 30KLC53 AN003	Safeguard Building 3 Safeguard Building 3 Safeguard Building 3	Division 3 <sup>N</sup> Division 4 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Recirculation Fans	30KLC54 AN001 30KLC54 AN002 30KLC54 AN003	Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Division 4 <sup>N</sup> Division 3 <sup>A</sup>	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
<b>Instruments</b>								
Exhaust Air Flow Sensors	30KLC45 CF001 30KLC45 CF002	Fuel Building	N/A	N/A	Yes	N/A	Flow / Flow	N/A
Medium Head SIS Pump room temperature sensors	30KLC51 CT001 30KLC51 CT002 30KLC52 CT001 30KLC52 CT002 30KLC53 CT001 30KLC53 CT002 30KLC54 CT001 30KLC54 CT002	Safeguard Building 1 Safeguard Building 1 Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3 Safeguard Building 4 Safeguard Building 4	N/A	N/A	Yes	N/A	Temp / Temp	N/A
Low Head SIS Pump room temperature sensors	30KLC51 CT003 30KLC51 CT004 30KLC52 CT003 30KLC52 CT004 30KLC53 CT003 30KLC53 CT004 30KLC54 CT003 30KLC54 CT004	Safeguard Building 1 Safeguard Building 1 Safeguard Building 2 Safeguard Building 2 Safeguard Building 3 Safeguard Building 3 Safeguard Building 4 Safeguard Building 4	N/A	N/A	Yes	N/A	Temp / Temp	N/A
CCW & EFW Valve room	30KLC51 CT005 30KLC51 CT006	Safeguard Building 1 Safeguard Building 1	N/A	N/A	Yes	N/A	Temp / Temp	N/A

**Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (8 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E Source <sup>(2)</sup>	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
temperature sensors	30KLC52 CT005	Safeguard Building 2						
	30KLC52 CT006	Safeguard Building 2						
	30KLC53 CT005	Safeguard Building 3						
	30KLC53 CT006	Safeguard Building 3						
	30KLC54 CT005	Safeguard Building 4						
	30KLC54 CT006	Safeguard Building 4						
Sampling system room temperature sensors	30KLC51 CT007	Safeguard Building 1	N/A	N/A	Yes	N/A	Temp / Temp	N/A
	30KLC51 CT008	Safeguard Building 1						
	30KLC54 CT007	Safeguard Building 4						
	30KLC54 CT008	Safeguard Building 4						

- 1) Equipment tag numbers are provided for information only and are not part of the certified design
- 2) <sup>N</sup> denotes division the component is normally powered from, while <sup>A</sup> denotes division the component is powered from when alternate feed is implemented..



**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (4 Sheets)**

<b>Reference Section Number</b>	<b>Commitment Wording</b>	<b>Inspection, Analysis or Test</b>	<b>Acceptance Criteria</b>
2.1	The functional arrangement of the SBVS is as shown on Figures 2.6.6-1 and 2.6.6-2..	Inspections of the as-built system will be conducted.	The as-built SBVS conforms to the functional arrangement as shown in Figures 2.6.6-1 and 2.6.6-2.
2.2	Equipment shown on Figures 2.6.6-1 and 2.6.6-2 is located as listed in Table 2.6.6-1.	An inspection will be performed of the location of the equipment listed in Table 2.6.6-1.	The equipment listed in Table 2.6.6-1 is located as listed in Table 2.6.6-1.
2.3	Physical separation exists between the SBVS iodine filtration trains located in the Fuel Building.	An inspection will be performed to verify that SBVS iodine filtration trains are located in separate rooms.	The SBVS iodine filtration trains are located in separate rooms of the Fuel Building.
3.1	The SBVS equipment listed as ASME AG-1 Code in Table 2.6.6-1 is designed, inspected, and tested in accordance with ASME AG-1.	Analyses will be performed and inspections will be conducted of the as-built components as listed in Table 2.6.6-1.	The SBVS equipment listed in Table 2.6.6-1 is designed, inspected, and tested in accordance with ASME AG-1.
3.2	Equipment listed in Table 2.6.6-1 can perform the function listed in Table 2.6.6-1 under system design basis conditions.	Tests and analyses or a combination of tests and analyses will be performed.	The as-installed equipment changes position as listed Table 2.6.6-1 under system design basis conditions.
3.3	Equipment identified as Seismic Category I in Table 2.6.6-1 can withstand a design basis seismic load without loss of safety function as listed in Table 2.6.6-1.	a) Inspections will be performed of the equipment identified as Seismic Category I in Table 2.6.6-1. b) Type tests, tests, analyses or a combination of tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.6.6-1.	a) The equipment designated as Seismic Category I in Table 2.6.6-1 is installed as designed. b) The equipment designated as Seismic Category I in Table 2.6.6-1 can withstand a design basis seismic load without loss of safety function.
4.1	Displays listed in Table 2.6.6-2 are retrievable in the MCR and the remote	Inspections will be performed for the existence or retrieve-ability of the	a) The displays listed in Table 2.6.6-2 as being retrieved in the MCR can

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (4 Sheets)**

Reference Section Number	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
	shutdown station (RSS) as listed.	displays in the MCR and the RSS as listed in Table 2.6.6-2.	be retrieved in the MCR. b) The displays listed in Table 2.6.6-2 as being retrieved in the RSS can be retrieved in the RSS.
4.2	Controls exist in the MCR and the RSS as identified in Table 2.6.6-2.	Test will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.6.6-2.	a) The controls listed in Table 2.6.6-2 as being in the MCR exist in the MCR. b) The controls listed in Table 2.6.6-2 as being in the RSS exist in the RSS.
4.3	Actuators listed as being controlled by a Priority Actuator Control System (PACS) module in Table 2.6.6-2 are controlled by a PACS module.	An operational test will be performed using test signals. An inspection will be performed on the actuation of the actuator.	The actuators listed as being controlled by a PACS module in Table 2.6.6-2 actuate to the state requested by the test signal.
5.1	The components designated as Class 1E in Table 2.6.6-2 are powered from the Class 1E division as listed in Table 2.6.6-2 in a normal or alternate feed condition.	a) Testing will be performed for the components designated as Class 1E in Table 2.6.6-2 by providing a test signal in each normally aligned division. b) Testing will be performed for the components designated as Class 1E in Table 2.6.6-2 by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a) The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 2.6.6-2. b) The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Table 2.6.6-2.
5.2	Motor operated dampers listed in Table 2.6.6-2 fail to the position as listed in Table 2.6.6-2 on loss of power.	Testing will be performed for the motor operated dampers listed in Table 2.6.6-1 to verify the position of dampers on loss of power.	Following loss of power, the motor operated dampers listed in Table 2.6.6-1 fail to the position as shown in Table 2.6.6-2.
6.1	Electrical drivers for equipment listed in Table 2.6.6-2 for harsh	a) Type tests, tests, analyses or a combination of tests and analyses will	a) The Class 1E equipment listed for harsh environment in Table

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (4 Sheets)**

Reference Section Number	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
	<p>environment can perform the safety function in Table 2.6.6-1 following exposure to the design basis environments for the time required.</p>	<p>be performed to demonstrate the ability of the equipment listed for harsh environment in Table 2.6.6-2 to perform the functions listed in Table 2.6.6-1 for the environmental conditions that could occur before and during design basis accidents.</p> <p>b) For equipment listed for harsh environment in Table 2.6.6-2 an inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables and terminations.</p>	<p>2.6.6-2 can perform functions listed in Tables 2.6.6-1 before and during design basis accidents for the time required to perform the listed function.</p> <p>b) Inspection concludes that the as-installed Class 1E equipment and associated wiring, cables and terminations as listed in Table 2.6.6-2 for harsh environment conform to the design.</p>
7.1	<p>The SBVS maintains a negative pressure in the Safeguard Buildings relative to the outside environment.</p>	<p>Tests will be performed on the capability of the system to maintain a negative pressure in the Safeguard Buildings relative to the outside environment.</p>	<p>The test confirms that a negative pressure is maintained in the Safeguard Buildings relative to the outside environment.</p>
7.2	<p>Upon receipt of a high radiation alarm in the hot mechanical areas of the Safeguard Buildings, the SBVS iodine filtration train starts automatically, and the accident air is directed through iodine filtration train.</p>	<p>A test will be performed to verify that upon receipt of a high radiation alarm in the hot mechanical areas of the Safeguard Buildings, the SBVS iodine filtration train starts automatically, and the exhaust dampers to the iodine filtration train are aligned to open position. Test is performed separately for each iodine filtration train and each Safeguard Building division.</p>	<p>A separate test for each iodine filtration train and each Safeguard Building division confirms that upon receipt of a high radiation alarm in the hot mechanical areas of the Safeguard Buildings, the SBVS iodine filtration train starts automatically, and the exhaust dampers to the iodine filtration train are aligned to open position</p>

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (4 Sheets)**

Reference Section Number	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
7.3	Upon receipt of a high radiation alarm as a result of fuel handling accident in the Fuel Building, or fuel handling accident in the Reactor Building, the SBVS iodine filtration train starts automatically, and the accident air is directed through iodine filtration train.	A test will be performed to verify that upon receipt of a high radiation alarm in the Fuel Building or Reactor Building, the SBVS iodine filtration train starts automatically, and the exhaust dampers to the iodine filtration train are aligned to the open position. Test is performed separately for each iodine filtration train with radiation alarm in the Fuel Building and Reactor Building.	A separate test for each iodine filtration train with a radiation alarm in the Fuel Building or Reactor Building confirms that upon receipt of a high radiation alarm in the Fuel Building or Reactor Building, the SBVS iodine filtration train starts automatically, and the exhaust dampers to the iodine filtration train are aligned to the open position
7.4	Upon receipt of a containment isolation signal or high radiation signal in the Reactor Building, SBVS maintains a negative pressure inside the FB and SB. The SBVS iodine filtration train starts automatically, and the FB and SB air is directed through the iodine filtration train.	A test will be performed to verify that upon receipt of a containment isolation signal or high radiation alarm signal in the Reactor Building, the SBVS maintains a negative pressure inside the FB and SB. The SBVS iodine filtration train starts automatically, and the exhaust dampers from the FB and the SB to the SBVS iodine filtration train are automatically aligned to the open position.	A test confirms that upon receipt of a containment isolation signal or high radiation alarm signal in the Reactor Building, the SBVS maintains a negative pressure inside the FB and SB. The SBVS iodine filtration train starts automatically, and the exhaust dampers from the FB and the SB to the SBVS iodine filtration train are automatically aligned to the open position.