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Technical Safety Requirements

for the

Tank Farm Facilities

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Idaho National Engineering
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CONTENTS

ACRONYMS

AC	administrative control
DOE	Department of Energy
INEEL	Idaho National Engineering and Environmental Laboratory
LCO	limiting condition for operations
LCS	limiting control setting
SL	safety limit
SR	surveillance requirement
TSR	technical safety requirement

1. USE AND APPLICATION

1.1 Introduction

Title 10 Code of Federal Regulations (CFR) Part 830, Subpart B,[1] requires that technical safety requirements (TSRs) be prepared for all Department of Energy (DOE) nuclear facilities. Tank Farm normal operations and the Tank Farm Closure Project depend on both general and facility-specific controls. TSR-100[2] covers derivation of the general TSRs applicable to all Idaho National Engineering and Environmental Laboratory (INEEL) nuclear facilities. The Tank Farm facility-specific TSRs are derived for normal operations from the Tank Farm safety analysis,[3] and for closure operations from the Tank Farm Closure Project safety analysis.[4] The Tank Farm facility-specific TSRs and TSR-100 general TSRs together prescribe the bounds for safe operation of the Tank Farm necessary to protect the health and safety of the public and reduce risk to workers.

Basic information and instructions for using and applying TSRs are contained in TSR-100, Section 1, "Use and Application." Operational modes specific to the Tank Farm are defined in the following section.

1.2 Operational Modes

There are no operational modes defined for the Tank Farm because there are no mode-related operational TSRs (such as limiting conditions for operations [LCOs] or surveillance requirements [SRs]) for Tank Farm operations.

2. SAFETY LIMITS

There are no safety limits (SLs) for the Tank Farm.

3/4. LIMITING CONTROL SETTINGS, LIMITING CONDITIONS FOR OPERATION, AND SURVEILLANCE REQUIREMENTS

There are no limiting controls settings (LCSs), LCOs, or SRs for the Tank Farm.

5. ADMINISTRATIVE CONTROLS

The Tank Farm facility-specific administrative controls (ACs) apply at all times, independent of operational modes, unless otherwise noted.

AC 5.107.1 Waste Compatibility Control Program

A Waste Compatibility Control Program shall be established, implemented, and maintained for the Tank Farm. Prior to receipt of solutions into the Tank Farm, the characteristics of those solutions shall be reviewed for acceptability with the waste controls identified in the program. The program shall, at a minimum, consider potential concerns such as heat generation, chemical reactions, tank corrosion, and maintenance of waste acidity to prevent fissile material precipitation.

AC 5.107.2 Vehicles

Use of vehicles on the Tank Farm shall be prohibited during transfers of tank solution using the aboveground transfer line.

6. DESIGN FEATURES

Tank Farm design features identified as safety-significant SSCs are listed below and are described in the Tank Farm safety analyses.[3,4]

6.1 300,000-Gal Storage Tanks WM-180 through WM-190

The 300,000-gal storage tanks WM-180 through WM-190 are designated as safety-significant SSC design features with the safety function of maintaining the overall structural integrity under evaluation basis seismic, pressure, vacuum, and static loads to prevent tank failure, which could cause a large uncontrolled release of the contained waste. The safety-significant features of the tanks are limited to the structural integrity of the pressure boundary, supports, penetrations, pressure relief valves, and risers.

6.2 Vaults for Storage Tanks WM-180 through WM-190

The vaults for the 300,000-gal storage tanks are designated as safety-significant SSC design features with the safety function of maintaining their overall structural integrity under evaluation basis seismic and static soil loading conditions to prevent storage tank failures that could result in a large uncontrolled release of radioactive/hazardous materials contained in the storage tanks. The safety-significant features of the vaults are limited to structural integrity of the structural components, including supports and foundations.

6.3 Aboveground Transfer Line Secondary Encasement

The secondary encasements for the aboveground transfer lines are safety-significant SSC design features with the safety function of protecting workers from radioactive material release exposure accidents during transfers of tank solution from a tank undergoing closure to an operating tank. The safety-significant features of the aboveground transfer line secondary encasements are limited to the structural integrity of the piping and fittings.

7. REFERENCES

1. 10 CFR 830, Subpart B, "Safety Basis Requirements," Code of Federal Regulations, Office of the Federal Register, January 10, 2001.

2. TSR-100, "INEEL Standardized Technical Safety Requirements (TSR) Document," Rev. 0, September 9, 2002.

3. SAR-107, "Safety Analysis Report for the Tank Farm Facilities, Rev. 1, July 7, 2003.

4. SAR-107A, "Safety Analysis Report for the Tank Farm Closure Project," Rev. 0, July 7, 2003.

Appendix A

Bases

This appendix on TSR bases provides summary statements of the reasons for the LCSs, LCOs, and SRs and shows how the numeric values, conditions, surveillances, and action statements fulfill the purpose derived from the safety documents. Since there are no SLs, LCSs, LCOs, or SRs for the Tank Farm, there are no TSR bases. The derivation bases of the Tank Farm ACs are provided in the Tank Farm safety analyses.[1,2]

References

1. SAR-107, "Safety Analysis Report for Tank Farm Facilities, Rev. 1, July 7, 2003.

2. SAR-107A, "Safety Analysis Report for the Tank Farm Closure Project," Rev. 0, July 7, 2003.