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 (SBVSE), 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, installed, and tested per 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 seismic design basis loads 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 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.6-2 responds to the state requested by a test signal.

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.

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 relative to the outside environment in the hot mechanical areas of the Safeguards Buildings during normal operation.

7.2 Upon receipt of a high radiation signal in the hot mechanical area of a Safeguard Building division during normal operation, supply and exhaust air flow is configured such that the SBVS exhaust is automatically directed to the NAVBS iodine exhaust filters.

7.3 Upon receipt of a high radiation signal as a result of a fuel handling accident in the FB, or fuel handling accident in the Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the accident occurred, either the FB or the Reactor Building, and the accident air is directed through the SBVS iodine filtration trains.

7.4 Upon receipt of a containment isolation signal or high radiation signal in the Reactor Building, the SBVS is isolated from the SBVSE and NAVBS by automatically closing the air supply and exhaust isolation dampers, both SBVS iodine filtration trains start automatically, and the FB and SB exhaust air is directed through the iodine filtration trains to maintain a negative pressure inside the FB and SB.

8.0 Inspections, Tests, Analyses and Acceptance Criteria

Table 2.6.6-3 lists the SBVS ITAAC.

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

Equipment Description	Equipment Tag Number (1)	Equipment Location	ASME AG-1 Code	Function	Seismic Category
Air Supply Safeguard Building Division 1					
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
Air Supply Safeguard Building Divisions 2 and 3					
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
Air Supply Safeguard Building Division 4					
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 30KLC24 AA003 30KLC24 AA004	Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Yes	Close	I

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

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

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

Equipment Description	Equipment Tag Number (1)	Equipment Location	ASME AG-1 Code	Function	Seismic Category
Motor Operated dampers	30KLC45 AA001 30KLC45 AA002 30KLC45 AA003 30KLC45 AA004 30KLC45 AA005 30KLC45 AA006	Fuel Building Fuel Building Fuel Building Fuel Building Fuel Building Fuel Building	Yes	Open	I
Personnel Air Lock Area					
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
Iodine Filtration Trains 30KLC41/42					
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
Pre filter/Moisture Separators	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

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

Equipment Description	Equipment Tag Number (1)	Equipment Location	ASME AG-1 Code	Function	Seismic Category
Downstream HEPA Filters	30KLC41 AT004 30KLC42 AT004	Fuel Building Fuel Building	Yes	N/A	I
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
Recirculation Cooling Units Safeguard Building Divisions 1 and 4					
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

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

Equipment Description	Equipment Tag Number (1)	Equipment Location	ASME AG-1 Code	Function	Seismic Category
Recirculation Fans	30KLC51 AN001 30KLC51 AN002 30KLC51 AN003 30KLC54 AN001 30KLC54 AN002 30KLC54 AN003	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1 Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Yes	Run	I
Recirculation Cooling Units Safeguard Building Divisions 2 and 3					
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 (7 Sheets)

Equipment Description	Equipment Tag Number(1)	Equipment Location	IEEE Class 1E Source(2)	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Air Supply Safeguard Building Division 1								
Motor Operated dampers	30KLC11 AA003 30KLC11 AA004	Safeguard Building 1 Safeguard Building 1	Division 1^{N} Division 2 ^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC11 AA005	Safeguard Building 1	Division 4^{N} Division 3 ^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC11 AA007 30KLC11 AA008	Safeguard Building 1 Safeguard Building 1	Division 1^{N} Division 2 ^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Air Supply Safeguard Building Division 2								
Motor Operated dampers	30KLC12 AA003 30KLC12 AA004	Safeguard Building 2 Safeguard Building 2	Division 2^{N} Division 1^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC12 AA005	Safeguard Building 2	Division 3^{N} Division 4^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Air Supply Safeguard Building Division 3								
Motor Operated damper	30KLC13 AA003 30KLC13 AA004	Safeguard Building 3 Safeguard Building 3	Division 3^{N} Division 4^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC13 AA005	Safeguard Building 3	Division 2^{N} Division 1^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Air Supply Safeguard Building Division 4								
Motor Operated dampers	30KLC14 AA003 30KLC14 AA004	Safeguard Building 4 Safeguard Building 4	Division 4^{N} Division 3^{A}	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC14 AA005	Safeguard Building 4	Division 1^{N} Division 2^{A}	Close	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 (7 Sheets)

Equipment Description	Equipment Tag Number(1)	Equipment Location	IEEE Class 1E Source(2)	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Motor Operated damper	30KLC14 AA007	Safeguard Building 4	Division 4^N Division 3^A	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^N Division 3^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Operational Air Exhaust								
Motor Operated dampers	30KLC21 AA005 30KLC21 AA006 30KLC21 AA007	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1	Division 1^N Division 2^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC21 AA008	Safeguard Building 1	Division 4^N Division 3^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC22 AA006 30KLC22 AA007	Safeguard Building 2 Safeguard Building 2	Division 2^N Division 1^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC22AA008	Safeguard Building 2	Division 3^N Division 4^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated dampers	30KLC23 AA006 30KLC23 AA007	Safeguard Building 3 Safeguard Building 3	Division 3^N Division 4^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC23AA008	Safeguard Building 3	Division 2^N Division 1^A	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^N Division 3^A	Close	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 (7 Sheets)

Equipment Description	Equipment Tag Number(1)	Equipment Location	IEEE Class 1E Source(2)	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Motor Operated damper	30KLC24 AA008	Safeguard Building 4	Division 1^N Division 2^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Accident Air Exhaust								
Motor Operated damper	30KLC31 AA001	Safeguard Building 1	Division 1^N Division 2^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC32 AA001	Safeguard Building 2	Division 2^N Division 1^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC33 AA001	Safeguard Building 3	Division 3^N Division 4^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC34 AA001	Safeguard Building 4	Division 4^N Division 3^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA001	Fuel Building	Division 1^N Division 2^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA002	Fuel Building	Division 4^N Division 3^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA003	Fuel Building	Division 1^N Division 2^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA004	Fuel Building	Division 4^N Division 3^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA005	Fuel Building	Division 1^N Division 2^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC45 AA006	Fuel Building	Division 4^N Division 3^A	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 (7 Sheets)

Equipment Description	Equipment Tag Number(1)	Equipment Location	IEEE Class 1E Source(2)	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Personnel Air Lock Area								
Motor Operated damper	30KLC12 AA009	Safeguard Building 2	Division 2^N Division 1^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC12 AA010	Safeguard Building 2	Division 1^N Division 2^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Motor Operated damper	30KLC22 AA010	Safeguard Building 2	Division 2^N Division 1^A	Close	Yes	Yes	Position / Position	Open-Close / Open-Close
Iodine Filtration Train 30KLC41								
Motor Operated damper	30KLC41 AA001	Fuel Building	Division 1^N Division 2^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Electric Heater	30KLC41 AH001	Fuel Building	Division 1^N Division 2^A	N/A	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Motor Operated damper	30KLC41 AA002	Fuel Building	Division 1^N Division 2^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Exhaust Fan	30KLC41 AN001	Fuel Building	Division 1^N Division 2^A	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Iodine Filtration Train 30KLC42								
Motor Operated damper	30KLC42 AA001	Fuel Building	Division 4^N Division 3^A	Open	Yes	Yes	Position / Position	Open-Close / Open-Close
Electric Heater	30KLC42 AH001	Fuel Building	Division 4^N Division 3^A	N/A	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Motor Operated damper	30KLC42 AA002	Fuel Building	Division 4^N Division 3^A	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 (7 Sheets)

Equipment Description	Equipment Tag Number(1)	Equipment Location	IEEE Class 1E Source(2)	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
Exhaust Fan	30KLC42 AN001	Fuel Building	Division 4^N Division 3^A	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Recirculation Cooling Units								
Recirculation Fans	30KLC51 AN001 30KLC51 AN002 30KLC51 AN003	Safeguard Building 1 Safeguard Building 1 Safeguard Building 1	Division 1^N	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Recirculation Fans	30KLC52 AN001 30KLC52 AN002	Safeguard Building 2 Safeguard Building 2	Division 2^N	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Recirculation Fans	30KLC53 AN001 30KLC53 AN002	Safeguard Building 3 Safeguard Building 3	Division 3^N	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Recirculation Fans	30KLC54 AN001 30KLC54 AN002 30KLC54 AN003	Safeguard Building 4 Safeguard Building 4 Safeguard Building 4	Division 4^N	N/A	Yes	Yes	On-Off / On-Off	Run-Stop / Run-Stop
Instruments								
Exhaust Air Flow Sensors	30KLC45 CF001 30KLC45 CF002	Fuel Building	N/A	N/A	Yes	N/A	Flow / Flow	N/A

Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (7 Sheets)

Equipment Description	Equipment Tag Number[1]	Equipment Location	IEEE Class 1E Source[2]	Failure Position	EQ – Harsh Env.	PACS	MCR / RSS Displays	MCR / RSS Controls
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 temperature sensors	30KLC51 CT005 30KLC51 CT006 30KLC52 CT005 30KLC52 CT006 30KLC53 CT005 30KLC53 CT006 30KLC54 CT005 30KLC54 CT006	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

Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design (7 Sheets)

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

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

2) ^{N} denotes division the component is normally powered from, while ^{A} denotes division the component is powered from when alternate feed is implemented.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
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 2.6.6-1is 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	Equipment listed in Table 2.6.6-1 as ASME AG-1 is designed, installed, and tested per ASME AG-1.	a. Analysis of the equipment identified in Table 2.6.6-1 will be performed per ASME AG-1 design requirements. b. Inspections will be conducted on the equipment identified in Table 2.6.6-1 as ASME AG-1 to verify that the equipment is installed as specified on the construction drawings. c. Testing of the equipment identified in Table 2.6.6-1 as ASME AG-1 will be performed per ASME AG-1 testing requirements.	a. ASME AG-1 reports exist and conclude that the equipment identified in Table 2.6.6-1 as ASME AG-1 meets ASME AG-1 design requirements. b. Equipment identified in Table 2.6.6-1 as ASME AG-1 has been installed as specified on the construction drawings. c. Equipment identified in Table 2.6.6-1 as ASME AG-1 has been tested per ASME AG-1 testing requirements.
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 will be performed.	Equipment listed in Table 2.6.6-1 performs the function listed in the table under system design basis conditions.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.3	Equipment identified as Seismic Category I in Table 2.6.6-1 can withstand seismic design basis loads without loss of safety function as listed in Table 2.6.6-1.	a. Type tests, analyses or a combination of type tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.6.6-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. b. Inspections will be performed of the as-installed Seismic Category I equipment listed in Table 2.6.6-1 to verify that the equipment including anchorage is installed as specified on the construction drawings.	a. Tests/analysis reports exist and conclude that the Seismic Category I equipment listed in Table 2.6.6-1 can withstand seismic design basis loads without loss of safety function. b. Inspection reports exist and conclude that the as-installed Seismic Category I equipment listed in Table 2.6.6-1 including anchorage is installed as specified on the construction drawings.
4.1	Displays listed in Table 2.6.6-2 are retrievable in the MCR and the remote shutdown station (RSS) as listed.	Inspections will be performed for the existence or retrieve-ability of the displays in the MCR and the RSS as listed in Table 2.6.6-2.	a. The displays listed in Table 2.6.6-2 as being retrieved in the MCR can 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	Equipment listed as being controlled by a PACS module in Table 2.6.6-2 responds to the state requested by a test signal.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.6-2 responds to the state requested by the test signal.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
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 environment can perform the safety function in Table 2.6.6-1 following exposure to the design basis environments for the time required.	a. Type tests, tests, analyses or a combination of tests and analyses will 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. 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.	a. The Class 1E equipment listed for harsh environment in Table 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. 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.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
7.1	The SBVS maintains a negative pressure relative to the outside environment in the hot mechanical areas of the Safeguard Buildings during normal operation.	Tests will be performed on the capability of the SBVS to maintain a negative pressure relative to the outside environment in the hot mechanical areas of the Safeguard Buildings during normal operation.	The SBVS maintains a negative pressure of at least 0.25 inches of water gauge relative to the outside environment in the hot mechanical areas of the Safeguard Buildings during normal operation.
7.2	Upon receipt of a high radiation signal in the hot mechanical area of a Safeguard Building division during normal operation, supply and exhaust air flow is configured such that the SBVS exhaust is directed automatically to the NABVS iodine exhaust filters.	A test will be performed to verify that upon receipt of a high radiation signal in the hot mechanical area of a Safeguard Building division during normal operation, the supply air control dampers (30KLC11/12/13/14 AA003 on Figure 2.6.6-1) and exhaust air control dampers (30KLC21/22/23/24 AA006 on Figure 2.6.6-2) applicable to each division reposition automatically, and the NABVS dampers reposition automatically to exhaust through the iodine exhaust filters. Test is performed separately for each Safeguard Building division.	A separate test for each Safeguard Building division confirms that upon receipt of a high radiation signal in the hot mechanical area of a Safeguard Building division, the supply air control dampers (30KLC11/12/13/14 AA003 on Figure 2.6.6-1) and exhaust air control dampers (30KLC21/22/23/24 AA006 on Figure 2.6.6-2) applicable to each division reposition automatically, and the NABVS dampers reposition automatically to exhaust through the iodine exhaust filters.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
7.3	Upon receipt of a high radiation signal as a result of fuel handling accident in the Fuel Building, or fuel handling accident in the Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the accident occurred (either the Fuel Building or the Reactor Building), and the accident air is directed through the SBVS iodine filtration trains.	A test will be performed to verify that upon receipt of a high radiation signal as a result of a fuel handling accident in the Fuel Building or fuel handling accident in the Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the accident occurred (either the Fuel Building dampers 30KLC45 AA003/AA004 or the Reactor Building dampers 30KLC45 AA005/AA006), the SBVS isolation dampers (30KLC45 AA001/AA002) close, and the accident air is directed through the SBVS iodine filtration trains by aligning the iodine filtration banks isolation dampers (30KLC41/42 AA001/AA002) to the open position (see Figure 2.6.6-2 for the above components). A test is performed using a simulated high radiation signal from the Fuel Building, and a test is performed using a simulated high radiation signal from the Reactor Building.	A separate test for a radiation signal in the Fuel Building or Reactor Building confirms that upon receipt of a high radiation signal as a result of a fuel handling accident in the Fuel Building or Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the accident occurred (either the Fuel Building dampers 30KLC45 AA003/AA004 or the Reactor Building dampers 30KLC45 AA005/AA006), the SBVS isolation dampers (30KLC45 AA001/AA002) close, and the accident air is directed through the SBVS iodine filtration trains by aligning the iodine filtration banks isolation dampers (30KLC41/42 AA001/AA002) to the open position (see Figure 2.6.6-2 for the above components).

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
7.4	Upon receipt of a containment isolation signal or high radiation signal in the Reactor Building, the SBVS is isolated from the SBVSE and NABVS by automatically closing the air supply and exhaust isolation dampers, both SBVS iodine filtration trains start automatically, and the FB and SB exhaust air is directed through the iodine filtration trains to maintain a negative pressure inside the FB and SB.	A test will be performed to verify that upon receipt of a containment isolation signal or high radiation signal in the Reactor Building, the SBVS is isolated automatically by closing the SBVSE air supply isolation dampers (30KLC11/12/13/14 AA004/AA005 on Figure 2.6.6-1) and the NABVS exhaust air isolation dampers (30KLC21/22/23/24 AA007/AA008 on Figure 2.6.6-2). Both SBVS trains (shown on Figure 2.6.6-2) start automatically aligning the filter bank isolation dampers (30KLC41/42 AA001/AA002), the SB Division 1-4 exhaust trains isolation dampers (30KLC31/32/33/34AA 001), and the isolation dampers from the SB (30KLC45 AA001/AA002) and the FB (30KLC45 AA003/AA004) to the open position, and maintaining a negative pressure inside the FB and SB.	A test confirms that upon receipt of a containment isolation signal or high radiation signal in the Reactor Building, the SBVS is isolated automatically by closing the SBVSE air supply isolation dampers (30KLC11/12/13/14 AA004/AA005 on Figure 2.6.6-1) and the NABVS exhaust air isolation dampers (30KLC21/22/23/24 AA007/AA008 on Figure 2.6.6-2). Both SBVS trains (shown on Figure 2.6.6-2) start automatically aligning the filter bank isolation dampers (30KLC41/42 AA001/AA002) to the open position, aligning the SB Division 1-4 exhaust trains isolation dampers (30KLC31/32/33/34AA 001) to the open position, and aligning the isolation dampers from the SB (30KLC45 AA001/AA002) and the FB (30KLC45 AA003/AA004) to the open position, and maintaining a minimum negative pressure of 0.25 inches water gauge inside the FB and SB.

Next File