ENGINEERING (ENG)
OBJECTIVE

ENG.1 Facility safety documentation is in place and has been implemented that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety SSCs are defined, and a system to maintain control over their design and is established. (CR-7)

Scope: The K Basins SWS activities will be conducted in accordance with the requirements in HNF-SD-WM-SAR-062, *K Basin Final Safety Analysis Report*, Revision 6, and SNF-10823, *Package Safety Analysis Assessment for Sludge Transportation System*.

Criteria

• The safety documentation addresses appropriate hazards/risks associated with SWS operations. (10CFR830.202(b)(2))

• A safety basis has been prepared and approved by DOE. (10CFR830.2021(b)&(c)(2) and 207(d))

• Administrative controls are in place to ensure that the SWS equipment repairs (or modifications) are adequately analyzed to identify system degradation and to ensure that design changes are documented and approved prior to implementation. (DOE-STD-1073-93, Chapter 1.3)

• An adequate process has been implemented to ensure that documentation for the SWS systems critical to safety exists and is kept current, as appropriate, for their safety functions and that documentation is available to the SWS operators. (DOE-STD-1073-93, Chapter 1.3)

• Drawings and other documentation relied upon for operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

Approach

Record Review

• Review any changes to the DSA to assess whether the safety basis includes appropriate hazards/risks.
• Review recent design changes and modifications to ensure they have been reflected in drawings and documents are available to operators and maintenance personnel.
• Review the listing of safety systems and components to ensure it is consistent with the DSA.

• Review authorization basis change requests, initial USQ screenings and supporting USQ safety evaluations for their implications on SWS operations.
• Review basis for safety-related systems and performance of critical functions.
• Review the SWS process standards to ensure any assumptions and process-related safety controls from the safety basis documents are adequately addressed.
• Review select surveillance, operations, and maintenance procedures to verify compliance with process-related safety controls and administrative controls.
• Review the contractor ORR report and the MSA for this CRAD, adjust the approach accordingly, and provide input to CRAD-17 write-up.

Interviews

• Interview the engineering personnel responsible for developing, reviewing, and approving the SWS USQ determinations and supporting safety analyses for proposed facility activities to assess their understanding of the program, individual responsibilities, and safety basis documents.

Shift Performance

• Observe select SWS operations, emergency drills, and operational upsets (may be simulated) to assess whether any hazards or risks exist that have not been addressed by facility safety documentation.

• Perform a system walkdown of a sampling of the safety systems to determine if modifications are controlled. This walkdown should evaluate the accuracy of drawings and other documentation for plant operation and maintenance. At least one recently completed modification should be walked down and the changes verified, including changes to operating procedures, if applicable.

• Determine if the process is adequately implemented.

OBJECTIVE

ENG.2 Formal agreements establishing requirements are in place between the operating contractor and DOE via the contract or other enforceable mechanism that govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE. (CR 14)

Scope: Formal agreements establishing requirements for the SWS are within the scope of the ORR.

Criteria

• The authorization agreement and Memorandum of Agreement (MOA) between the SNF Project and the Waste Management Project have been revised to incorporate any changes required relative to the SWS. (HNF-MP-003, *FH ISMS Management System Description*)

• The SWS is in compliance with the authorization agreement, or compensatory actions are in place. (HNF-MP-003, *FH ISMS Management System Description*)

• The MOA between the SNF Project and the Waste Management Project is implemented.

Approach

Record Review

• Review the authorization agreement and the MOA and verify that any revisions required due to the SWS have been incorporated.

• Review the documentation supporting interfaces and the documentation required for the transfer of material from the K Basins to a receiving facility.

• Review the authorization agreement and the MOA and the referenced documentation for the SWS's compliance and identification of any noncompliances, and ensure that necessary justifications for continued operations are in place.

Interviews

• Interview management personnel to ensure they are aware of any noncompliances and actions necessary to fully implement the order requirements, as well as any interim compensatory measures or items captured in the facility Corrective Action Management System.

• Interview K Basins personnel for understanding of the interface requirements to support shipment of the sludge to a receiving facility.

Shift Performance

• Where appropriate, observe the implementation of any specified compensatory measures within the facility to determine their effectiveness.

• Observe simulated operations to ship K Basins sludge.

OBJECTIVE

ENG.3 A program is in place to confirm and periodically reconfirm the condition and operability of the safety SSCs. This includes examinations of test records and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work. (CR 8)

Scope: All safety systems, structures and components, process and utility systems required for operation of the K Basins SWS are within the scope of this ORR. Included are the associated test and calibration records.

Criteria

• Confirmation of continued compliance with the SWS safety requirements, including clearly defined surveillance intervals and periodic self-assessments, is required by procedures. (DOE Order 425.1C)

• Adequate SWS surveillance procedures and acceptance criteria have been established to support safe operation and are consistent with the approved operating basis. (10CFR830.202 (b)(5))

• Completed SWS surveillances and tests are reviewed and follow-up actions are documented. (DOE Order 5480.19, Chapters I and II)

• A System Engineer Program has been established and implemented to ensure continued operation readiness of the safety systems and components. (DOE O 420.1A)

Approach

Record Review

• Review the surveillance program to determine that safety requirements have corresponding surveillances.

• Review the surveillance procedures to determine if acceptance criteria are established and met during the performance of periodic surveillances.

• Verify that surveillance, operations and maintenance procedures are technically correct and implement the requirements of the DSA for the SWS.

• Review the results from a sampling of acceptance tests and operations tests to determine if design and operations requirements have been met. This review will sample a safety equipment package from the safety requirements, back through system testing, installation, design and design specification.

• Review a sampling of completed or in-progress work control documents for the SWS safety-related equipment to verify that they contain the appropriate acceptance testing requirements.

• Review a list of outstanding safety-related system deficiencies identified through the corrective maintenance program, preventive maintenance program, surveillance test program, or other reporting process to assess the condition of facility systems to support safe operations.

• Review the contractor ORR report and the MSA for this CRAD, adjust the approach accordingly, and provide input to CRAD-17 write-up.

Interviews

• Interview personnel associated with the SWS Surveillance Program to assess their understanding of program requirements and responsibilities.

• Interview the CSEs to assess their understanding of program requirements and responsibilities.

Shift Performance

• Observe the performance of a sampling of safety system surveillances.

• Observe the performance of a sampling of safety system maintenance activities.

• Walk down an SWS safety-related SSC with the CSE and an operator to assess the operability and condition and to verify the status is consistent with the condition specified.

OBJECTIVE

ENG.4 The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis. (CR-9)

Scope: The facility modifications associated with the SWS and the equipment modifications associated with the STS are within the scope of this ORR.

Criteria

- An adequate process has been implemented to ensure that documentation for safety systems associated with the SWS and the STS exists and is kept current, as appropriate for their safety functions, and that documentation is available to the operators. (DOE-STD-1073-93, Chapter 1.3)
- Drawings and other documentation relied upon for operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)
- The SWS equipment has been included in the SWS Configuration Management Program. (DOE-STD-1073-93, Chapter 1.3.1.2)
- The design requirements have been formally established, documented, and maintained for the SWS. (DOE-STD-1073-93, Chapter 1.3.2.1)

Approach

Record Review

- Review the SWS and STS drawings to ensure modifications are incorporated.

- Review the SWS and STS outstanding and implemented modifications for completeness.

- Review the equipment database to confirm that facility modifications are being categorized, documented, and added to the database

- Check that current controlled copies of documents maintained in the facility are readily available for use.

- Verify that the types of equipment to be included in the Configuration Management Program have been identified and are based on the functions provided by the SSCs.

• Review adequacy of the contractor ORR for CR-9, adjust the approach accordingly, and provide input to CRAD-17 write-up.

Interviews

• Interview the SWS design authorities to determine if outstanding and implemented modifications have been incorporated into the Configuration Control Program.

• Interview the manager responsible for the Configuration Control Program to determine if the SWS SSCs have been included in the Configuration Control Program.

• Interview the personnel designated as interface managers to determine if they are aware of their configuration management responsibilities.

Shift Performance

• Select at least one safety-related system and walk it down to compare the as-found configuration to the current safety documentation, operating procedures, and controlled drawings. Include in the walkdown any portions of the system that have recently been modified.

• Determine if the process is adequately implemented.