

Criteria, Review, and Approach Document for the Assessment of Operational Readiness of Vital Safety Systems (VSS)

Reviewed by: _____ Date: _____

Site: LLNL

Facility: Plutonium Facility - Building 332

System: Fire Suppression System

System Classification: Safety Class (Some components of this system are Safety Significant)

System Safety Function: The safety function of the fire suppression system is to protect the room exhaust ducting and the HEPA filters from heated air released during a major room fire (Evaluation-Basis Fire). The system also serves the purpose of containing and controlling the fire in the area of origin. (See Section 4.3.7 of Building 332 SAR)

OBJECTIVE

VSS-1

This vital safety system is operational and personnel and processes are in place that ensure its continued operational readiness.

Criteria and Discussion of Results

VSS 1.1 VSS safety functions are defined and understood by responsible line 1 managers, and supporting information/documentation is available and adequate. System testing is adequate to ensure operability. (See Review Approach items 1, 2, 3 and 7.)

Discussion of Results – (List information/documentation that was unavailable or inadequate. Indicate whether the criterion was met.)

Answer VSS 1.1

The VSS safety functions are defined in Chapter 4 of Building 332 SAR.

Answer VSS1.1 (cont)

Line Managers are responsible for understanding the VSS safety functions. System responsible individuals are trained and tested to ensure their understanding of the safety functions.

Building 332 Facility Safety Plans, Facility Operating Procedures, and system drawings are available to provide supporting information and documentation on this VSS.

Building 332 SRPs and ACPs ensure operability of this vital safety system. In addition, daily inspections are used to ensure the operability of the VSS each working day.

The criteria within question VSS 1.1 were met.

VSS 1.2 The backlog for surveillances, tests, inspections, maintenance, repair, upgrades, or other work on the system is managed and kept to an appropriate minimum. (See Review Approach item 6.)

Discussion of Results – (Provide a discussion indicating whether the criterion was met.)

Answer VSS 1.2

There is no backlog for the fire suppression system with regard to preventive maintenance, corrective maintenance, surveillances, tests, and inspections nor are there any corrective actions. However, a project to provide a supply of backup water to the Increment 1 exhaust plenum is underway.

It should be noted that eight galvanized demister screens in the Increment 1 GBES deluge plenums were changed to stainless steel screens to meet the ten to fifteen year facility life expectancy.

The criteria within question VSS 1.2 were met for fire suppression system surveillances, tests, inspections, maintenance, repair, and the upgrade projects. All elements are managed and work delay is kept to an appropriate minimum.

VSS 1.3 Configuration Management and Maintenance programs effectively ensure operational availability of the system. (See Review Approach items 5, 8 and 9.)

Discussion of Results – (Address the maintenance program, document control, identification of system requirements and their bases, change control/work control, and assessments of the system. Indicate whether responsibility for operational readiness of this system is formally assigned.)

Answer VSS 1.3

Building 332 has a work control/design control process that assures work activities are properly requested, reviewed, and authorized before being performed and such work activities are performed in a formal and deliberate manner with emphasis on safety. In addition, ACP-B332-011 (Unreviewed Safety Questions (USQ) Procedure) provides guidance for evaluating proposed activities for potential Unreviewed Safety Questions.

All procedures within the Plutonium Facility are prepared using QOP-B332-001 (Preparation of Controlled Procedures) and are reviewed, approved, and revised using QOP-B332-002 (Review, Approval and Revision of Unclassified Controlled Documents – Document Change Control Process). All controlled procedures within the Building 332 are reviewed every three years.

For the past two years, the Work Control Process has been used to control changes to systems in Building 332. This process, which applies to all facility and program modifications, requires engineering design reviews, requires that "as-built" conditions are confirmed prior to beginning work, ensures the design basis is maintained and also is the mechanism for triggering drawing updates. Prior to 1998, less vigorous configuration management existed in Building 332. The facility is gathering drawings and documentation for an archiving initiative.

Building 332 has an effective maintenance program that ensures the operational availability of the fire suppression system. Elements of this program are daily pressure and alarm checks, safety walkthroughs, quarterly damper maintenance and annual visual inspections for leaks and corrosion conducted by qualified personnel.

The criteria within question VSS 1.3 were met for configuration management and maintenance programs.

VSS 1.4 The system is operable and available to fulfill its safety function when required. (See Review Approach items 4 and 10.)

Discussion of Results – (Provide a discussion indicating whether the criterion was met.)

Answer VSS 1.4

The fire suppression system is operable and available to fulfill its safety function when required. In the past three years, the fire suppression system has failed its test acceptance criteria once; a glovebox exhaust fire damper failed to close during surveillance. The fire suppression system has not failed in response to facility operating conditions in the last three years. Other than down time related

Answer VSS 1.4 (cont)

to preventive maintenance and surveillance testing, the fire suppression system has been operable 99.4% of the time during the past three years.

Support systems (electrical tape, utility air, electrical power, and fire alarms) for the fire suppression system has been 100% available for the past three years.

The criteria within question VSS 1.4 were met for system operability.