Savannah River Remediation
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Savannah River Site

Aiken, South Carolina

SRS LIQUID WASTE PROGRAM

CONSOLIDATED GENERAL CLOSURE PLAN FOR F-AREA & H-AREA TANK FARMS

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Past and Present General Closure Plans (GCPs)

- **PIT-MISC-0006**
  - Issued July 1996 for FTF and HTF (superseded)
    - Applicable to closed Tanks 17 and 20

- **LWO-RIP-2009-00009**
  - Issued January 2011 for FTF only
    - Applicable to closed Tanks 5, 6, 18, and 19
    - Used as written only for Tanks 18 and 19 closure

- **SRR-CWDA-2011-00022**
  - Issued May 2012 for HTF only
    - Applicable to closed Tanks 16 and 12
    - Used with some modification for Tank 16 closure
    - Used with significant modifications for Tank 12 closure

Limitations of Two Current GCPs

- **The FTF GCP and HTF GCP define the Closure Module (CM) development/approval process:**
  - Established a 360-day review process
  - Repeats information and requires large CMs (120-180 pages)
  - Does not include "forecasted inventory" concept
  - Development/Approval always on project "Critical Path" – unavoidable
  - Improvements can, and have been, implemented (i.e., Regulatory Action Team [RAT], Closure And Regulatory Action Team [CARAT])
    - Requires regulatory review of Revision A (first draft) with available data and analytical results, and
    - Requires regulatory review of Revision B (second draft) before Revision 0 is submitted for public review

New Consolidated GCP (CGCP)

I. **Incorporates Lessons Learned from Tanks 5 and 6 RAT, Tanks 16 and 12 CARAT, and Tank 12 CM**

II. **Incorporates SRR's Rapid Improvement Events (RIEs)**

III. **Eliminates Redundancy in Closure Module Content**

- Sections 1.0, 2.0, 7.0, 8.0 and some of Section 4.0 are repetitive

IV. **Efficiency**

- Maintenance of one General Closure Plan versus two
- Less prescriptive
- Closure Options – some decisions become flexible to deal with tank specific conditions

GOAL

Not simply combining two GCPs but also streamlining development of future CMs and offering choices for closure specific to each tank.

I. Lessons Learned

- RAT and CARAT
  - Issued "Challenge Schedule" for field implementation and key DOE and regulatory documentation
  - CM Revision A (first draft) developed and reviewed in three smaller groupings of sections
    - Tracked comments and resolutions
    - Provided tracked changes and clean copies
  - Reviews performed concurrent with sample analysis and modeling
  - Reviews completed quicker (fewer pages at a time)
  - Improved regulatory review cycles
  - Shortened public review period to 30 days
  - Eliminated preparation and review of CM Revision B (second draft)

I. Lessons Learned (Continued)

- RAT and CARAT (Continued)
  - Information shared earlier (RAT and CARAT Special Topics)
    - Examples: Sample Planning, Analyte Screening – Radiological and Chemical Constituents of Concern, Isolation and Grouting Strategy, Forecasted Inventory Overview, Special Analysis Preliminary Results
- Tank 12 CM
  - Forecasted inventories used in CM and supporting Special Analysis
  - Issued Closure Module Addendum with final inventories and new Special Analysis which provided a comparative analysis between forecasted and final inventories

II. SRR Rapid Improvement Events (RIEs)

- Limited Pre-Grout Tank Isolation from Tank Farm Systems
  - Isolate from waste transfer and chemical addition systems
  - Isolate from other systems (e.g., electrical, ventilation, air) post grouting and prior to approval of Final Configuration Report
  - Improves field implementation readiness schedule
  - First application anticipated to be at Tank 15
- Use of alternate Bulk Fill Grout Formulas
  - Alternate bulk fill grout formula (High Flow) utilized for a portion of Tank 16 stabilization
  - Advantages of alternate grout formulas
    - Ease of flowability (single versus multiple grout lines into a tank)
    - Minimizes mounding and potential creation of void spaces
    - Tank 15 likely will use alternate bulk fill grout formula described in new Consolidated GCP

New Consolidated GCP

III. Eliminate Closure Module Redundancy

- Incorporate repetitive "generic information" from Closure Modules into Consolidated GCP
  - Introduction
  - Tank Farm Facility Descriptions
  - Waste Removal Methodologies and Technologies (e.g., equipment)
  - Residual Waste Characterization Process
  - Tank Isolation Process and Stabilization
  - Maintenance and Monitoring Plans

New Consolidated GCP

IV. Efficiency

- One GCP for both Tank Farms
- Easier to maintain one GCP than two
- Resolves minor differences between two existing GCPs
- New Information Includes:
  - Detailed information for each waste tank type
  - Detailed information for each tank farm facility and ancillary structures
  - Description of the chemical and radiological constituent screening process
  - Descriptions of waste removal technologies
- Option to use forecasted inventories/CM Addendums
- Future Closure Modules are shorter (i.e., fewer pages)

Comparison of Current GCPs and New Consolidated GCP

Existing FTF GCP & HTF GCP

Executive Summary
1.0 Introduction
2.0 Facility Description
3.0 Regulatory Framework
4.0 Waste Removal
5.0 Performance Evaluation
6.0 Closure Module Preparation and Approval
7.0 Stabilization
8.0 Maintenance and Monitoring
9.0 References

Note: HTF GCP used as "template" for the proposed consolidated GCP to ensure no loss of information.

Consolidated FTF & HTF GCP

Executive Summary
1.0 Introduction
2.0 ✦ Stabilization and Isolation
3.0 ✦ Maintenance and Monitoring
4.0 ✦ Waste Tank Descriptions
5.0 ✦ Facility Descriptions
6.0 Waste Removal Methodology
7.0 ✦ Waste Removal Technologies
8.0 Waste Characterization
9.0 Performance Evaluation
10.0 Regulatory Framework
11.0 Closure Module Preparation and Approval
12.0 References

✦ Includes text formerly part of CM sections

Current: approximately 60 pages **Proposed:** approximately 110 pages

Also yields an approximate 25-page reduction in future Closure Modules

Comparison of Current CM and Proposed Consolidated CM Appendices

Existing Closure Module

Executive Summary
1.0 Introduction
2.0 ✦ Facility Description
3.0 ✦ Waste Removal
4.0 ✦ Residual Waste Characterization
5.0 Performance Evaluation
6.0 Assessment of the Impact of Deploying Additional Technology
7.0 ✦ Waste Tank Isolation and Stabilization Strategy
8.0 ✦ Maintenance and Monitoring
9.0 Conclusion
10.0 References

✦ Section 2.2, Section 3.0 generic descriptions, Section 4.3, Section 7.0, and Section 8.0 included in Proposed Consolidated FTF & HTF GCP

Future Closure Modules

Executive Summary
1.0 Introduction
2.0 Operational Service History
3.0 Waste Removal History
4.0 Residual Waste Volume Determination
5.0 Residual Waste Sampling
6.0 Residual Waste Inventory
7.0 Performance Evaluation
8.0 Assessment of the Impact of Deploying Additional Technology
9.0 Conclusion
10.0 References

Sections 1.0 through 5.0 can be prepared and submitted for early review during sample analysis.

Status of New Consolidated GCP

Proposed to SCDHEC on 11/4/15 and accepted

- Established CGCP CARAT
- Began preparation and review processes
  - Initial regulatory review (4 weeks), comment resolution, final regulatory review (3 weeks)
  - Group A – 17 pages (1/11 – 3/18/2016)
  - Group B – 38 pages (4/4 – 6/8/2016)
  - Group C – 24 pages (6/27 – 8/31/2016)
  - Group D – 24 pages (9/19 – 11/30/2016)
  - December 2016 prepare full final draft
  - January 2017 final regulatory review (4 weeks)
  - February 2017 prepare Revision 0
  - March 2017 Public Review (public meeting if necessary)
  - April 2017 resolution of public comments, prepare Revision 1
  - May 2017 SCDHEC review and approval