

# 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: Emergency Power System

System Classification: Safety Class

**System Safety Function:** The primary safety function of the entire Emergency Power System is, upon partial or total loss of normal power, to provide electrical power to safety-related equipment and components, and specifically to those safety-class SSCs that are required to operate in order to prevent and/or mitigate the consequences of the evaluation-basis accidents discussed in Chapter 3 of Building 332 SAR. Based on the potential offsite consequences of the release accidents, the Emergency Power System is identified as a safety-class SSC. (See Table 3-23 of Chapter 3, and Section 4.3.6.1 of the 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 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 VSS 1.1 (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. Plant Engineering also maintains documentation to support the emergency power system.

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 Emergency Power System with regard to preventive maintenance, corrective maintenance, surveillances, tests, and inspections nor are there any corrective actions.

It should be noted that the EMCCs for Increment 1 emergency power have been replaced and the UPS system in Room 1003 will be replaced to help meet the ten to fifteen year facility life expectancy. Also, a study has been conducted to develop strategies to enhance the facility's ability to recover from a loss of power. Two of the four strategies that were developed will be implemented in FY01.

The criteria within question VSS 1.2 were met for Emergency Power System surveillances, tests, inspections, maintenance, repair, and 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 Emergency Power System. Elements of this program are daily operational verifications conducted by facility operations, weekly equipment checks conducted by plant heavy equipment personnel, and monthly battery maintenance conducted by plant battery shop 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 Emergency Power System is operable and available to fulfill its safety function when required. In the past three years, the Emergency Power System has failed its test acceptance criteria two times. The first failure was the result of a loose connection in a switchboard and the second was the result of an incorrect setting on the UPS battery charger.

**Answer VSS1.4 (cont)**

The Emergency Power System has failed one time in the past three years when it was required to be on line and available. A circuit board that would allow switchover from regular power to emergency power failed. The facility did not have an interruption in power, but emergency power was not available.

For the three year period, the Emergency Power System was not available to back up the normal building Power A total of 21.5 hours or 0.08%.

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