

**TANK 50 WASTE COMPLIANCE PLAN  
FOR TRANSFERS TO SALTSTONE**

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Revision 5**

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<b>Rev 1, 4/06</b>	<b>LDD references added Allowance for process knowledge to serve as characterization basis.</b>
<b>Rev 2, 10-06</b>	<b>References and specifications for Batch 0 of the Disposition Processing Plan.</b>
<b>Rev 3, 10-06</b>	<b>Specific Admin Control notation changes.</b>
<b>Rev 4, 11-06</b>	<b>Saltstone Specific Admin Control notation changes.</b>
<b>Rev 5, 2-07</b>	<b>Specifications for Batch 0 generalized to cover Supernate Only</b>

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**Requirement:** This document meets the CST requirement of the following:

- CST SAC 5.8.2.15
- CST Admin Control 5.8.2.32

This document meets the Saltstone requirement of the following:

- Saltstone SAC 5.6.2.1

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## 1.0 Background and Waste Generator Responsibilities

Tank 50 serves as the primary storage tank for aqueous waste before it is transferred to Saltstone. Current Tank 50 contents include waste from the initial demonstration of the In-Tank Precipitation (ITP) process, wastewater from the Effluent Treatment Project (ETP), and wastewater from the H-Canyon facility. Future contents will consist of ETP waste (currently authorized) and other wastes (when authorized) to be transferred to Saltstone for treatment.

The Saltstone Facility (Z Area) consists of two facility segments: the Saltstone Production Facility (SPF), which receives and treats the salt solution to produce saltstone grout, and the Saltstone Disposal Facility (SDF), which consists of vaults used for the final disposal of the saltstone grout. Both the SPF and the SDF are located in Z Area. The SPF is permitted as a wastewater treatment facility per the South Carolina Department of Health and Environmental Control Regulations R.61-67. The SPF is exempted from Resource Conservation and Recovery Act (RCRA) permitting by the state of South Carolina due to the totally enclosed exemption clause, as defined by South Carolina Hazardous Waste Management Regulation R.61-79.270.1. The SDF is permitted as an industrial solid waste landfill site, as defined by South Carolina Department of Health and Environmental Control Regulations R61-66 and R.61-107.16.

The Saltstone WAC states that Liquid Waste Disposition Projects (LWDP) Engineering is responsible for: [1]

- Reviewing the Saltstone WAC and concurring with the Implementation Checklist.
- Preparing and maintaining a Waste Compliance Plan (WCP) that will ensure compliance with the Saltstone WAC and will serve as an agreement between H-Area Tank Farm Operations and Saltstone Operations for the transfer of aqueous waste from Tank 50H to the SPF.
- Adhering to the principles of minimizing waste generation when designing or modifying a process that treats or produces aqueous waste to be sent to the SPF.
- Developing the Tank 50H Material Balance and providing monthly updates to the Material Balance that will be independently reviewed and approved by WS Engineering to ensure that LIMITS and TARGETS are being met in Tank 50.
- When required, developing requests for deviations from the requirements of the Saltstone WAC.

The Saltstone WAC states that H-Area Tank Farm (HTF) Operations is responsible for: [1]

- Reviewing the Saltstone WAC and concurring with the Implementation Checklist.
- Pulling all samples for wastes transferred to Saltstone.
- Establishing auditable programs that show compliance with the Saltstone WAC.
- Approving a WCP that serves as an agreement between HTF Operations and Saltstone Operations for the transfer of aqueous waste from Tank 50H to the SPF.

- Financing corrective actions required due to a failure by HTF Operations to conform with the Saltstone WAC.

## **2.0 Strategy for Compliance with the Saltstone WAC** **[\*A/C\* CST SAC 5.8.2.15 and CST Admin Control 5.8.2.32]**

The following strategy outlines the method by which the H-Tank Farm facility will ensure that the waste sent to Saltstone meets the Saltstone Waste Acceptance Criteria (WAC) [1].

### **2.1 Tank 50 Material Balance**

A material balance will be maintained for Tank 50 to demonstrate compliance with the Saltstone WAC requirements. The material balance will use the characterization given by each waste generator that sends waste into Tank 50, along with the volume of their transfer to keep a running total of the volume and concentrations of all Saltstone WAC constituents in Tank 50 for each month that transfers are made to Saltstone. This "blending" calculation will be a part of the Waste Characterization System (WCS1.5) [3], a level "B" software program maintained by the H & F Process Chemistry Group in Liquid Waste Engineering. The material balance will also maintain the most recent sample results from Tank 50 for all constituents listed in attachments 8.1-8.4.

The baseline chemistry for Tank 50 will be validated by analyzing a sample from Tank 50 for all the reportable constituents listed in attachments 8.1-8.4 of the Saltstone WAC [1]. All waste generators sending waste to Tank 50 will provide a characterization of their waste stream that includes concentrations of all constituents, either through sample results or process knowledge, reported in as limits in the Saltstone WAC. All waste generators will update WG08 [4] with the volumes they send to Tank 50 (as is already required in the Tank Farm WAC [2]). The volume added by each generator, coupled with their waste stream characterization will be used to maintain a real-time representation of the chemical/radiological WAC concentrations in Tank 50. Periodically samples will be pulled from Tank 50 to analyze for limit and target criteria (Table 1: Reference 1). These sample results will be used to validate the material balance calculation, as well as verify compliance to the Saltstone WAC. The most recent of these samples will be reported in the material balance. Due to the constituents in attachments 8.2 and 8.4 (confirmatory criteria) being analyzed only in Tank 50, they will not be included in the blending calculation portion of the material balance. The most recent sample results for these constituents will be reported in the material balance for reference.

Prior to transferring waste into Tank 50, a waste generator must demonstrate compliance with the Saltstone WAC limits. If a waste generator is unable to meet a Saltstone WAC limit, on any single constituent, a deviation request will be made. The approval/disapproval of the deviation request by the Tank Farm and Saltstone will determine whether the waste stream will be approved to be transferred to Tank 50. If at any time the material balance reflects that a criterion is not within the limits established by Saltstone, transfer procedures for Tank 50 to Saltstone transfers will be placed on administrative hold until a deviation request is approved by Saltstone, or Tank 50 is brought back into compliance.

Each waste generator is required to update WG08 [4] with their transfer information each month in which transfers are made to the tank farm. The Waste Characterization System (WCS) Program Description Document (PDD) requires that WCS be updated with all transfer information monthly. As a result, the Tank 50 material balance will be updated at least monthly.

## 2.2 Waste Streams

The transfer of rainwater from sumps to Tank 50 is permissible as long as the total alpha, total beta/gamma and pH are measured prior to transfer to ensure that the sump material is indeed rainwater.

Waste streams, from facilities outside of the Tank Farm, intended for transfer into Tank 50 will require the approval of a WCP by the Tank Farm, and the ERD [7] will be the control point used by the Tank Farm to designate the waste stream as approved or unapproved for transfer into Tank 50. These waste streams will be characterized, either through sample results or process knowledge, for limits listed in the Saltstone WAC prior to their acceptance into Tank 50, and all associated Saltstone WAC deviations will be noted. The Tank Farm will request a deviation from Saltstone to allow for the transfer of material that contains any constituents that may exceed the Saltstone WAC requirements. Waste transfers from other tanks within the Tank Farm will be controlled by the Evaluated Transfer Approval Form (ETAF). The ETAF requires an engineering evaluation to be performed on any transfer into Tank 50, in order to demonstrate Saltstone WAC compliance.

## 3.0 Acceptance Criteria

### 3.1 Gamma Shielding

[\*A/C\* CST SAC 5.8.2.15]

[\*A/C\* Saltstone SAC 5.6.2.1]

The Saltstone WAC states that the specific gamma source strength value of  $9.05E+01$  mR/hr/gallon shall not be exceeded unless additional RCO controls or shielding is added. The specific gamma source strength value is based on the cumulative sum of a mixture of radionuclide specific gamma dose constants multiplied by the radionuclide concentration. The majority of the specific gamma source strength limit is calculated from Cs-137, assuming a concentration of  $0.18$  Ci/gal ( $4.75E+07$  pCi/ml). The WAC shielding concentrations were set at 90% of the shielding curie balance concentrations assumed in the Saltstone shielding calculations [1]. Saltstone DSA accident analyses assumed a Cs-137 concentration of  $0.5$  Ci/gal which equates to a specific gamma source strength value of  $2.17E+02$  mR/hr/gal.

Tank farm waste consists primarily of aged spent fuel assemblies processed in the HM and PUREX processes. WSRC-TR-94-0417 states that in the 15 years aged spent fuel Sr-90/Y-90 ( $\beta$ ) and Cs-137/Ba-137m ( $\gamma$ ) contribute 96% of the activity in the waste, and because of their high solubility Cs-137/Ba-137m dominate the supernate; contributing 99-100% of the activity. [6]

Compliance with the Saltstone Gamma Shielding limit will be maintained by including "Total Gamma" in the Tank 50 material balance, along with the radionuclides in attachment 8.3 of the Saltstone WAC. Prior to transferring waste into Tank 50, a waste generator must demonstrate compliance with the Saltstone WAC limits provided in attachment 8.3. Each generator will also be required to demonstrate compliance to a total gamma concentration of  $0.18$  Ci/gal ( $4.75E+07$  pCi/ml). The Tank 50 material balance will maintain a real-time representation of the chemical/radiological WAC concentrations, including total gamma, in Tank 50. Maintaining Tank 50's total gamma concentration below  $0.18$  Ci/gal ( $4.75E+07$  pCi/ml) ensures that the specific gamma source strength value of  $9.05E+01$  mR/hr/gallon is not exceeded as well as ensures compliance with the limits assumed in the Saltstone DSA accident analysis.

### 3.2 Inhalation Dose Potential

[\*A/C\* CST SAC 5.8.2.15]

[\*A/C\* Saltstone SAC 5.6.2.1]

The Saltstone WAC states the inhalation dose potential (IDP) for the material to be transferred shall have a total rem/gallon value less than or equal to  $2.09E+05$  rem/gallon. The inhalation dose potential is based on the cumulative sum of a mixture of radionuclide dose conversion factors multiplied by the bounding radionuclide concentration (Sr-90, Cs-137, Eu-154, Pu-241, and Total  $\alpha$ ) [1].

Compliance with the Saltstone IDP limit will be accomplished by meeting the individual limits, in attachments 8.3 and 8.4 of the Saltstone WAC, for those constituents used to calculate the IDP limit (Sr-90, Cs-137, Eu-154, Pu-241, and Total  $\alpha$ ). These constituents will also be included in the Tank 50 material balance with the constituents in attachment 8.3. Eu-154 is considered as a TARGET and so does not require update as part of the material balance. Prior to transferring waste into Tank 50, a waste generator will be required to meet the WAC IDP concentrations for each of these constituents, in addition to the constituents listed in attachments 8.3. The Tank 50 material balance will maintain a real-time representation of the chemical/radiological WAC concentrations, including those used to determine the IDP (Table 3, [1]).

### 3.3 General Processing Requirements

#### 3.3.1 pH Requirement

The pH of aqueous waste transferred to Saltstone will be greater than 10 (basic) as Tank 50 is part of the Tank Farm Corrosion Control Program [5]. The minimum hydroxide requirements in the corrosion control program ensure that this requirement will be met in Tank 50. Waste generators must also meet the requirements of the Tank Farm Corrosion Control Program before transferring waste into the Tank 50.

#### 3.3.2 Sodium [Na<sup>+</sup>] Concentration Requirement

The sodium [Na<sup>+</sup>] concentration in Tank 50 will be maintained between 3.5M and 7.0M. Prior to transferring waste into Tank 50, a waste generator will be required to meet the sodium concentration requirement. Sodium will be added to the Tank 50 material balance with the constituents in attachment 8.1. The Tank 50 material balance will maintain a monthly representation of the chemical/radiological Saltstone WAC concentrations, including [Na<sup>+</sup>]. The Tank 50 material balance will also be updated after the completion of any tank-to-tank transfer (e.g. Tank 49 to Tank 50).

### 3.3.3 Temperature Requirement

The temperature of the waste transferred to Saltstone will be greater than 10°C to reduce the probability of exceeding the solubility of salt contaminants and less than 40°C to enable immediate processing in the SPF. H-Tank Farm will ensure that this requirement is met by requiring, in the transfer procedure from Tank 50 to Saltstone, that a temperature verification be made prior to transferring.

### 3.3.4 Insoluble Solids Requirement

The Total Insoluble Solids in Tank 50 will be maintained below 1.88E+05 mg/L (15 wt %). Prior to transferring waste into Tank 50, a waste generator will be required to meet the insoluble solids requirement. Total Insoluble Solids will be added to the Tank 50 material balance with the constituents in attachment 8.1. The Tank 50 material balance will maintain a monthly representation of the chemical/radiological WAC concentrations, including Total Insoluble Solids. The Tank 50 material balance will also be updated after the completion of any tank-to-tank transfer.

### 3.3.5 Homogeneous and Consistent Feed Requirement

The Saltstone Facility requires a homogeneous and consistent feed due to the complexity of the grout formulation. Tank Farm Operations procedures ensure that prior to starting the Tank 50 to Saltstone transfer three of the existing slurry pumps, at risers B2, B4, and E1, must be operated continuously for at least four hours. Operation of riser B3 slurry pump is optional. Operating a minimum of three slurry pumps, with a minimum mixing time of four hours, is sufficient to ensure complete mixing of the solids in Tank 50.<sup>8</sup>

The required slurry pumps will be run for the duration of the Tank 50 to Saltstone transfer, but may be shutdown temporarily (no longer than 15 minutes) to obtain an accurate level indication. Slurry pumps will be restarted immediately after obtaining level. The transfer will be shutdown if any of the required slurry pumps (Risers B2, B4, and E1) are shutdown for longer than 15 minutes for any reason.

#### Exception for Supernate-Only Transfer

There is provision in the Saltstone WAC [1] for sending supernate-only transfers from Tank 50 to Saltstone. The requirements for supernate-only transfers are detailed in section 3.6 of this document. One of the criteria for a supernate-only transfer is the slurry pumps will be administratively controlled to prevent operation. This necessitates an exception to the requirement of maintaining three slurry pumps operating at all times during transfers to Saltstone. The primary purpose of maintaining operating slurry pumps during transfers was to ensure that the solids in Tank 50 remain suspended and the concentration sent to Saltstone is consistently maintained for grout processability. A supernate-only transfer will still have a consistent solids concentration, although it will be minimal.



### 3.4 Chemical

The waste stored in Tank 50 is a complex mixture of insoluble and soluble chemical compounds that were generated from chemically processing nuclear materials at the Savannah River Site. The waste contains hydroxide, nitrite and various soluble and insoluble chemical compounds of toxic metals (i.e., lead, silver, cadmium, selenium). The major chemicals are the corrosion inhibitors needed to prevent corrosion of the carbon steel waste tanks and equipment. These major species include hydroxide and nitrite. Addition of other chemicals to Tank 50, besides the aforementioned inhibitors, chemicals received in the incoming waste streams, and small quantities of defoaming agents used in the evaporators, requires Saltstone review and approval. The incoming waste streams into Tank 50 will be evaluated for impacts to the Saltstone WAC.

If a hazardous chemical is discovered to exist in the waste in Tank 50 or a non-hazardous chemical is discovered to exist in Tank 50 at a concentration of greater than 0.5 M, and it has not already been identified, that constituent will be reported to Saltstone in a timely manner in order to receive their approval prior to this material's transfer into Saltstone.

Aqueous waste transferred to the Saltstone Facility shall not contain or generate volatile organic materials at concentrations that can produce, at equilibrium, vapors in the flammable or explosive range during normal storage, treatment or disposal operations in Z Area. A characterization of the contents of Tank 50 will be maintained in WCS, including the organic constituents requested in the Saltstone WAC.

Aqueous waste transferred to the Saltstone Facility shall not contain or be capable of generating toxic gases, vapors, or fumes (excluding tritium) in quantities harmful to persons during normal transport, storage, handling, treatment, or disposal operations in Z Area.

Aqueous waste transferred to the Saltstone Facility shall not be classified as a listed waste, as designated by South Carolina Hazardous Waste Management Regulations or the EPA, unless prior approval by SCDHEC and DOE is granted.

Aqueous waste transferred to the Saltstone Facility shall not result in the saltstone being classified as hazardous waste, as designated by South Carolina Hazardous Waste Management Regulations or the EPA.

#### 3.4.1 Chemical Criteria Limits (Attachment 8.1)

**[\*A/C\* CST SAC 5.8.2.15]**

**[\*A/C\* Saltstone SAC 5.6.2.1]**

A characterization of the contents of Tank 50 will be maintained in WCS for all chemical constituents listed in attachment 8.1 of the Saltstone WAC, to include sodium and insoluble solids. Prior to transferring waste into Tank 50, a waste generator must demonstrate compliance with the Saltstone WAC limits provided in attachments 8.1, to include sodium and insoluble solids. If a waste generator is unable to meet a Saltstone WAC limit on any single constituent, a deviation request will be made. The approval/disapproval of the deviation request by the Tank Farm and Saltstone will determine whether the waste stream will be approved to be transferred to Tank 50. If at any time the material balance reflects that a constituent is not within the limits established by Saltstone, transfer procedures for Tank 50 to Saltstone transfers will be placed on administrative hold until a deviation request is approved by Saltstone, or Tank 50 is brought back into compliance.

### 3.4.2 Chemical Criteria Targets (Attachment 8.2)

Periodic sample results for the constituents listed in attachment 8.2 of the Saltstone WAC will be reported in the Tank 50 material balance worksheet in WCS 1.5. Where sample results are not available process knowledge may serve as characterization. Specifically, the concentration of Methanol is established through process knowledge<sup>9</sup>. The chemicals listed in this attachment are included in the Saltstone DSA but are not considered significant contributors to accidents analyzed in their DSA at their current concentrations. The expected maximum concentration of these chemicals in the influent to Saltstone is at least an order of magnitude less than the WAC target value [1]. The concentrations of these chemicals will only be determined on a confirmatory (quarterly or per batch) basis in Tank 50H. Waste generators transferring into Tank 50 will not be required to analyze for constituents in attachment 8.2, therefore these constituents will not be included in the real-time Tank 50 material balance. If a TARGET concentration is exceeded, then WS Engineering will reevaluate the TARGET concentration for the chemical and supply a new TARGET value to ensure the individual chemical concentration limit is protected for the vault.

## 3.5 Radionuclide

The transfer of waste to Saltstone that is classified, or would cause Saltstone to be classified, as mixed waste, TRU waste or HLW waste is prohibited. In addition to the radiological limits and targets listed in the Saltstone WAC [1], a formal review and authorization by WS Engineering and Saltstone Operations is required for the transfer of a waste known to contain a radionuclide that is not specifically listed in the Saltstone WAC, if that radionuclide's concentration is greater than or equal to 1.25E+04 pCi/mL.

### 3.5.1 Radionuclide Criteria Limits (Attachment 8.3)

[\*A/C\* CST SAC 5.8.2.15]

[\*A/C\* Saltstone SAC 5.6.2.1]

A characterization of the contents of Tank 50 will be maintained in the material balance for all radionuclide constituents listed in attachment 8.3 of the Saltstone WAC, to include total gamma and the constituents used to determine IDP (Table 3, [1]). Prior to transferring waste into Tank 50, a waste generator must demonstrate compliance with the Saltstone WAC limits provided in attachments 8.3, to include total gamma and the constituents used to determine IDP. If a waste generator is unable to meet a Saltstone WAC limit on any single constituent, a deviation request will be made. The approval/disapproval of the deviation request by the Tank Farm and Saltstone will determine whether the waste stream will be approved to be transferred to Tank 50. If at any time the material balance reflects that a constituent is not within the limits established by Saltstone, transfer procedures for Tank 50 to Saltstone transfers will be placed on administrative hold until a deviation request is approved by Saltstone, or Tank 50 is brought back into compliance.

### 3.5.2 Radionuclide Criteria Targets (Attachment 8.4)

Periodic sample results for the radionuclide constituents listed in attachment 8.4 of the Saltstone WAC will be reported in the Tank 50 material balance worksheet in WCS 1.5. Where sample results are not available process knowledge may serve as characterization. Many of the radionuclides listed in this attachment have TARGET acceptance criteria to protect the Special Analysis (SA) curie limits, or to protect the DSA and permit values [1]. The concentrations of these radionuclides will only be determined on a confirmatory (semi-annual or per batch) basis in Tank 50H. Waste generators transferring into Tank 50 will not be required to analyze for

constituents in attachment 8.4, therefore these constituents will not be included in the real-time Tank 50 material balance. If a TARGET concentration is exceeded, then WS Engineering will reevaluate the TARGET concentration for the radionuclide to ensure the regulatory requirement is protected.

### 3.6 Supernate-Only Strategy

Should the results of the slurried sample fail any of the WAC limits or management determines it necessary; an alternate strategy of a supernate-only transfer can be implemented if additional controls are applied to ensure the composition of the supernate complies with Saltstone requirements. The added controls listed in this section are in addition to the requirements already detailed in this compliance plan with the exception for operating slurry pumps during transfers as noted in Section 3.3.5. The completion of the additional controls and analytical testing will be documented and independently reviewed and approved by WS Engineering.

#### 3.6.1 Supernate-Only Transfer Additional Administrative Controls

A supernate-only transfer will have additional controls to ensure that solids are not entrained during transfers to Saltstone. The following actions will be performed to prevent solids carryover:

- A turbidity measurement profile will be taken in Tank 50 prior to the period that supernate only is transferred to Saltstone to determine the level of the solids layer. If activities occur in Tank 50 that would disturb the solids layer (such as slurry pump operation), transfers to Saltstone will be halted and another turbidity profile performed before transfers of supernate only to Saltstone are resumed.
- Tank Farm Operations will institute controls to prevent operation of the Tank 50 slurry pumps during transfers of supernate only to Saltstone.
- The transfer pump suction will be positioned to maintain a minimum separation of 24 inches above the solids layer.
- Tank Farm Operations will institute controls to prevent transfers from the H canyon HEU campaign during the period that supernate only is transferred to Saltstone.

These actions will ensure that the material transferred to Saltstone is supernate-only and does not contain a significant quantity of solid material. The separation of 24 inches between the transfer pump suction and the sludge layer will ensure that the solids will not be disturbed by the action of the fluid flow to the transfer pump suction. This level is the same conservative distance required by the Tank Farm Documented Safety Analysis [11] to minimize carryover of solids during salt solution transfers within the Tank Farm. While transfers from the HEU campaign to Tank 50 were halted in August 2006, transfers from the ETP and the GPE will continue during Saltstone processing of Supernate Only. These streams represent fairly small transfers (each <4000 gal/month) and their stream compositions [12, 13] will meet the Saltstone WAC. These streams enter Tank 50 at the top of the tank above the liquid surface. The impact from the impingement of these streams on the Tank 50 surface will not disturb the solids layer due to the depth of the supernate already in the tank [14]. The minimum level of supernate (84 inches above the solids layer) to prevent disturbance of the solid layer will be maintained throughout the Supernate Only transfers to Saltstone.

Transfer into Tank 50 from other Tank Farm Waste Tanks (e.g. Tank 49, Tank 23) requires evaluation prior to transfer. The evaluation shall address what is required for the homogeneous and consistent feed requirement to be met.

Compliance of Tank 50 supernate with the WAC will be documented in a technical report and forwarded to Waste Solidification Engineering for review and approval. Analytical testing of chemical and radiological constituents of Tank 50 supernate will be performed prior to the initiation of processing at Saltstone and will be included in the documentation of supernate only processing.

### 3.6.2 Supernate-Only Transfer Analytical Requirements

The analytical constituents that were tested on the filtered segment of the slurried Tank 50 sample and found to be within Saltstone targets and limits will be used as verification of compliance with the WAC. Those analytical constituents that did not meet the Saltstone Limits and Targets will be further tested on a new supernate sample. A supernate sample will be obtained from Tank 50. The sample will be taken at the approximate depth the transfer pump suction will be re-positioned. This will be the control point sample for meeting the Saltstone WAC. Other samples at different depths will be taken to confirm homogeneity of the Tank 50 supernate. Analysis of this new supernate-only sample will include those constituents which did not meet the Saltstone WAC. At minimum the control point sample and the additional variable depth samples will also include analysis for:

- Total Alpha
- Strontium-90
- Wt% solids
- RCRA hazardous constituents (such as As, Ba, Cd, Cr, Pb, Hg, Se, and Ag)
- Beta/gamma (after cesium removal)

The control point sample will also be used for the TCLP and grout formulation qualification of the sample. For the variable depth samples, the RCRA hazardous constituent analysis will provide a good indicator of the homogeneity of the supernate. It should be expected to have some variability at different sample depths due to the slow settling insoluble solid fines. Because the insoluble solids contain radioactive particles, there may be some variability in the sample results from the differing sample depths for total alpha, Sr-90 and beta-gamma.

## 4.0 Administrative Controls

### 4.1 Waste Forecasts

To assure adequate storage, treatment and disposal capacity will be available for future operation of the Saltstone Facility, the Planning and Integration Technology (PIT) team will be used to provide projected waste forecasts.

### 4.2 Waste Compliance Plan

This document is the Waste Compliance Plan and serves as the principle agreement between H-Tank Farm Operations and Saltstone Operations to assure that incoming waste compositions comply with the Saltstone WAC.

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## 4.3 Documentation

In accordance with the requirements of the Saltstone WAC, LWDP Engineering and/or H-Tank Farm Operations shall:

- Retain all WCPs, blend evaluations, and sample analyses for at least 3 years.
- Provide a monthly memo to WS Engineering for any month in which a transfer is made to the Saltstone Facility. The volume(s) and composition(s) of all transfers from Tank 50H to the Saltstone Facility that were made within the month shall be covered by the memo. Sufficient information shall be provided in the memo to demonstrate all individual transfers are in compliance with the acceptance criteria documented in the WAC. The memo will be independently reviewed and approved by WS Engineering.
- Ensure that the Tank 50 material balance is updated on a monthly basis for influents from H-Canyon and ETP. The Tank 50 material balance will also be updated after the completion of any tank-to-tank transfer (e.g. Tank 49 to Tank 50). LWDP Engineering will provide WS Engineering and Saltstone Operations with access to the Tank 50 material balance.
- Assist WS Engineering and Saltstone Operations in obtaining samples from Tank 50H for analysis associated with LIMIT and TARGET acceptance criteria in the Saltstone WAC and the confirmatory samples to fulfill permit requirements for saltstone production and disposal.
- For Supernate-Only – LWDP Engineering will issue a technical report with independent review and approval by Waste Solidification Engineering which documents the entry into or exit from Supernate-Only operation with the requirements of the Saltstone WAC. This report will include details such as the analytical results and process knowledge which will show compliance with the Limits and Targets listed in Attachments 8.1 through 8.4 of the WAC along with the other Saltstone acceptance criteria.

## 4.4 Waste Characterization Non-Compliance

Saltstone will be notified of any non-compliance with this WCP and the Saltstone WAC. The STAR/PR and SIRIM procedures shall be invoked as appropriate. Liquid Waste Generators will be required to characterize their waste sufficiently prior to transferring into Tank 50; allowing H-Tank Farm Operations to demonstrate Tank 50's compliance with the various criteria imposed by the Saltstone WAC. H-Tank Farm Operations will participate in any corrective actions resulting from non-compliance.

#### 4.5 Deviations

**[\*A/C\* CST SAC 5.8.2.15]**

A deviation request shall be made to Saltstone Operations prior to sending any waste to Saltstone that cannot demonstrate compliance with the Saltstone WAC limits. Deviation request for all Outside Facilities, transferring waste into Tank 50, will require Saltstone and LW approval. If a deviation should be discovered after a waste stream has been approved and has been accepted, either into Tank 50 or Tank 50 to Saltstone, transfer procedures for Tank 50 to Saltstone transfers will be placed on administrative hold until a deviation request is approved by Saltstone. All deviation requests will be accompanied by a basis or justification for why the stream should be acceptable to the Saltstone Facility and shall require the performance of a USQ or equivalent by Saltstone.

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## 5.0 References

1. X-SD-Z-00001, Latest Revision, *Waste Acceptance Criteria for Aqueous Waste Sent to the Z-Area Saltstone Production Facility.*
2. X-SD-G-00001, Latest Revision, *Waste Acceptance Criteria for Liquid Waste Transfers to the 241-F/H Tank Farms.*
3. WG17/WCS1.5PROD/WCS1.5.xls
4. WG08/HLW-WRT
5. WSRC-TR-2002-00327, *CSTF Corrosion Control Program.*
6. WSRC-TR-94-0417, *Radionuclide Heat Contribution to High Level Waste.*
7. N-ESR-G-00001, *High Level Waste Emergency Response Data and Waste Tank Data.*
8. X-CLC-H-00550, *Determination of Slurry Pump Mixing Effectiveness in Tank 50H.*
9. X-ESR-H-00065, *Request for Deviation to Tank 50 Waste Compliance Plan for Transfers to Saltstone.*
10. CBU-PIT-2006-00070, *FY06-FY12 Liquid Waste Disposition Processing Plan.*
11. WSRC-SA-2002-00007, Latest Revision, *Concentration, Storage, and Transfer Facilities Documented Safety Analysis*
12. X-WCP-H-00002, Latest Revision, *F/H Effluent Treatment Project Waste Concentrate Regular Waste Compliance Plan*
13. X-WCP-H-00008, Latest Revision, *Waste Compliance Plan for Liquid Waste Transfers from H-Canyon to 241-H Tank Farm*
14. Britt, T. E., *Estimated Impact of a Liquid Addition to Tank 26 Through a Side-Wall Penetration*, X-ESR-H-00099, Rev. 0