

ATTACHMENT II-1-1

WASTE ANALYSIS PLAN AND FORMULA DEVELOPMENT
FOR TREATMENT WASTES

I. PURPOSE AND SCOPE

1. The purpose of this plan is to verify that wastes treated at the Facility meet the applicable treatment standards in Utah Admin. Code R315-13-1 and other treatment objectives.
2. This plan is an attachment to the Waste Analysis Plan and applies to wastes subject to the Land Disposal Restrictions in Utah Admin. Code R315-13-1 that are treated at the Facility.
3. This plan describes the additional and alternative waste analysis procedures applicable for wastes to be treated by stabilization.
4. For purposes of this plan, treatment refers to stabilization as described in Attachment II-1-3, *Waste Stabilization Plan*.

II. ESTABLISHMENT OF A TREATMENT FORMULA

1. The Permittee shall establish a formula for treating waste as follows:
 - a. The Permittee shall establish and document the following treatment parameters:
 - i. Composition and amount of treatment reagents as listed in Attachment II-1-2, *Approved Treatment Reagents*, to be used;
 - ii. consistency of treatment residues;
 - iii. measurement and documentation of the physiochemical changes to the treatability sample as the result of measured amounts of water and reagents added;
 - iv. mixing effort applied;
 - v. sequence, by amount, of reagents and water as added;
 - vi. whether a pH adjustment is necessary; and

- vii. the amount of water required to prepare a slurry.
 - b. The Permittee shall not add reagents that have known or suspected interference with the proper and accurate determination of any hazardous waste constituent.
 - c. The Permittee may vary the established formula by up to 10 % as long as the dilution factor is not exceeded.
 2. This formula may be adjusted, updated and revised as conditions change and as additional results from treatment runs are obtained. Adjustments shall be documented in the Operating Record.

III. QUALITY CONTROL OF ESTABLISHED FORMULA

1. Once a formula has been developed, a duplicate must be completed as a comparison and precision check for the items listed below. These precision objectives require re-analysis if one or more of the ranges are not met:
 - a. Mass of sample +/- 1%
 - b. Volume of water added +/- 1%
 - c. Mass of reagents added +/- 1%
 - d. Final mass of treated material +/- 1%
2. The Permittee shall perform analytical verification of the treatment formula using current SW-846 Methods or alternative methods approved by the Director.

IV. TREATMENT

1. The Permittee shall follow established treatment formulas for the treatment of waste.
2. Treatment shall be performed and verified in accordance with Attachment II-1-3, *Waste Stabilization Plan*.

V. METHOD FOR DEVELOPING RETREATMENT FORMULA

Should a verification sample indicate that the treatment standards or objectives were not met, the following procedure shall be accomplished:

1. The Permittee shall determine:

- a. which standards were not met,
 - b. which treatment runs were affected,
 - c. what were possible causes of the incomplete treatment, and
 - d. what steps will be taken to remediate the situation.
2. The Permittee shall document the determinations made above in the Operating Record.
 3. If an adjustment to a treatment formula can be identified and established, the affected waste residues may be re-treated using that formula.
 4. Retreatment formulas shall be established using the requirements of Condition II.
 5. The waste-to-additives weight ratio for the retreatment formula or for the combined treatment shall not exceed the requirements of Condition IV.5. of Attachment II-1-3, *Waste Stabilization Plan*, unless prior approval is received from the Director.

END OF ATTACHMENT II-1-1