## 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 provides 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 on 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 equipment 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 Deleted.

3.2 Equipment listed in Table 2.6.6-1 can perform the function listed in Table 2.6.6-1 under system operating conditions.

3.3 Components identified as Seismic Category I in Table 2.6.6-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.6-1.

3.4 Components listed in Table 2.6.6-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.6-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.6-1 as ASME AG-1 Code are inspected and tested in accordance with ASME AG-1 Code requirements.

## 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 in Table 2.6.6-2.

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 Deleted.

## 6.0 Environmental Qualifications

6.1 Components in Table 2.6.6-2, that are designated as harsh environment, will perform the function listed in Table 2.6.6-1 in the environments that exist during and following design basis events.

6.2 The SBVS provides recirculation cooling and has the capability to remove design heat load from Safeguard Building hot mechanical rooms.

## 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 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 automatically directed to the NAVBS iodine exhaust filters.

7.3 Upon receipt of a high radiation signal in the FB, or the Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the high radiation signal is initiated (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 (6 Sheets)**

| Description | Tag Number [1] | Location | ASME AG-1 Code | Function | Seismic Category |
|---|---|---|---|---|---|
| **Air Supply Safeguard Building Division 1** | | | | | |
| Motor operated dampers | 30KLC11AA003<br>30KLC11AA004<br>30KLC11AA005<br>30KLC11AA007 | 31UJH05025<br>31UJH05025<br>31UJH05025<br>31UJH05006 | Yes | Close | I |
| Motor Operated damper | 30KLC11AA008 | Safeguard Building 1 | Yes | Close | I |
| **Air Supply Safeguard Building Divisions 2 and 3** | | | | | |
| Motor Operated dampers | 30KLC12AA003<br>30KLC12AA004<br>30KLC12AA005<br>30KLC13AA003<br>30KLC13AA004<br>30KLC13AA005 | 32UJH01020<br>32UJH01020<br>32UJH01020<br>33UJH01020<br>33UJH01020<br>33UJH01020 | Yes | Close | I |
| **Air Supply Safeguard Building Division 4** | | | | | |
| Motor Operated dampers | 30KLC14AA003<br>30KLC14AA004<br>30KLC14AA005<br>30KLC14AA007 | 34UJH05025<br>34UJH05025<br>34UJH05025<br>34UJH05006 | Yes | Close | I |
| Motor Operated damper | 30KLC24AA002<br>30KLC24AA003<br>30KLC24AA004 | 34UJH10004<br>34UJH05006<br>34UJH01011 | Yes | Close | I |

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design (6 Sheets)**

| Description | Tag Number [1] | Location | ASME AG-1 Code | Function | Seismic Category |
|---|---|---|---|---|---|
| **Operational Air Exhaust** | | | | | |
| Motor Operated dampers | 30KLC21AA002 | 31UJH10010 | Yes | Close | I |
| | 30KLC21AA006 | 31UJH10010 | | | |
| | 30KLC21AA007 | 31UJH10010 | | | |
| | 30KLC21AA008 | 31UJH10010 | | | |
| | 30KLC22AA006 | 32UJH10002 | | | |
| | 30KLC22AA007 | 32UJH10002 | | | |
| | 30KLC22AA008 | 32UJH10002 | | | |
| | 30KLC23AA006 | 33UJH10002 | | | |
| | 30KLC23AA007 | 33UJH10002 | | | |
| | 30KLC23AA008 | 33UJH10002 | | | |
| | 30KLC24AA006 | 34UJH10010 | | | |
| | 30KLC24AA007 | 34UJH10010 | | | |
| | 30KLC24AA008 | 34UJH10010 | | | |
| Motor Operated dampers | 30KLC21AA005 | 31UJH10004 | Yes | Open/Close | I |
| | 30KLC21AA010 | 31UJH10004 | | | |
| | 30KLC24AA005 | 34UJH10004 | | | |
| | 30KLC24AA010 | 34UJH10004 | | | |

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design (6 Sheets)**

| Description | Tag Number [1] | Location | ASME AG-1 Code | Function | Seismic Category |
|---|---|---|---|---|---|
| **Accident Air Exhaust** | | | | | |
| Motor Operated dampers | 30KLC31AA001<br>30KLC31AA003<br>30KLC32AA001<br>30KLC32AA003<br>30KLC33AA001<br>30KLC33AA003<br>30KLC34AA001<br>30KLC34AA003 | 31UJH10004<br>31UJH10004<br>32UJH10002<br>32UJH10002<br>33UJH10002<br>33UJH10002<br>34UJH10004<br>34UJH10004 | Yes | Open/Close | I |
| Motor Operated dampers | 30KLC45AA001<br>30KLC45AA002<br>30KLC45AA003<br>30KLC45AA004<br>30KLC45AA005<br>30KLC45AA006 | 30UFA 21095<br>30UFA 21095<br>30UFA 29045<br>30UFA 29045<br>30UFA 24045<br>30UFA 24045 | Yes | Open | I |
| **Personnel Air Lock Area** | | | | | |
| Motor Operated damper | 30KLC12AA009<br>30KLC12AA010 | 32UJH10006<br>32UJH10006 | Yes | Close | I |
| Motor Operated damper | 30KLC22AA010 | 32UJH10006 | Yes | Close | I |
| **Iodine Filtration Trains 30KLC41/42** | | | | | |
| Motor Operated dampers | 30KLC41AA001<br>30KLC42AA001 | 30UFA 21082<br>30UFA 21084 | Yes | Open | I |

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design (6 Sheets)**

| Description | Tag Number [1] | Location | ASME AG-1 Code | Function | Seismic Category |
|---|---|---|---|---|---|
| Electric Heaters | 30KLC41AH001<br>30KLC42AH001 | 30UFA 21082<br>30UFA 21084 | Yes | On / Off (based on ambient conditions) | I |
| Pre filter/Moisture Separators | 30KLC41AT001<br>30KLC42AT001 | 30UFA 21082<br>30UFA 21084 | Yes | N/A | I |
| Upstream HEPA Filters | 30KLC41AT002<br>30KLC42AT002 | 30UFA 21082<br>30UFA 21084 | Yes | N/A | I |
| Carbon Absorbers | 30KLC41AT003<br>30KLC42AT003 | 30UFA 21082<br>30UFA 21084 | Yes | N/A | I |
| Downstream HEPA Filters | 30KLC41AT004<br>30KLC42AT004 | 30UFA 21082<br>30UFA 21084 | Yes | N/A | I |
| Motor Operated dampers | 30KLC41AA002<br>30KLC42AA002 | 30UFA 21082<br>30UFA 21084 | Yes | N/A | I |
| Exhaust Fans | 30KLC41AN001<br>30KLC42AN001 | 30UFA 21083<br>30UFA 21081 | Yes | Run | I |
| Backdraft dampers | 30KLC41AA003<br>30KLC42AA003 | 30UFA 21083<br>30UFA 21081 | Yes | N/A | I |

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design (6 Sheets)**

| Description | Tag Number [1] | Location | ASME AG-1 Code | Function | Seismic Category |
|---|---|---|---|---|---|
| **Recirculation Cooling Units Safeguard Building Divisions 1 and 4** | | | | | |
| Air Cooling Coils | 30KLC51AC001<br>30KLC51AC002<br>30KLC51AC003<br>30KLC54AC001<br>30KLC54AC002<br>30KLC54AC003 | 31UJH05004<br>31UJH10004<br>31UJH10010<br>34UJH05004<br>34UJH10004<br>34UJH10010 | Yes | N/A | I |
| Moisture Separators | 30KLC51AT001<br>30KLC51AT002<br>30KLC51AT003<br>30KLC54AT001<br>30KLC54AT002<br>30KLC54AT003 | 31UJH05004<br>31UJH10004<br>31UJH10010<br>34UJH05004<br>34UJH10004<br>34UJH10010 | Yes | N/A | I |
| Recirculation Fans | 30KLC51AN001<br>30KLC51AN002<br>30KLC51AN003<br>30KLC54AN001<br>30KLC54AN002<br>30KLC54AN003 | 31UJH05004<br>31UJH10004<br>31UJH10010<br>34UJH05004<br>34UJH10004<br>34UJH10010 | Yes | Run | I |
| **Recirculation Cooling Units Safeguard Building Divisions 2 and 3** | | | | | |
| Air Cooling Coils | 30KLC52AC001<br>30KLC52AC002<br>30KLC53AC001<br>30KLC53AC002 | 32UJH05002<br>32UJH10002<br>33UJH05002<br>33UJH10002 | Yes | N/A | I |

**Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design (6 Sheets)**

| Description | Tag Number [1] | Location | ASME AG-1 Code | Function | Seismic Category |
|---|---|---|---|---|---|
| Moisture Separators | 30KLC52AT001<br>30KLC52AT002<br>30KLC53AT001<br>30KLC53AT002 | 32UJH05002<br>32UJH10002<br>33UJH05002<br>33UJH10002 | Yes | N/A | I |
| Recirculation Fans | 30KLC52AN001<br>30KLC52AN002<br>30KLC53AN001<br>30KLC53AN002 | 32UJH05002<br>32UJH10002<br>33UJH05002<br>33UJH10002 | 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)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| **Air Supply Safeguard Building Division 1** | | | | | | | | |
| Motor Operated dampers | 30KLC11AA003<br>30KLC11AA004 | Safeguard Building 1<br>Safeguard Building 1 | Division 1N<br>Division 2 A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC11AA005 | Safeguard Building 1 | Division 4N<br>Division 3 A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated dampers | 30KLC11AA007<br>30KLC11AA008 | Safeguard Building 1<br>Safeguard Building 1 | Division 1N<br>Division 2 A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| **Air Supply Safeguard Building Division 2** | | | | | | | | |
| Motor Operated dampers | 30KLC12AA003<br>30KLC12AA004 | Safeguard Building 2<br>Safeguard Building 2 | Division 2N<br>Division 1A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC12AA005 | Safeguard Building 2 | Division 3N<br>Division 4A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| **Air Supply Safeguard Building Division 3** | | | | | | | | |
| Motor Operated damper | 30KLC13AA003<br>30KLC13AA004 | Safeguard Building 3<br>Safeguard Building 3 | Division 3N<br>Division 4A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated dampers | 30KLC13AA005 | Safeguard Building 3 | Division 2N<br>Division 1A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| **Air Supply Safeguard Building Division 4** | | | | | | | | |
| Motor Operated dampers | 30KLC14AA003<br>30KLC14AA004 | Safeguard Building 4<br>Safeguard Building 4 | Division 4N<br>Division 3A | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC14AA005 | Safeguard Building 4 | Division 1N<br>Division 2A | | 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)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| Motor Operated damper | 30KLC14AA007 | Safeguard Building 4 | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated dampers | 30KLC24AA002<br>30KLC24AA003<br>30KLC24AA004 | Safeguard Building 4<br>Safeguard Building 4<br>Safeguard Building 4 | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| **Operational Air Exhaust** | | | | | | | | |
| Motor Operated dampers | 30KLC21AA005<br>30KLC21AA006<br>30KLC21AA007 | Safeguard Building 1<br>Safeguard Building 1<br>Safeguard Building 1 | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC21AA008 | Safeguard Building 1 | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC21AA010 | Safeguard Building 1 | Division $2^N$<br>Division $1^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated dampers | 30KLC22AA006<br>30KLC22AA007 | Safeguard Building 2<br>Safeguard Building 2 | Division $2^N$<br>Division $1^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC22AA008 | Safeguard Building 2 | Division $3^N$<br>Division $4^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated dampers | 30KLC23AA006<br>30KLC23AA007 | Safeguard Building 3<br>Safeguard Building 3 | Division $3^N$<br>Division $4^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC23AA008 | Safeguard Building 3 | Division $2^N$<br>Division $1^A$ | | 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)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| Motor Operated dampers | 30KLC24AA005<br>30KLC24AA006<br>30KLC24AA007 | Safeguard Building 4<br>Safeguard Building 4<br>Safeguard Building 4 | Division $4^{N}$<br>Division $3^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC24AA008 | Safeguard Building 4 | Division $1^{N}$<br>Division $2^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC24AA010 | Safeguard Building 1 | Division $2^{N}$<br>Division $1^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| **Accident Air Exhaust** | | | | | | | | |
| Motor Operated damper | 30KLC31AA001 | Safeguard Building 1 | Division $1^{N}$<br>Division $2^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC31AA003 | Safeguard Building 1 | Division $2^{N}$<br>Division $1^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC32AA001 | Safeguard Building 2 | Division $2^{N}$<br>Division $1^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC32AA003 | Safeguard Building 2 | Division $1^{N}$<br>Division $2^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC33AA001 | Safeguard Building 3 | Division $3^{N}$<br>Division $4^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC33AA003 | Safeguard Building 3 | Division $4^{N}$<br>Division $3^{A}$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC34AA001 | Safeguard Building 4 | Division $4^{N}$<br>Division $3^{A}$ | | 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)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| Motor Operated damper | 30KLC34AA003 | Safeguard Building 4 | Division $3^N$<br>Division $4^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC45AA001 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC45AA002 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC45AA003 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC45AA004 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC45AA005 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC45AA006 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| **Personnel Air Lock Area** | | | | | | | | |
| Motor Operated damper | 30KLC12AA009 | Safeguard Building 2 | Division $2^N$<br>Division $1^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC12AA010 | Safeguard Building 2 | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Motor Operated damper | 30KLC22AA010 | Safeguard Building 2 | Division $2^N$<br>Division $1^A$ | | 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)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| **Iodine Filtration Train 30KLC41** | | | | | | | | |
| Motor Operated damper | 30KLC41AA001 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Electric Heater | 30KLC41AH001 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | On-Off / On-Off | Start-Stop / Start-Stop |
| Motor Operated damper | 30KLC41AA002 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Exhaust Fan | 30KLC41AN001 | Fuel Building | Division $1^N$<br>Division $2^A$ | | Yes | Yes | On-Off / On-Off | Run-Stop / Run-Stop |
| **Iodine Filtration Train 30KLC42** | | | | | | | | |
| Motor Operated damper | 30KLC42AA001 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Electric Heater | 30KLC42AH001 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | On-Off / On-Off | Start-Stop / Start-Stop |
| Motor Operated damper | 30KLC42AA002 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | Position / Position | Open-Close / Open-Close |
| Exhaust Fan | 30KLC42AN001 | Fuel Building | Division $4^N$<br>Division $3^A$ | | Yes | Yes | On-Off / On-Off | Run-Stop / Run-Stop |
| **Recirculation Cooling Units** | | | | | | | | |
| Recirculation Fans | 30KLC51AN001<br>30KLC51AN002<br>30KLC51AN003 | Safeguard Building 1<br>Safeguard Building 1<br>Safeguard Building 1 | Division $1^N$ | | 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 (7 Sheets)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| Recirculation Fans | 30KLC52AN001<br>30KLC52AN002 | Safeguard Building 2<br>Safeguard Building 2 | Division $2^N$ | | Yes | Yes | On-Off / On-Off | Run-Stop / Run-Stop |
| Recirculation Fans | 30KLC53AN001<br>30KLC53AN002 | Safeguard Building 3<br>Safeguard Building 3 | Division $3^N$ | | Yes | Yes | On-Off / On-Off | Run-Stop / Run-Stop |
| Recirculation Fans | 30KLC54AN001<br>30KLC54AN002<br>30KLC54AN003 | Safeguard Building 4<br>Safeguard Building 4<br>Safeguard Building 4 | Division $4^N$ | | Yes | Yes | On-Off / On-Off | Run-Stop / Run-Stop |
| **Instruments** | | | | | | | | |
| Exhaust Air Flow Sensors | 30KLC45CF001<br>30KLC45CF002 | Fuel Building | N/A | | Yes | N/A | Flow / Flow | N/A |
| Medium Head SIS Pump room temperature sensors | 30KLC51CT001<br>30KLC51CT002<br>30KLC52CT001<br>30KLC52CT002<br>30KLC53CT001<br>30KLC53CT002<br>30KLC54CT001<br>30KLC54CT002 | Safeguard Building 1<br>Safeguard Building 1<br>Safeguard Building 2<br>Safeguard Building 2<br>Safeguard Building 3<br>Safeguard Building 3<br>Safeguard Building 4<br>Safeguard Building 4 | 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)**

| Description | Tag Number(1) | Location | IEEE Class 1E (2) | | EQ – Harsh Env. | PACS | MCR / RSS Displays | MCR / RSS Controls |
|---|---|---|---|---|---|---|---|---|
| Low Head SIS Pump room temperature sensors | 30KLC51CT003<br>30KLC51CT004<br>30KLC52CT003<br>30KLC52CT004<br>30KLC53CT003<br>30KLC53CT004<br>30KLC54CT003<br>30KLC54CT004 | Safeguard Building 1<br>Safeguard Building 1<br>Safeguard Building 2<br>Safeguard Building 2<br>Safeguard Building 3<br>Safeguard Building 3<br>Safeguard Building 4<br>Safeguard Building 4 | N/A | | Yes | N/A | Temp / Temp | N/A |
| CCW & EFW Valve room temperature sensors | 30KLC51CT005<br>30KLC51CT006<br>30KLC52CT005<br>30KLC52CT006<br>30KLC53CT005<br>30KLC53CT006<br>30KLC54CT005<br>30KLC54CT006 | Safeguard Building 1<br>Safeguard Building 1<br>Safeguard Building 2<br>Safeguard Building 2<br>Safeguard Building 3<br>Safeguard Building 3<br>Safeguard Building 4<br>Safeguard Building 4 | N/A | | Yes | N/A | Temp / Temp | N/A |
| Sampling system room temperature sensors | 30KLC51CT007<br>30KLC51CT008<br>30KLC54CT007<br>30KLC54CT008 | Safeguard Building 1<br>Safeguard Building 1<br>Safeguard Building 4<br>Safeguard Building 4 | 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 (8 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 on Figures 2.6.6-1 and 2.6.6-2. |
| 2.2 | The location of the SBVS equipment is 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 as listed in Table 2.6.6-1. |
| 3.1 | Deleted. | Deleted. | Deleted. |
| 3.2 | Equipment listed in Table 2.6.6-1 can perform the function listed in Table 2.6.6-1 under system operating conditions. | Tests will be performed. | Equipment listed in Table 2.6.6-1 performs the function listed in the table under system operating conditions. |
| 3.3 | Components identified as Seismic Category I in Table 2.6.6-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.6-1. | a. Type tests, analyses, or a combination of type tests and analyses will be performed on the components identified as Seismic Category I in Table 2.6.6-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. | a. Seismic qualification reports (SQDP, EQDP, or analyses) exist and conclude that the Seismic Category I components identified in Table 2.6.6-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.6-1 including the time required to perform the listed function. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 Sheets)**

| Commitment Wording | | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|---|
| | | b. Inspections will be performed of the Seismic Category I components identified in Table 2.6.6-1 to verify that the components, including anchorage, are installed as specified on the construction drawings and deviations have been reconciled to the seismic qualification reports (SQDP, EQDP, or analyses). | b. Inspection reports exist and conclude that the Seismic Category I components identified in Table 2.6.6-1, including anchorage, are installed as specified on the construction drawings and deviations have been reconciled to the seismic qualification reports (SQDP, EQDP, or analyses). |
| 3.4 | Components listed in Table 2.6.6-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements. | Inspections will be performed for the existence of ASME AG-1 Code Design Verification Reports. | ASME AG-1 Code Design Verification Reports (AA-4400) exist for components listed as ASME AG-1 Code in Table 2.6.6-1. |
| 3.5 | Components listed in Table 2.6.6-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements. | Inspections will be performed to verify components are fabricated in accordance with ASME AG-1 Code requirements. | For components listed as ASME AG-1 Code in Table 2.6.6-1, reports exist and conclude that the component meets ASME AG-1 Code requirements, including welding requirements. |
| 3.6 | Components listed in Table 2.6.6-1 as ASME AG-1 Code are inspected and tested in accordance with ASME AG-1 Code requirements. | Inspections and tests will be performed on the components. | For components listed as ASME AG-1 Code in Table 2.6.6-1, reports exist and conclude that the component meets ASME AG-1 Code inspection and testing requirements. |
| 4.1 | Displays listed in Table 2.6.6-2 are retrievable in the MCR and the remote shutdown station (RSS) as listed in Table 2.6.6-2. | a. Tests will be performed for the retrieve-ability of the displays in the MCR 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. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 Sheets)**

| Commitment Wording | | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|---|
| | | b. Tests will be performed for the retrieve-ability of the displays in the RSS as listed in Table 2.6.6-2. | 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. | a. Tests will be performed for the existence of control signals from the MCR to the equipment listed in Table 2.6.6-2.<br>b. Tests will be performed for the existence of control signals from 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.<br>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. |
| 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.<br>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.<br>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 | Deleted. | Deleted. | Deleted. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 Sheets)**

| Commitment Wording | | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|---|
| 6.1 | Components in Table 2.6.6-2, that are designated as harsh environment, will perform the function listed in Table 2.6.6-1 in the environments that exist during and following design basis events. | a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components listed as harsh environment in Table 2.6.6-2 to perform the function listed in Table 2.6.6-1 for the environmental conditions that could occur during and following design basis events.. | a. Environmental Qualification Data Packages (EQDP) exist and conclude that the components listed as harsh environment in Table 2.6.6-2 can perform the function listed in Table 2.6.6-1 during and following design basis events including the time required to perform the listed function. |
| | | b. Components listed as harsh environment in Table 2.6.6-2 will be inspected to verify installation in accordance with the construction drawings including the associated wiring, cables and terminations. Deviations to the construction drawings will be reconciled to the EQDP. | b. Inspection reports exists and conclude that the components listed in Table 2.6.6-2 as harsh environment has been installed per the construction drawings and any deviations have been reconciled to the EQDP. |
| 6.2 | The SBVS provides recirculation cooling and has the capability to remove design heat load from Safeguard Building hot mechanical rooms. | Tests will be performed to verify capability of the system to maintain the ambient conditions within each division Safeguard Building for the hot mechanical rooms | a. Each SBVS cooling coil is to have been tested and certified for a total cooling capacity of:<br>• KLC 51/54 AN001 64,800 Btu/hr.<br>• KLC 51/54 AN002 32,400 Btu/hr.<br>• KLC 51/54 AN003 21,600 Btu/hr.<br>• KLC 52/53 AN001 54,000 Btu/hr.<br>• KLC 52/53 AN002 32,400 Btu/hr. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 Sheets)**

| Commitment Wording | | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|---|
| | | | b. A separate test for each Division of the Safeguard Building hot mechanical rooms to verify that:<br>Ambient temperature shall be maintained between 50°F and 104°F.<br>The nominal air flow is at least:<br>• KLC 51/54 AN001 3,000 scfm.<br>• KLC 51/54 AN002 1,500 scfm.<br>• KLC 51/54 AN003 1,000 scfm.<br>• KLC 52/53 AN001 2,500 scfm.<br>• KLC 52/53 AN002 1,500 scfm. |
| 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. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 Sheets)**

| Commitment Wording | | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|---|
| 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. All the above dampers reposition automatically within 60 seconds. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 Sheets)**

| Commitment Wording | | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|---|
| 7.3 | Upon receipt of a high radiation signal in the Fuel Building, or the Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the high radiation signal is initiated (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 in the Fuel Building or the Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the high radiation signal is initiated (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 in the Fuel Building or Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers open to the building where the high radiation signal is initiated(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). Above dampers close or open within 60 seconds. |

**Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (8 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 within 60 seconds 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) (30KLC21/24 AA010) (30KLC31/32/33/34 AA003) 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. Above dampers close or open within 60 seconds. |

Next File