1.0 PURPOSE

The purpose of this procedure is to provide Liquid Waste (LW) Engineering the scope and requirements of Operating Plans for Projects and Waste Removal and Tank Closure (WR&TC) programs. The regulatory approach to implementing the Maximum Extent Practical (MEP) documentation process, outlined in procedure S4 manual ADM.53, is also supported by this procedure. This procedure will be utilized to support generation of consistent Operating Plans and interfaces to related processes. Note that operating plans are not work control, execution or authorization documents.

2.0 SCOPE

The provisions of this procedure apply only to the LW contractor at the Savannah River Site (SRS) and to subcontractors performing work for the contractor when required by subcontract or applicable law.

3.0 TERMS and DEFINITIONS

None

4.0 RESPONSIBILITIES

A. Design Authority is responsible for:

- The generation and updates to Operating Plans since much of the document is a summary of technical and regulatory requirements and references for system operations.
- Interfacing with all other organizations for their review, input, and concurrence (e.g., Process Engineering, Facility Engineering, Nuclear Safety, Camera Crew, etc.).

B. Facility Operations is responsible for:

- Implementation of system requirements and recommendations within related procedures and the facility work control process.

5.0 PROCEDURE

5.1 Operating Plans

[1] The Operating Plan is twofold. It outlines the program and procedure requirements for process implementation within LW waste tanks and, for WR&TC, it serves as a single document to record the methodology which was used to complete tasks such as retrieval of waste, reduction of the heel, sampling of the waste and closure of the tanks. Deviations, and the basis for deviation, from the operating plan will be documented in revisions to the plan. Operations implementation of field activities is performed under approved procedures and/or work packages. The intended use of an operating plan is to provide:

- Operational information for procedure development
- Guidance to the operating team during implementation/operation
- Guidance to the operating team during waste transfers
- A retrievable reference for future waste processing efforts (waste removal only)
- Historical "Reference Point" for tank closure activities (waste removal only), in conjunction with manual S4 procedure ADM.53 *Maximum Extent Practical (MEP) Documentation Process*

[2] Application examples include Waste Removal/Closure activities, salt and sludge batch planning, Hub Tank planning, and new project/processes.

5.2 Operating Plan Development and Management

Operating plans are intended to remain living documents through all stages of implementation activities. Typically, the operating plan is outlined for tank activities and is revised and issued as each stage is being initiated. Major changes in process stages such as changes from mechanical cleaning to chemical cleaning can include major facility changes/upgrades, which would require inclusion into the operating plan. As a living document, the operating plan is used to coordinate planning and to document open issues/evaluations. Operating Plans for WR&TC shall be updated once a Closure Phase has been completed (Bulk Waste Removal Efforts, Heel Removal, Chemical Cleaning, etc.). It is recommended that the Operating Plans be filed and managed with Lotus Notes. STAR and Facility Schedules shall be used to track open or required activities.

5.3 Operating Plan Scope

[1] The operating plan shall include a clear and thorough description of the purpose, scope, and planned operating strategy including any special regulatory and process compliance requirements. The intent of the plan is to provide guidance to applicable organizations (i.e., Operations, Maintenance, Procedures, Training, etc.), and to ensure decisions and bases are documented in support of regulatory requirements, such that the scope is clearly understood and the associated implementing activities are integrated and comprehensive. See Attachment 1 of this procedure for a sample format used to develop an Operating Plan. Note that safety requirements are addressed in other formal processes such as work control procedures and documented safety analyses.

NOTE:	Step 5.3[2] supports the Maximum Extent Practical (MEP) Documentation Process outlined in procedure S4-ADM.53.

[2] The following information is required for WR&TC Operating Plans:

[a] The Operating Plan will describe the technology to be implemented, the methods of implementation, identification of anticipated end states and identification of metrics that could provide indication of effectiveness for each of the closure process steps (Bulk Waste Removal Efforts, Heel Removal, etc.).

[b] The Operating Plan will describe any planned flow sheet implementation, including projected mixing strategies (e.g., hours of operation, mixer orientation, liquid level, mixer speed), chemical cleaning strategies (e.g., wt% acid, duration of acid soak) and incorporate lessons learned from earlier waste removal efforts.

[c] Metrics necessary to track progress in waste removal evolutions will be defined in the Operating Plan to evaluate the practicality of further operation (5.3[2][f]). Such metrics are dependent on the technology undergoing implementation and the structure undergoing waste removal and can include, for example:

- Monitoring density readings for a solution
- Monitoring solids concentration being removed
- Waste volume reduction achieved by comparing pictures, video and mapping results
- Effective cleaning radius of mixing devices

[d] Data will be analyzed and used to determine whether the technology implemented is effective or has reached the point of diminished effectiveness. Actual results, where applicable, will be compared with expected results to support the evaluation of effectiveness. This comparison will be documented in the Operating Plan for each of the closure process steps (Bulk Waste Removal Efforts, Heel Removal, etc.).

5.3 Operating Plan Scope - continued

Step [2] - continued

[e] If a technology is no longer effective, the reason will be documented in the Operating Plan. Examples for diminished effectiveness could include:

- Technology limitation (i.e., the inability of the current configuration to clean any further due to physical limitations of equipment)
- Deterioration or failure of the equipment utilized by the technology
- An outside factor that forces waste removal activities to decrease in effectiveness (lack of available space for slurry medium, etc.)

[f] If a technology is no longer effective, the Operating Plan will discuss an evaluation of additional waste removal technologies that could be employed during that specific cleaning phase. This evaluation should determine if it is practical to implement additional technology.

Considerations of practicality will include:

- Characterization of remaining residuals
- Potential impact to the overall System Plan
- Practicality of Implementation of additional technology

[g] Lessons Learned throughout the course of the Closure Operation shall be identified in a Lessons Learned section of the Operating Plan for historical purposes and to assist in preventing recurrence in future Tank Closure Operations. Operating Plan for previous Tank Closures should be used as a tool in the development of new Operating Plans and retrieval of past Lesson Learned is necessary for Continuous Improvement.

5.4 Operating Plan INPUT Requirements

The operating plan utilizes Process Flow Sheet and Sample Plan inputs to support plan development. The flowsheet should include process initial conditions, inputs (chemical, water), batch sizes and number, expected output, expected final state (chemistry, volumes, levels) comparison with Waste Acceptance Criteria (WAC) limits (if processing includes areas outside the tank farm), and evaluation of intermediate and final states with respect to other process chemistry limits such as corrosion control, sludge carryover, etc. The sample plan should consider the sample needs from all sources, such as environmental permits, processing requirements, and process safety. The plan should specify the analysis type (corrosion, Toxic Characteristic Leaching Procedure (TCLP)), number, frequency size, location, status of the tanks (i.e. slurried, settled) and depth of each sample required.

5.5 Operating Plan Approvals

[1] Operating Plans shall be approved by Engineering through signature of an originator and checker. Other approvals will include, as a minimum, the Managers for Area Engineering, Operations, and the Facility Manager. Area Engineering and Operations Manager signatures indicate by their signature that impacted responsible organizations within Engineering and Operations have contributed and concurred to the planning and related actions.

[2] Operating Plans generated to support WR&TC shall be approved by C&WDA and Project Manager, in addition to the approvers listed in Step 5.5 [1].

[3] For major changes such as a significant change in conditions or transition between process phases, the Operating Plan will be revised. For minor changes, addendums should be used and incorporated into a revision after five (5) addendums are processed against the Operating Plan. Addendum approval should consist of Area Engineering and Facility Managers. Addendums for WR&TC Operating Plans shall also be approved by C&WDA.

6.0 RECORDS

Action items from the Operating Plan will be tracked in Site Tracking, Analysis, and Reporting System (STAR).

Operating Plans developed for WR&TC should be placed into the appropriate Site records storage.

7.0 REFERENCES

A. LWO-LWE-CES-2009-00035(latest revision), *Waste Removal Prerequisite Document Provisions*

B. SW11.1-WTE-7.2, *Recording Sludge/Salt Measurements and Transfer Jet/Pump/Downcomer Level Adjustments*

C. DOE-SRS-WD-2012-001, *Basis for Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site (Appendix B*)

D. S4-ADM.53, *Maximum Extent Practical (MEP) Documentation Process*

8.0 ATTACHMENTS

Attachment 1, Sample Operating Plan Outline

ATTACHMENT 1 (Page 1 of 2)
SAMPLE OPERATING PLAN OUTLINE

The document sections should include:

- Purpose
- Background Information
  - Tank/Process History
  - Initial Condition
- Reference
- General Process Method or Strategy
- Assumptions
- Process System and Utilities (water, air, transfer, Chromate Cooling Water (CCW), including and associated modifications)
- Process systems consideration and discussion should include systems assumed functional and required, along with systems that will be impacted/modified. Related evaluations and input shall also be referenced. These systems can include but are not limited to:
  - Tank Ventilation and Modes required (Slow, Rapid, Gas Release)
  - Tank inspection, sounding and camera ports
  - Thermocouple and phase changes
  - Tank level monitoring and limits
  - Cooling and steam provisions/requirements
  - Chemical/water addition capabilities
  - Transfer provisions
    - Pumps, jets and elevations
    - VFDs, limits and programming
    - Transfer lines, TRD and isolation
- Tank mixing provisions and requirements
- Operational Sequence and Control (with decision logic as necessary to include any tank system prerequisites required prior to waste removal implantation/action
- Entry into Tank Closure Status
- Technology Implementation (*applies to WR&TC Operating Plans only)*
  - Identify metrics and anticipated end points
- Technology Execution (*applies to WR&TC Operating Plans only)*
  - Operate removal technology
  - Collect data
  - Analyze data and evaluate progress

ATTACHMENT 1 (Page 2 of 2)
SAMPLE OPERATING PLAN OUTLINE

- Technology Effectiveness Evaluation (*applies to WR&TC Operating Plans only)*
  - Determination that implemented technology is no longer practical
- Additional Technology Evaluation (*applies to WR&TC Operating Plans only)*
  - Determination whether it is practical to continue material removal with an additional technology
- Sampling Requirements (Should reference a sample plan)
- DSA Compliance Plan – focus on new or unique strategies
- Regulatory/FFA Requirements
- Process completion/suspension planning:

  Upon completion of process stages, planning should be considered for post process requirements. As an example, for waste removal, these activities can include:
  - Update of salt level into WCS Electronic Database per SW 11.1-WTE-7.2
  - Update sludge level/mapping into WCS Electronic Database per SW 11.1-WTE-7.2
  - Waste Removal Cessation Planning
- Contingency Monitoring Plan:

  Activities performed during waste removal/closure preparation and performance can create conditions that challenge normal Tank Farm operations. These activities typically involve water additions required to support equipment installation, salt dissolution and/or mixing operation. Examples include liquid additions above known leak sites and liquid additions prior to transfer capability readiness. Contingency plans should be in place during these waste removal operations. Contingency plans should include the following:
  - Transfer capabilities from tank primary and annulus
  - Increase monitoring provisions
  - Set point changes (example, *annulus level alarm*)
  - Communication Plan with Site and Site Stakeholders
  - Waste Removal Prerequisite Document Provision (Reference LWE-CES-2009-00035)
- Lessons Learned:
  - Lessons Learned during the course of all closure process steps shall be captured to assist in preparing for future tank closure evolutions. If the Lessons Learned are captured in STAR, it is acceptable to just provide a list of STAR items and brief descriptions. If the Lesson Learned was not captured in STAR, the Operating Plan shall describe the Lesson Learned in sufficient detail to prevent recurrence.