ATTACHMENT 1

WASTE ANALYSIS PLAN

Attachment 1
Waste Analysis Plan

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1.0 Overview

The objective of the waste analysis plan (WAP) is to describe the procedures that will be undertaken to obtain sufficient information about waste streams to operate the facility in accordance with applicable permit requirements. More specifically, the waste analysis plan ensures that wastes accepted by Aragonite are appropriate for management at the facility, specifies the collection of information about each load of waste to properly store, manage, and incinerate the material, and ensures that the wastes that arrive at the facility are the same as those evaluated in the profiling process and represented on the manifest.

This plan also anticipates that wastes will be generated on-site by Aragonite and will ultimately be accepted for storage and/or treatment at the Aragonite facility. These wastes, with the exception of rainwater and/or snowmelt collected on-site in bermed areas, are subject to the same waste analysis procedures as wastes accepted from off-site sources. Rainwater and/or snowmelt, collected in bermed areas where spill cleanup procedures have been completed (if necessary) and transferred to either tank T-312 or tank T-401, are not subject to the incoming load analyses. The information necessary to store and incinerate this material may be obtained from the profile.

This waste analysis plan addresses the RCRA regulated, TSCA regulated, and other wastes that will be transferred, stored, and/or treated by incineration at the Aragonite, Utah facility. This facility will operate as both a transfer/storage and a treatment facility.

The purpose of this WAP is to establish necessary sampling methodologies, analytical techniques, and overall procedures which will be used for hazardous wastes accepted at the facility.

This waste analysis plan establishes the following:

The procedures for determining that waste streams will be acceptable for management at the facility and for notifying the generator that the waste will be accepted.

The procedures for characterizing the wastes and establishing appropriate management strategies.

The frequency and methods for sampling and analyzing incoming loads of waste.

The parameters for which each waste will be analyzed and the rationale for the selection of these parameters.

The methods for tracking waste codes to ensure compliance with the land disposal restrictions.

A Quality Assurance Plan (QAP) is included as Appendix 1 of this waste analysis plan. The QAP describes the methods and procedures that Aragonite laboratory personnel use to assure

integrity of laboratory data. The QAP contains the specific procedures and practices used within the laboratory in order to ensure that the resulting data are technically sound, statistically valid, and properly documented.

This waste analysis plan is supported by Standard Operating Procedures (SOP). The SOPs are used by Aragonite laboratory personnel as detailed instructions for performing the necessary procedures. The SOPs are incorporated by reference as part of this waste analysis plan as stand alone documents. They are required for Utah certification of the Aragonite laboratory and will be followed for compliance with the permit. These procedures may be updated as appropriate without prior UDSHW approval.

2.0 Identification of Wastes to be Managed

Aragonite accepts wastes for storage and treatment. Aragonite also temporarily (ten days or less) holds wastes manifested to another facility similarly to that allowed in 40 CFR §263.12. This is referred to as transfer operations. These wastes include those regulated under the Resource Conservation and Recovery Act (RCRA), the Hazardous and Solid Waste Amendments (HSWA), the Toxic Substances Control Act (TSCA), Superfund wastes (CERCLA), infectious wastes, and other non-hazardous wastes such as household hazardous waste, industrial wastes, etc.

Aragonite accepts wastes in a variety of physical forms, including liquids, sludges, solids, and compressed gases, although these wastes may not arrive in a 100% homogenous form.

Condition 2.C. identifies the wastes and waste codes which are acceptable and prohibited at the facility. Conditions 3.C., 4.C., and 5.C. specify wastes and waste codes which are acceptable and prohibited for management in the different waste management units at the facility. There are no restrictions on waste codes for transfer operations.

Superfund (CERCLA) wastes and some wastes generated from spill response efforts are not neatly identified by only one or two waste codes. Most generated waste streams are a mixture of waste codes, necessitating the listing of numerous waste codes. Some of the waste codes are allowed by the permit to enable the facility to accept complex mixtures that have a multiplicity of waste codes present in limited quantities. Lab packs are one such example.

The types of PCB materials accepted for storage and/or incineration and for transfer operations at the facility are summarized on Table 1. Definitions of the terms used in the table are given. These wastes are regulated under the Toxic Substances Control Act (TSCA), and may be commingled with RCRA-regulated wastes.

Table 1 SUMMARY OF TSCA WASTES FOR INCINERATION			
PCB TYPE [1]	**CLASS**	**TYPICAL PCB CONCENTRATION (DRY WEIGHT)**	**TREATMENT POINT**
Oil	Liquid	0-90%	kiln, ABC
Water	Liquid	0-10%	kiln, ABC
articles & capacitors	Solid	20%	kiln
miscellaneous solids	Solid	0-10%	kiln
soils, spill cleanup	Solid, sludge	0-50%	kiln

1 oil is a dielectric liquid containing PCB and a chlorinated solvent and is hydrocarbon based; miscellaneous solids means gloves, protective clothing, debris, etc.; soils means dirt, earth, rock.

3.0 Waste Characterization

This section describes the procedures that are followed for approving a waste stream for management at the facility, sampling and analyzing or inspecting incoming loads, resolving discrepancies that may occur upon receipt of the waste, and determining incineration parameters.

Because of differences in physical form, packaging, and management options for the many waste types that will be handled at the facility, and since the ability to sample and/or analyze the different waste matrices varies, different procedures are necessary. Section 3.1 describes the procedures for most waste categories. Sections 3.2 through 3.10 describe alternate procedures for wastes with special circumstances that do not fit into the procedures of Section 3.1. Aragonite will clearly document the waste characterization procedure (i.e., 3.1, 3.2, etc.) which applies to each waste stream accepted at the facility. If more than one characterization procedure applies to a given waste stream, Aragonite will choose one of the applicable characterization procedures and document that designation. For wastes carrying the F999/P999 waste codes in combination, the characterization procedures in Section 3.10 must be followed.

Clean Harbors Aragonite may perform the storage and acceptance analyses in Table 2 in the E-5 fingerprint area. Laboratory fume hoods have been installed in E-5 between the western most wall of E-5 to the south of the entrance door and immediately west of the containment wall of Bay 2. The E-5 fingerprint area is classified as a Class C fire hazard laboratory unit under NFPA and shall meet all applicable NFPA requirements. Whenever a waste sample and/or chemicals are present in a fume hood, the exhaust fan shall be running and the hood sash shall be

positioned to ensure that the minimum required airflow is maintained. The fire door between the E-5 fingerprint area and E-6 shall remain closed and sealed off.

3.1 Routine Wastes

3.1.1 Profile Approval Process (Routine Wastes)

Before Aragonite can approve a waste stream for storage and/or treatment at the facility, a completed Waste Profile Sheet must be provided by the generator. When the profile information is determined to be complete, it will be reviewed in order to assess the acceptability of the waste stream for management at the facility. These profile approval procedures occur prior to notifying the generator that the waste stream is acceptable for management at the Aragonite facility.

Waste Profile Sheets contain information about the generator, physical and chemical characteristics of the waste, process generating the waste, applicable waste codes, applicable DOT shipping name, and generator certification that the information provided is accurate. The generator must also certify that the waste is not one of the types prohibited at the Aragonite facility. The following list details the minimum information that must be supplied as part of the Waste Profile Sheet:

- Generator Information
  - Generator
  - Address
  - Facility Contact
  - Phone #
  - Generator EPA ID#
- General Information
  - Generating Process
  - Common Name of Waste
  - Rate of Generation
  - DOT Shipping Name
  - DOT Hazard Class
  - EPA Waste Codes
- Chemical Composition
  - List of Chemical Constituents and Concentrations
- Physical Description
  - Physical Description
  - Physical State
  - Phases/Layering
  - % Free Liquid
- Regulatory Information
  - Regulated or Licensed Radioactive Waste
  - Regulated Infectious Waste
  - Dioxin Listed Waste

TSCA Regulated Waste

Generator Certification

Certification signed by the generator that the information supplied on the Waste Profile Sheet and any attachments or supplements represent a complete and accurate description of the waste.

Following the review of the Waste Profile Sheet, the waste stream is evaluated for management at the facility. This evaluation includes a review of:

-appropriate documents to ensure that acceptance of the waste material at Aragonite will be in compliance with company policies and all applicable federal, state, and local laws and regulations.

-existing treatment and storage facilities and capabilities to ensure that the waste material can be satisfactorily managed by Aragonite or an off-site facility.

-the physical and chemical characteristics of the waste material to ensure that the material is compatible with other wastes which are present.

-the waste characterization information and available analytical data to ensure that the waste material does not contain any specific waste codes, compounds, or properties which are prohibited at Aragonite.

All profiles for all waste streams must be approved by the waste acceptance personnel. Final approval is indicated by a dated and initialed "APPROVED" stamp on the profile review form. Following approval of the candidate waste stream and prior to shipment of the waste, the generator is notified in writing that the Aragonite facility has the appropriate permits for, and will accept the waste stream in accordance with Condition 2.B. and 40 CFR §264.12(b).

At a minimum, the profile evaluation is repeated when a generator notifies Aragonite that the process generating the waste has changed (e.g., when the raw materials to the process have changed), if Aragonite has reason to suspect that the waste is in non-conformance with profile documentation, or annually.

For an annual recertification, Aragonite will ask the generator to note any changes in the waste stream or to certify that the waste stream has not changed. After a review of the generator's certification, the profile will be recertified. If there are changes in the waste stream which do not result in the waste stream being unacceptable, the profile will be updated and recertified. If there are changes in the waste stream which result in the waste stream becoming unacceptable, the profile will be canceled and the generator notified.

If the waste is approved for management at the facility, a unique identification number is assigned to the waste stream. This number is used to track the material through the subsequent stages of the waste management process. The internal routing type and process codes will be used to identify and manage various waste types.

3.1.2 Load Acceptance and Handling of Discrepancies (Routine Wastes)

If the waste profile is approved, the waste stream is scheduled for shipment to the facility. Upon arrival at the facility, the waste is inspected, sampled, and analyzed as described below prior to it being accepted or commingled with other waste streams. This serves two purposes. First, it compares the waste characteristics of the actual load with those listed on the profile and on the waste manifest. Second, it establishes the characteristics that identify the proper management of the waste while at the facility.

Aragonite determines the acceptability of the waste based on:

-the degree of agreement between the waste profile and the load analyses;

-permit conditions at the facility; and

-the availability of proper waste management techniques.

Waste is not accepted until the waste has been determined to match the profile or all discrepancies have been adequately resolved.

Potential discrepancies for waste shipments include differences in quantity or type between the manifested waste and the waste actually received. To check for quantity discrepancies, the number of containers, or the weight if it is a bulk shipment, is reconciled with the manifest. The number of containers must be correct: there is no tolerance. The weight of bulk shipments must be within ±10% of the manifested weight. Waste type discrepancies are determined by inspection and by comparing the analyses of the incoming load to the profile information and the manifest description. Changes in the proper shipping name, additional waste codes, etc. are noted. If any of these conditions occur, the manifest is considered discrepant and actions will be taken to resolve the discrepancy.

If discrepancies in the quantity of waste occur, the generator will be contacted by Aragonite to resolve the difference. If discrepancies of waste type occur, one or more of the following actions occur to resolve the discrepancy:

-The sampling and analytical data are reviewed to verify that they are indeed correct.

-Additional analyses may be necessary in order to resolve discrepancies or to re-profile the waste.

-The generator is contacted by Aragonite. In cases where the waste is amenable to treatment at the facility, the discrepancy is resolved between Aragonite and the generator. This may involve creating a new profile for the waste or updating the existing profile. Waste which is not amenable to acceptance by Aragonite is rejected.

The manifest discrepancy will be resolved between Aragonite and the generator and will be noted on both the manifest and in the operating record. If not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board will be notified.

Container shipments are sampled as described in Section 4.8. The sample composites are analyzed for the acceptance parameters listed in Table 2. If the wastes can be managed and are not prohibited at the facility, the containers can then be accepted. As discussed in Section 3.1.3.1, the composite samples are analyzed for the incineration parameters listed in Table 3 prior to incineration of the waste. If containerized waste at Aragonite is shipped to the Clive facility for storage, the waste may later be manifested back to the Aragonite facility and accepted on piece count alone, without further inspection or sampling, provided the material was previously inspected, sampled and accepted at the Aragonite facility and the material is in its original shipping containers.

Prior to being accepted, tankers of bulk liquid and sludge waste may be placed in the truck unloading/drive through direct burn station, E-1, E-5, and E-4 receiving docks, or bulk solids/sludge pad. Alternately, tankers of liquid and sludge waste may be held outside of permitted storage awaiting analysis (subject to timeframes specified elsewhere in the permit) to determine if the waste can be accepted. Once a determination is made that the waste can be managed at the facility, it is placed into permitted storage, either bulk container storage or tank storage. Each bulk liquid and sludge shipment is sampled as described in Section 4.11 and analyzed for the acceptance parameters listed in Table 2. As discussed in Section 3.1.3.2, the blended liquids and sludges are analyzed for the incineration parameters listed in Table 3 prior to incineration of the waste to ensure compliance with permit feed limitations.

Prior to being accepted, containers of bulk solids may be placed in the E-1, E-5, and E-4 receiving docks, or ~~or~~ the bulk solids/sludge pad. Alternately, containers of bulk solids may be held outside of permitted storage awaiting analysis (subject to timeframes specified elsewhere in the permit) to determine if the waste can be accepted. Once a determination is made that the waste can be managed at the facility, it is placed into permitted storage, either bulk container storage or tank storage. Each bulk solid shipment is sampled as described in Section 4.11 and analyzed for the acceptance parameters listed in Table 2. As discussed in Section 3.1.3.3, the bulk solids are analyzed for the incineration parameters listed in Table 3 prior to incineration of the waste to ensure compliance with permit feed limitations.

The wastes may be processed (i.e., decanted, shredded, etc.) and/or commingled with other wastes prior to incineration. Each movement of a waste within the facility, during which any change in its characteristics may occur, makes the waste subject to additional inspection, sampling, and analysis to determine the appropriate handling and management of the waste. All of the analyses needed for the acceptance and storage functions are performed during incoming load verification. These are not repeated unless it is known or believed that the waste characteristics may change during storage or processing.

3.1.3 Determination of Incineration Parameters (Routine Wastes)

This section describes the methods for determining the incineration parameters (Table 3). Section 3.1.3.1 describes the procedures for containerized wastes which have not been commingled with other wastes. Sections 3.1.3.2 through 3.1.3.4 describe the requirements for wastes that have been processed and/or commingled with other wastes prior to incineration.

3.1.3.1 Containerized Wastes

Container shipments are sampled as described in Section 4.8. The sample composites are analyzed for the incineration parameters listed in Table 3 prior to incineration.

3.1.3.2 Commingled (Blended) Liquids and Sludges

All liquids and sludges, either containerized or in bulk, are first subject to compatibility testing as described in ASTM method 5058-90 Test Method A, prior to being commingled. If they pass, they may be blended. Incompatible bulk waste is not commingled. Any successive blending of liquids is also subject to the same compatibility testing.

Prior to being fed to the incinerator, the incineration parameters from Table 3 for the blended liquids and sludges are determined. These values can be determined by either of two methods. A sample of the blended waste can be obtained and analyzed for the incineration parameters. A new sample will be obtained and analyzed if waste is added to the tank. Alternatively, these values can be determined mathematically (using a weighted average) from incineration parameter analysis of material added to the blend tank, such as bulk tanker loads or transfers from other storage tanks. The latter method is used only when incineration parameter analysis is available for each portion of material added to the blend tank.

3.1.3.3 Commingled Solids

All solids, either containerized or in bulk, are first subject to compatibility testing as described in EPA-600/2-80-076 or ASTM method 5058-90 Test Method A, prior to being commingled. If they pass, they may be placed in the same tank. Incompatible bulk waste is not commingled. Any successive commingling of solids is also subject to the same compatibility testing. Prior to placing materials in the bulk solids tanks and/or shredding, they will be tested for explosive vapors using method Aragonite-14. Wastes that fail the test will not be shredded or placed in the bulk solids tanks.

Prior to incineration, the bulk solids feed is characterized for the incineration parameters listed in Table 3 using one of several options depending on whether the tank contents will be mixed prior to incineration.

If the tank contents will not be mixed prior to incineration, the rolloff or end dump with the highest value for each incineration parameter will be used and that value will be assigned to the entire tank. If wastes with higher values are added to the tank, the tank chemistry will be updated to account for this waste.

A weighted average may be used instead of the highest rolloff or end dump for determining the Btu incineration parameter. If a weighted average method is used, it is implemented using the contents in the top 25% of each tank. The average Btu of each tank is recalculated when new material is placed in the tank or when the material for which the weighted average has been calculated (i.e., the top 25% of the tank contents) has been removed as indicated by the waste tracking system (which uses a last in/first out system). To calculate a new weighted average Btu for the tank when new material is placed in the tank before the top 25% has been removed, a new top 25% is determined using the rolloff or end dump values from the material that the waste tracking system shows as being in the tank.

When material is being shredded/transferred into the feed tank from other tank(s) (e.g., when material from T-404A, T-404B-East and/or T-403 is being shredded/transferred into T-404B-West), and the combined waste streams are fed to the incinerator, the chemistry of the feed to the incinerator will be determined using the highest value for each parameter of the tank(s) (or the highest weighted average in the case of Btu).

If the tank contents are mixed, incineration parameters for the entire tank ~~(or portion of a tank if divided)~~ will be estimated using weighted averages of the incineration parameters analyzed for individual rolloffs or end dumps placed in the tank ~~(or portion of a tank if divided),~~ or a composite prepared from those rolloffs or end dumps. Alternatively, if the tank contents are to be mixed, rolloff or end dumps may be accepted and off loaded using the acceptance analyses (Table 2) only. Then, after mixing the tank, incineration parameters will be determined on a representative sample from the tank (as described in Section 4.10).

The following criteria will be used to ensure that the wastes in the bulk solids tanks are adequately mixed. The material to be mixed will be in tank T-403 or T-404B-East. ~~Alternatively, a physical divider may be used to separate the front from the back half of tanks T-404A and/or T-404B. The material to be mixed could then be mixed in the front half of either of these tanks.~~ Mixing will be accomplished with a backhoe, or equivalent, which can reach to all sides and the bottom of the tank. Mixing will occur for at least 30 minutes. The doors to the bulk solids tank may not remain open for mixing for more than 90 minutes during each 24-hour period. The waste shall be mixed until it appears relatively homogenous.

3.1.3.4 PCBs

For TSCA related wastes the PCB concentration will be determined prior to incineration by sampling and analysis for transformer dielectric fluid, dirt, and sludges. If the material is a capacitor and/or PCB article, or material directly from an article, PCB concentrations will be assigned based on literature review and generator knowledge. A standard PCB concentration based on historical data will be assumed for capacitors. Alternatively, the material may be sampled and the PCB concentrations determined through analysis. Debris and other spill-related material will be assumed to have the same classification as the material which was spilled.

3.2 Lab Packs

Lab packs are prepackaged to meet specific treatment specifications based on compatibilities, Btu content, and size of individual containers. Lab packs are defined in Condition 1.U. In addition to the requirements in 40 CFR §264.316 and 49 CFR §173.12(b), the following restriction on lab packs will apply:

> -Liquid waste streams which may not exceed four liters in the inner containers include organic peroxides, oxidizers, aromatic and aliphatic ethers, nitric acid >10%, isocyanates, and ignitables. All inner containers greater than four liters will be tested using Aragonite Method 14. If the waste carries the D001 waste code (but does not exhibit the characteristic of ignitability), and has an LEL measurement equal to or less than 25%, it is acceptable in inner containers of up to five gallons.

Notwithstanding the requirements of 40 CFR §264.316(e), water reactive material may be accepted in lab packs if other packing requirements are met. No internal container can exceed four liters if the material is water reactive.

If repacking is necessary, Aragonite will repack lab packs to conform to 40 CFR §268, to meet incineration parameters, and/or to meet the criteria specified above.

3.2.1 Profile Approval Process (Lab Packs)

There are two types of lab pack profiles. For the first type, the profile approval process is the same as that described in Section 3.1.1 with the following exception. An inventory sheet for each lab pack is provided in addition to the standard profile information. All the chemicals are inventoried as the lab packs are put together; subsequently, Aragonite knows the contents of each lab pack. The inventory is approved by Aragonite as part of the profiling procedure.

The second type of lab pack profile is called a generic lab pack profile. It is designed for generators who will be sending loads of lab packs on an ongoing basis. To start the process for these profiles, the generator would need only provide the generator information on the Waste Profile Sheet. A number is assigned to this profile sheet but no approval to send any waste is given at this time. As loads are prepared for shipment to the facility, the generator provides the inventory sheets for each batch to be shipped. The generator also provides the remaining required information from the Waste Profile Sheet listed in Section 3.1.1 for that batch of lab packs. The drum numbers of the lab packs that have been approved will be indicated on the lab pack review form. The remainder of the profile approval process (e.g. evaluation of the acceptability of the batch and the notification of the approval being sent to the generator) is the same as for the first type of lab pack profiles.

3.2.2 Load Acceptance and Handling of Discrepancies (Lab Packs)

There are three types of discrepancies that may occur: manifest discrepancies, load discrepancies, and packing discrepancies.

Acceptance for storage includes checking for a manifest discrepancy, i.e., piece count. If a discrepancy is discovered, it will be handled as a manifest discrepancy as described in Section 3.1.2.

An inventory list accompanies each lab pack identifying the quantity of each material. For each lab pack received, the accompanying inventory sheet is compared against the approved profile to ensure the waste conforms to the approved profile. If the profile inventory sheet is part of a multi-part document, it does not have to be compared against the inventory sheet on the drum since they are identical, being carbon copies of each other. The profile inventory sheets must be compared either against the inventory sheets sent with the manifest paperwork or the sheets on the drums. Differences between the approved profile inventory sheets and those inventory sheets accompanying the load are load discrepancies. These differences are additions of new chemical compounds, and/or increases in quantity of chemicals which would change the incineration parameters (Table 3) by more than 10%, from the approved profile. Waste is not accepted for storage and/or treatment until any manifest and/or load discrepancies have been adequately resolved. The actions that will occur to resolve the discrepancies are outlined in Section 3.1.2. The resolution of any discrepancies will be clearly indicated in the operating record.

The third type of discrepancy, packing discrepancies, is determined following acceptance of the waste but prior to incineration. Aragonite will verify the contents of lab packs by unpacking them and comparing the contents to the load inventory sheets. The frequency of this verification will follow a tiered approach which is based upon the generator of the lab packs. For this purpose "generator" refers to the original waste generator or service provider who packed the lab packs (a generator or service provider shall be limited to a company at a specific physical location). The inventory sheets for each lab pack will specify the generator or service provider who packed the lab pack. For the first 500 drums of lab pack material from a generator that has not previously sent lab packs to the Aragonite facility, all lab packs will be verified. If no discrepancies are found in any of the drums when compared with the inventory sheets, the frequency of verification may drop to one in ten per load. If any discrepancies are found in the one in ten verification, the frequency will increase to one in five until 500 drums have been verified with no discrepancies.

Any unacceptable material will be manifested off-site to an approved transfer, treatment/disposal facility. The generator will be notified of this subsequent action.

3.2.3 Determination of Incineration Parameters (Lab Packs)

The incineration parameters (Table 3) will be determined from the inventory sheets that accompany the load rather than from analysis of a sample. Aragonite will document how the incineration parameters for these wastes are calculated from the inventory sheets.

3.3 Waste that Inhibits Analysis

This section is designed for characterizing wastes where the material is homogenous and could be sampled but not easily analyzed. Examples include steel plates, glass, rocks, and small

identical containers or objects. This material differs from debris (described in Section 3.4) in that it is homogenous (i.e., the entire drum or rolloff is all the same single material). It is limited to material consisting of relatively large objects which could not be readily analyzed (e.g., it would not apply to homogenous material such as soils, powders, pellets, etc.).

3.3.1 Profile Approval Process (Waste that Inhibits Analysis)

The profile approval process for waste that inhibits analysis is the same as that described in Section 3.1.1. The generator will also supply a picture or a detailed written description of the waste stream (meeting the requirements of ASTM method D4979-89).

3.3.2 Load Acceptance and Handling of Discrepancies (Waste that Inhibits Analysis)

The handling of discrepancies for waste that inhibits analysis is the same as that described in Section 3.1.2.

Prior to accepting the waste, the contents of each container or each bulk load are inspected for physical appearance. The person inspecting the material will provide a detailed written description, photo or transmit video to waste acceptance personnel so that they can easily determine if the waste matches the profile. Also, if the material is to be placed into one of the bulk tanks, it will be tested for LEL in accordance with method Aragonite 14. Other information necessary to properly store the material (e.g., potential incompatibilities) will be obtained and evaluated from the profile information supplied by the generator.

If the waste consists of containers that contain more than four ounces of a material that could be analyzed, a representative sample of the material in the containers will be collected and analyzed for the parameters on Table 2 to determine appropriate management and storage of the waste.

3.3.3 Determination of Incineration Parameters (Waste that Inhibits Analysis)

The person inspecting the waste will also estimate the percentages of each type of material in the waste (i.e., % glass, % plastic, % wood, etc.). A matrix is used that lists the various materials and the corresponding incineration parameters for each of these materials. Using the matrix and the percentages obtained above, an overall estimate of the incineration parameters for the waste is calculated. Additional information specific to the waste stream (e.g., metal contamination) is obtained from the profile information and factored into the calculation. For each bulk load or group of containers described in Section 4.8, the documentation showing this calculation will be maintained in the operating record.

To develop this matrix, special homogenizing and blending methods, such as cryogenic shredding, will be used to generate these data from typical samples of these materials. The incineration parameters may also be determined from the description of the material, generating process, generator knowledge, literature searches, and good engineering judgment. As new waste material types are encountered, incineration parameters for these new material types will be determined and added to the matrix. Also, as better information becomes available, the

values on the matrix will be updated. The current matrix and the method which was used for determining each of the incineration parameters on the matrix will be clearly documented in the operating record.

If the waste consists of containers that contain more than four ounces of a material that could be analyzed, a representative sample of the material in the containers will be collected and analyzed for the parameters on Table 3. This information will be factored into the matrix to develop the incineration parameters for that particular waste.

3.4 Heterogeneous Debris

Debris differs from the material described in Section 3.3 in that it contains a wide variety of materials. In virtually all situations debris has one thing in common: non-hazardous materials are contaminated with organic and inorganic hazardous constituents. For example, it may contain a mixture of spill absorbent, Tyvek® suits, rubber booties and gloves, and paper towels. Items that may not be part of a debris profile include containers containing any liquid. Although it may be possible to get a sample of the debris it may be difficult to get any sort of representative sample. If a representative sample could be obtained, it would likely be very difficult to analyze since it would contain relatively large objects.

3.4.1 Profile Approval Process (Heterogeneous Debris)

The profile approval procedures for debris are identical to those for waste that inhibits analysis (Section 3.3.1).

3.4.2 Load Acceptance and Handling of Discrepancies (Heterogeneous Debris)

The procedures for accepting loads and handling discrepancies are the same as those for waste that inhibits analysis (Section 3.3.2).

3.4.3 Determination of Incineration Parameters (Heterogeneous Debris)

The procedures for determining the incineration parameters are the same as those for waste that inhibits analysis (Section 3.3.3).

3.5 MSDS Wastes

This category of wastes is limited to material that is in its original unopened packaging (as a product). The packaging and labeling is still in good condition so that the contents are easily identified. The MSDS for the material is also available.

3.5.1 Profile Approval Process (MSDS Wastes)

The profile approval process for this category of wastes is identical to that for routine wastes (3.1.1) except that the MSDS is submitted with the waste profile.

3.5.2 Load Acceptance and Handling of Discrepancies (MSDS Wastes)

The handling of discrepancies for MSDS wastes is the same as for routine wastes described in Section 3.1.2.

Prior to accepting the load, each container is inspected to ensure that the labeling is consistent with the MSDS. If containers in the load have been opened, they will be re-opened and the material will be visually compared to material in one of the unopened containers to ensure the material is the same. This will be documented in the operating record. Other information necessary to properly store the material (e.g., flash point, potential incompatibilities, etc.) will be obtained and evaluated from the profile information supplied by the generator.

3.5.3 Determination of Incineration Parameters (MSDS Wastes)

The incineration parameters (those specified on Table 3) will be determined from the MSDS, description of the material, generating process, generator knowledge, literature searches, good engineering judgment, or, if necessary, from an analysis of a sample of the material. The method(s) used for determining these parameters will be clearly documented in the operating record.

3.6 Consumer Products, Pharmaceuticals, and Gas Cylinders

This category of wastes is limited to material that is in its original unopened packaging (as a product) and compressed gas cylinders with contents still under pressure. For consumer products and pharmaceuticals, the packaging is still in good condition so that the contents are easily identified. It is similar to MSDS wastes except that no MSDSs are available. Examples include personal care products and over-the-counter or prescription medications. For gas cylinders, each cylinder, as it arrives at the facility, is in good condition with all required markings, tags or labels identifying the gas contents intact, in accordance with IFC 3003.2.2. Examples include butane, ethane and acetylene.

3.6.1 Profile Approval Process (Consumer Products, Pharmaceuticals, and Gas Cylinders)

The profile approval procedures for consumer products, pharmaceuticals, and gas cylinders are identical to those for routine waste (Section 3.1.1).

3.6.2 Load Acceptance and Handling of Discrepancies (Consumer Products, Pharmaceuticals, and Gas Cylinders)

The handling of discrepancies for consumer products, pharmaceuticals, and gas cylinders is the same as for routine wastes described in Section 3.1.2.

Prior to accepting the load, each container/cylinder is inspected to ensure that the labeling is consistent with the profile information. If containers, not including cylinders, in the load have

been opened, they will be re-opened and the material will be visually compared to material in one of the unopened containers to ensure the material is the same. This will be documented in the operating record. Other information necessary to properly store the material (e.g., flash point, potential incompatibilities, etc.) will be obtained and evaluated from the profile information supplied by the generator.

For gas cylinders, the operating record will document how each cylinder's contents are classified in accordance with the material types defined in the International Fire Code.

3.6.3 Determination of Incineration Parameters (Consumer Products, Pharmaceuticals, and Gas Cylinders)

The incineration parameters (those specified on Table 3) will be determined from the description of the material, generating process, generator knowledge, literature searches, good engineering judgment, or, if necessary, from an analysis of a sample of the material. The method(s) used for determining these parameters will be clearly documented in the operating record.

For gas cylinders, each rack of cylinders will be fed to the incinerator as a single job with the incineration chemistry being the same for all cylinders in a rack, using the worst-case chemistries from the cylinders on the rack.

3.7 Transfer Operations

These are wastes that are manifested to another facility but are held temporarily (ten days or less) at the Aragonite facility during transit. The waste may be part of a load for which some of the material is destined for the Aragonite facility. When this material is shipped off-site, the original manifest accompanies the waste. This differs from wastes which are accepted for storage only and then subsequently shipped to another facility. A new manifest is generated with the Aragonite facility as the generator in this situation.

3.7.1 Profile Approval Process (Transfer Operations)

No profile approval procedures are necessary.

3.7.2 Load Acceptance and Handling of Discrepancies (Transfer Operations)

The load is not accepted but rather is held on a temporary basis. There are no requirements for sampling or ensuring the wastes are comparable to a profile. Aragonite will comply with the transporter requirements in Subpart C of 40 CFR §263 for these wastes. Also, the containers will be inspected to ensure they are in good condition. The containers will be managed in accordance with the procedures in Attachment 8.

3.7.3 Determination of Incineration Parameters (Transfer Operations)

Determination of incineration parameters is not necessary.

3.8 Controlled Substances

This category of wastes is limited to containerized material that is defined as a controlled substance by the DEA and/or FDA (e.g., cocaine, etc.). Aragonite has a permit, issued through the DEA, allowing generators of these controlled substances to relinquish control to specific personnel at the Aragonite facility, who in turn, maintain control of the shipment from the point of its arrival at the facility until it enters the incinerator.~~The generator or owner of the material will maintain custody of the material from the time it is loaded for shipment until it enters the incinerator. This is necessary because Aragonite does not have a permit to take custody of controlled substances and the owner of the controlled substance cannot, by permit, relinquish control of the material, including a sample of the material.~~

3.8.1 Profile Approval Process (Controlled Substances)

The profile approval process for this category of wastes is identical to that for routine wastes (Section 3.1.1).

3.8.2 Load Acceptance and Handling of Discrepancies (Controlled Substances)

~~Since the generator is maintaining custody of the waste, the waste will not be accepted into permitted storage.~~ Designated Aragonite personnel will accept and maintain control of the shipment upon its arrival at the facility. A check for manifest discrepancies will also occur as outlined in section 3.1.2.~~However, t~~ The containers will be barcoded so they can be tracked in the waste tracking system. The load will be placed onto a burn plan as soon as practicable and directly fed to the incinerator. In case the shipment can not be immediately placed on the burn plan, designated personnel shall lock the shipment in one or both of two safes located in Building E-3. The combination to the safes is only known to those personnel designated under the DEA permit and the area has security cameras that are monitored 24 hours a day by personnel in the incineration control room.~~Custody of the material will be accomplished by the generator providing an escort to accompany the material at all times from the time of shipment until the time the waste is fed to the incinerator. This escort will sign a certification that indicates the material which arrived at the site is the same material described on the profile. A check for manifest discrepancies will still occur as outlined in section 3.1.2.~~

3.8.3 Determination of Incineration Parameters (Controlled Substances)

The generator of the material will supply one of the following: (1) manufacturer's analysis; (2) a laboratory analysis, or; (3) a certification from a federal, state, or local law enforcement agency identifying the material.

If the substance is mixed or diluted in a delivery system, (i.e., IV bags), the generator shall fully describe the system and all hazardous and non-hazardous components. If the controlled

substance is present in a debris-like waste (i.e., spill cleanup, etc.), the generator shall further describe the waste, and approximate concentrations of all components and approximate percentages of all material types. In these cases the incineration parameters will be determined using the matrix described in Section 3.3.3.

3.9 Infectious Wastes

These wastes are defined in Condition 1.U.4. All incoming infectious waste must fall into one of the following categories/subcategories:

-Animal Wastes
- Carcasses of Animals
- Body Parts of Animals
- Bulk Blood or Blood Products of Animals
- Bulk Body Fluids of Animals (Including Feces and Urine)
- Bedding of Animals

-Human Blood/Human Blood Products/Human Body Fluid Wastes
- Bulk Human Blood
- Bulk Human Blood Products
- Bulk Human Body Fluids (Including Feces and Urine)
- Serum
- Plasma
- Disposable Items Saturated/Contaminated with Blood and Body Fluids

-Microbiological Wastes
- Discarded Cultures or Stocks of Infectious Agents
- Discarded Cultures or Specimens
- Discarded Vaccines
- Discarded, Used Disposable Culture Dishes
- Discarded, Used Disposable Devices for Culture Processing

-Pathological Wastes
- Human Materials Removed During Surgery
- Human Materials Removed During Labor and Delivery
- Human Materials Removed During Autopsy or Embalming

-Sharps
- Hypodermic Needles
- Hypodermic Syringes with Attached Needles
- Scalpel Blades
- Razor Blades, Disposable Razors and Scissors Used in Medical Procedures
- Intravenous Stylets and Rigid Introducers
- Glass Pasteur Pipettes, Tubes, Culture Bottles and Slides
- Broken Glass from Laboratories

- Tattoo Needles, Acupuncture Needles, and Electrolysis Needles

Infectious wastes not identified in a category/subcategory above may not be accepted until the facility obtains oral authorization from the Executive Secretary to add the category/subcategory of infectious waste to this list. Infectious waste categories/subcategories approved orally for inclusion in the above list must be formally added to the list via a class 1 modification in a timely manner.

All incoming infectious waste containers at the Aragonite facility shall meet the following packaging criteria:

-Containers shall either be poly or fiber containers (no steel drums) and DOT approved for the packaged wastes:

-All containers shall be a combination packaging, consisting of one or more inner packaging secured in a non-bulk outer packaging;

-Maximum size 55-gallon outer containers;

-Puncture proof inner containers, if sharps are present;

-Free liquids < 3 gallons;

-Containers with free liquids shall contain absorbent material sufficient to absorb 15% of the volume of free liquids;

-Containers must be locked or otherwise secured to prevent accidental opening during handling (e.g., zip-ties on clamp-type rings, duct tape over the opening mechanism); and

-No unknowns.

All outer containers of infectious waste shall be marked on the side/lid, "Sharps Container Inside" if sharps are present in the inner container.

3.9.1 Profile Approval Process (Infectious Wastes)

The profile approval procedures for infectious waste are the same as those for routine wastes (Section 3.1.1) with the additional requirement that the generator identify the composition of the waste by percentage of infectious waste category/subcategory identified in section 3.9.

For waste which is not classified as infectious waste, but which contains blood, body fluids, human or animal parts, feces, or other material normally suspected to be infectious, or which may be classified as medical waste in other states, documentation shall be included in the profile explaining why it was determined to not be infectious.

Since infectious waste is subject to additional requirements (such as refrigeration after seven days), all infectious waste will be identified by using the D20, D20A, or D20T process code.

Where known quantities of specific chemicals are included in a container of infectious waste, this shall be specified on the waste profile.

3.9.2 Load Acceptance and Handling of Discrepancies (Infectious Wastes)

To accept infectious waste for storage, an incoming load must be checked for manifest discrepancies, e.g., piece count, proper shipping name. If a discrepancy is discovered, it will be handled as a manifest discrepancy as described in Section 3.1.2.

Each container of infectious waste shall be weighed individually at Aragonite prior to being fed to the incinerator. This weight shall be recorded in the facility operating record.

3.9.3 Determination of Incineration Parameters (Infectious Wastes)

Characterization of infectious waste for incineration shall be accomplished using the information from the waste profile and the matrix that is found in Appendix 2. Using the matrix and the composition percentages, an overall estimate of the incineration parameters for each container of infectious waste is calculated. Any additional information on the profile specific to the waste stream (e.g., metals contamination) shall be factored into the incineration parameter calculation. Documentation of how the incineration parameter calculations were made shall be maintained in the facility operating record.

3.10 F999/P999 Combination Wastes

These are wastes that are military chemical agent related and carry both the F999 and P999 waste codes. The wastes have been treated with a destructive treatment technology (i.e., incineration or hydrolysis) and only carry the P999 waste code because the Waste Control Limit defined in Module 1 cannot be verified. These wastes may be shipped to the facility as a containerized shipment or in bulk (liquids only) and may arrive as a solid or liquid.

3.10.1 Profile Approval Process (F999/P999 Combination Wastes)

The profile approval process for F999/P999 combination wastes is the same as that required for routine waste (Section 3.1.1). Additionally, prior to shipment of the waste to the Permittee, the waste shall be inspected at the generator's location by the Permittee and sampled and analyzed for the storage and acceptance parameters identified in Table 2 and the incineration analyses in Table 3. Each container of waste shall be visually inspected and waste sampling will be conducted as specified in Section 4.8 or 4.11 as applicable. If the generator is unable to release samples of the waste for analysis to the Permittee, the waste may not be managed at the Aragonite facility. Following inspection and sampling, each container of F999/P999 waste will be closed and have a tamper-proof label or seal placed upon the container opening.

3.10.2 Load Acceptance and Handling of Discrepancies (F999/P999 Combination Wastes)

If a waste profile is approved, the waste stream may be scheduled for shipment to the facility. Upon arrival at the facility, the shipment will be evaluated for discrepancies in quantity as described in Section 3.1.2. Discrepancies in waste type will be determined by comparing the information on the manifest to the profile information. Changes in the proper shipping name, additional waste codes, etc. will be noted and considered discrepancies in waste type. The tamper-proof label or seal will also be inspected and any indication that the container has been opened after the label or seal was affixed shall be considered a discrepancy. If any of these discrepancies occur, the Permittee must contact the generator and resolve the issue before accepting the waste. Documentation of discrepancy resolution and reporting unresolved discrepancies shall follow Section 3.1.2.

3.10.3 Determination of Incineration Parameters (F999/P999 Combination Wastes)

Samples of the waste collected from the generator's site are analyzed for the incineration parameters in Table 3.

Table 2 Storage and Acceptance (Fingerprint) Analyses	
Parameter	**Rationale for Selection**
Physical Description	Used to determine the general characteristics of the waste stream. Also used to ensure correct grouping of wastes for sampling. Also used to detect discrepancies in waste types. Also used to determine which waste characterization procedure will be used. Also used to determine the percentages of the various material types in debris-like wastes.
pH	Used to determine the corrosivity of the waste to ensure proper storage of the waste.
Water Reactivity	Used to determine whether the waste has a potential to react with water to generate heat, flammable gases, or other products. It is also used to help identify prohibited wastes.
Reactive Sulfides Screen	Used to indicate whether the waste produces hydrogen sulfide upon acidification. This information is necessary in order to avoid storage and mixing incompatibilities.
Ignitability	Indicates the susceptibility of the waste to be ignited. This information is necessary in order to avoid placement or storage of the waste in inappropriate areas.
Reactive Cyanides Screen	Used to indicate whether the waste produces hydrogen cyanide upon acidification. This information is necessary in order to avoid storage and mixing incompatibilities.
Oxidizer Screen	A general qualitative test used to determine if a waste is an oxidizer. Oxidizers have the potential to react with a wide range of waste streams and therefore often need to be segregated.
Radioactivity Screen	Used to help identify prohibited wastes.

Table 3 Incineration Analyses	
Parameter	**Rationale for Selection**
Viscosity	Needed to determine the pumpability of the waste stream. Only applies to liquids and sludges.
Specific Gravity	Required to convert values from volume to mass units. Only required for bulk liquids and sludges.
Btu Content	Determines the need for supplemental fuel during the combustion process. Also used to ensure compliance with heat content requirements and limitations (e.g., total Btu/hr, maximum Btu/container, etc.).
Total Halogens	Measures the amount of equivalent acid expected to be generated per unit amount of waste incinerated. Used to calculate the amount of neutralizing agent needed to meet the incinerator's acid emission requirement, and to maintain compliance with feed rate limitations.
Metals (As, Cd, Cr, Pb, Hg, Be)	Analysis of these metals is required in order to maintain compliance with metals feed rate limitations.
Specific Organic Analysis	Gas chromatography and gas chromatography/mass spectrometry may be used to identify and quantify specific organic compounds when the generator is unaware of waste stream's composition.

4.0 Waste Sampling

4.1 Sampling Locations

Containers are sampled in the container storage buildings.

Bulk loads are sampled in a bermed area or in the thaw shed in the event of inclement weather.

Truck parking is on the east and south side of the facility. For rolloffs containing residue to be disposed of off-site, the area south of bulk solids and the kiln train can be used to store these rolloffs. The area around the east container building and the area between the container buildings can also be used for truck parking. Another location south of Main Street may be used on a temporary basis only after receiving oral approval from UDSHW.

4.2 Sampling Methods

The methods and equipment used for sampling vary with the form and consistency of the waste to be sampled. The appropriate representative sampling techniques, devices, and containers are selected from the EPA document, "Test Methods for Evaluating Solid Wastes" (SW-846) or "American Society for Testing and Materials" (ASTM) methods.

In order to determine the physical and chemical characteristics of a waste, a representative sample is needed. A representative sample is defined as a sample exhibiting average properties of the whole waste.

Sampling accuracy (the closeness of a sample value to its true value) and sampling precision (the closeness of repeated sample values) are the issues of importance. Thus, from both regulatory and scientific perspectives, the primary objectives of a sampling plan are to collect samples that allow accurate and precise measurements of the physical and chemical properties of the waste. If the chemical measurements are sufficiently accurate and precise, they are considered reliable estimates of the chemical properties of the waste. Statistical techniques for obtaining accurate and precise samples are relatively simple and easy to implement. Sampling accuracy is usually achieved by some form of random sampling. In random sampling, every unit in the population has a theoretically equal chance of being sampled and measured. Consequently, statistics generated by the sample are unbiased (accurate) estimators of true population parameters. In other words, the sample is representative of the population.

4.3 Traceability

Aragonite follows sample traceability for all internal sampling and analysis. This involves the documentation of procedures so that a set of data can be traced back through the analyst, to the person performing the sampling, and then to the waste itself. All samples receive a unique sample identification number to facilitate this process.

4.4 Sampling Personnel

Sampling is performed by specially trained laboratory technicians or operations personnel. The laboratory manager or designee trains sampling personnel and observes their techniques periodically to ensure a thorough understanding of sample collection, storage, and transportation practices.

4.5 Sample Labels

Sample labels are necessary to provide identification of samples. The labels are affixed to the containers prior to or at the time of sampling. The labels are filled out at the time of collection and contain the following information:

- sample identification
- place of collection
- date and time of collection
- person sampling

4.6 Log Book

All information pertaining to sampling is recorded in a log-book, inspection or receiving report, or electronically. This record includes the following information:

- location of sampling point
- volume of sample taken
- date and time of collection
- sample identification number
- person sampling
- comments or observations
- sampling methodology
- number of samples and disposition

Sampling situations can vary widely; however, sufficient information is recorded to allow someone to reconstruct the sampling conditions without reliance on the collector's memory.

4.7 Sample Preservation

All samples are preserved in accordance with the parameter to be measured, as specified by the analytical method for that parameter. For sample preservation, specific procedures are found in the Aragonite Quality Assurance Plan.

4.8 Sampling of Containers

The term "container" refers to receptacles designed for transporting materials, e.g., drums and other small receptacles as opposed to stationary tanks. This section addresses sampling of containers that are of a size that could be stored in the container storage building. Sampling of

bulk materials in large containers such as rolloffs, tank trucks, etc. is addressed in section 4.11. COLIWASAs, tubes, shovels, drum thieves, and triers are the devices used to sample containers.

A random sampling strategy is employed to sample incoming shipments of containerized waste. Samples from containers holding the same type of waste may be composited. The following procedure will be used to determine how many containers will be sampled and which samples will be composited. Each container will be opened and visually inspected. Wastes on a single load that have the same profile number and DOT description (excluding waste codes) and appear to be of the same waste type will be grouped together. Ten percent (rounded up) of the containers in each of these groups will be sampled as described below. The samples within each separate group may be composited for analysis.

A unique tracking number is assigned to each container.

Samples are taken from locations displaced both vertically and horizontally throughout the waste. For liquids (or liquids with precipitated solids), the sampling person uses a COLIWASA or equivalent. The sampling device is inserted into the container from the top and is pushed down slowly until the bottom of the container is reached. The device is sealed to retain the contents. The contents of the sampling device are then transferred to a polyethylene or glass bottle, which is labeled with waste identification information. The sampling device may also be stoppered at both ends, wiped dry with a disposable cloth, and then transferred to the lab for analysis.

A trier or thief is used to sample containers that are solid in nature. These containers are generally filled with dirt and sludges. Several areas from the container are sampled and composited into a jar in order to ensure a representative sample. The sampling person removes a sample that uniformly represents the waste composition of the container, i.e., all layers and phases are represented in the sample.

4.9 Sampling of Direct Burn Vessels

Direct burn vessels will be sampled through the top port using a COLIWASA or equivalent. The vessels will be sampled in a berm area.

4.10 Sampling of Tanks

Liquid and sludge storage and blend tanks at Aragonite are agitated. Either a propeller-type mixer or recirculation agitates the tanks. The agitation capabilities of the tanks make it possible to obtain a representative sample via a sampling valve. The tanks are agitated prior to drawing a sample. The waste is sampled from a valve on the side or bottom of each tank.

Bulk solids which have been mixed in the bulk solids storage tanks are sampled at a minimum of six locations in the tank. A scoop is taken with the backhoe, or equivalent, from as deep a cross section as possible at each location. A trier, thief or shovel is used in order to collect a sample

from each backhoe scoop. The samples are composited together so that there is one sample which represents that particular mix of bulk solids.

4.11 Sampling of Bulk Materials

Where sampling of bulk loads is required, each bulk container of each load will be sampled as described below.

Bulk solids in rolloffs or end dumps are sampled at two locations in the waste container. A trier, thief or shovel is used in order to draw a sample from as deep a cross section as possible at each location. The samples are composited together so that there is one sample which represents that particular bulk solids shipment.

Bulk liquids are sampled by using a COLIWASA or similar device which can sample vertical anomalies. Bulk sludges are sampled with a device appropriate for the consistency of the material. That may be a COLIWASA, trier, dip tube, or thief, etc. Each compartment of tanker trucks is sampled. Compartment samples from the same generator and waste stream may be composited prior to analysis.

Tank trucks without man-ways are sampled through the valve. The valve is flushed prior to the sample actually being drawn.

An exception to the requirement for sampling each load of bulk load shipments is where a rail car of liquids or visibly similar solids is divided into multiple bulk tanker or truck loads for final shipment to Aragonite. This will only occur at the Bulk Solids Rail/Truck Transfer facility, Unit 255, and the Bulk Liquids Rail/Truck Transfer Bay, Unit 535, at the Clive facility. In such cases, a representative sample will be taken from each rail car and that sample may be used as the incoming load sample for each of the individual truck or tanker loads from that rail car. For bulk solids, the sample from the rail car will consist of at least six sub-samples taken from equal areas in the rail car at depths of at least one foot. Alternatively, the sample could be collected by compositing at least three grab samples from the backhoe bucket while the waste is being transferred from the rail car to the end dumps or rolloff boxes. For liquids, a representative sample will be taken with a COLIWASA from the hatch of the rail car. Samples will follow chain-of-custody procedures for transport to Aragonite.

Additionally, analyses of samples taken at the Clive facility by Aragonite personnel and analyzed according to the methods specified in the Waste Analysis Plan (Attachment 1) may be used for acceptance and management at Aragonite. These and samples of F999/P999 waste collected at the generator's site, are the only cases in which the incoming load sample may be collected off-site.

4.12 Frozen Waste

Aragonite will not sample waste that is frozen. The truck will park in the truck unloading building or thaw shed until the waste can be sampled. A sample will then be collected as outlined in this section.

5.0 Test Methods

The test methods to measure the parameters discussed throughout this document are identified in Table 4. Whenever possible Aragonite uses established methods from Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, US EPA, 1986 and its updates. However, SW-846 does not have methods for all the parameters specified. In these particular cases, Aragonite uses other established methods, including American Society for Testing and Materials (ASTM); and EPA 600/4-79-020, Methods for Chemical Analysis of Water and Wastes; Standard Methods for Examination of Water and Wastewater, Latest Edition; EPA 40 CFR, 136, Appendix A Methods; EPA Contract Laboratory Program, Inorganic SOW and Organic SOW Methods. Where other practical methods are not available, methods have been developed by Aragonite. These methods are described at the end of this section.

When Aragonite, or an off-site laboratory, performs analysis using a method found in SW-846 and the method is one that is certifiable by the State of Utah, the laboratory performing the analysis shall be certified for that method.

The letter following a method number indicates the SW-846 revision of that method. When new method revisions are promulgated by EPA, they will be implemented within six months of promulgation. Thus, listed method numbers will remain constant, but suffixes (A, B, C, etc.) will depend on the latest EPA revision. Table 4 will be updated as soon as practical to include the latest promulgated method revisions. Utah certified laboratories used by Aragonite may have the prior revision designation on their certification as long as the method number reflects that listed in Table 4, analyses are actually performed and reported according to the latest revision, and the lab has applied for, and provided all necessary information to obtain certification for the new revision. If a lab has not yet implemented the update within the six months and it is necessary to use that laboratory, Aragonite may provide justification for using that lab and request a variance from the Executive Secretary.

TABLE 4 ANALYTICAL PARAMETERS AND ASSOCIATED METHODS		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Acid-Base Partition Cleanup	3650A	(1)
Acid Digestion of Sediments, Sludges, and Soils	3050B	(1)
Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption Spectroscopy or Inductively Coupled Plasma Spectroscopy	3010A-MOD	(1)
Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Furnace Atomic Absorption Spectroscopy	3020A	(1)
*Alumina Column Cleanup	3610A	(1)
*Aluminum (AA)	7020	(1)
Aluminum (ICP)	6010A	(1)
Antimony (ICP)	6010A	(1)
*Antimony (AA)	7040, 7041	(1)
Aromatic Volatile Organics	8020A	(1)
*Aromatic and Halogenated Volatile Organics	8021A	(1)
Arsenic (ICP)	6010A	(1)
*Arsenic (AA)	7060A, 7061A	(1)
Ash	D482-87	(2)
Atomic Absorption Spectroscopy	7000A	(1)
Barium (ICP)	6010A	(1)
*Barium (AA)	7080A, 7081	(1)
Beryllium (ICP)	6010A	(1)
*Beryllium (AA)	7090, 7091	(1)
Bromide	9056	(1)
Cadmium (ICP)	6010A	(1)
*Cadmium (AA)	7130, 7131A	(1)
Calcium (ICP)	6010A	(1)
*Calcium (AA)	7140	(1)
*Carbamate pesticides (LCMS)	8321	(1)
Chloride	9252A, 9253	(1)
Chloride (Ion Chromatography)	9056	(1)

TABLE 4
ANALYTICAL PARAMETERS AND ASSOCIATED METHODS

PARAMETER	METHOD NUMBER	REFERENCE
Chlorinated Herbicides	8150B, 8151A, 8150B/8151-MOD	(1) (1)
Chromium (ICP)	6010A	(1)
*Chromium (AA)	7190, 7191	(1)
Cobalt (ICP)	6010A	(1)
Cobalt (AA)	7201	(1)
Copper (ICP)	6010A	(1)
*Copper (AA)	7210, 7211	(1)
*Continuous Liquid-Liquid Extraction	3520B	(1)
Fluoride (Ion Chromatography)	9056	(1)
Fluoride	340.2 5050	(3) (1)
Florisil Column Cleanup	3620	(1)
Gas Chromatography	8000A	(1)
Gas Chromatography/Mass Spectrometry for Volatile Organics	8260B	(1)
Gas Chromatography/Mass Spectrometry for Semi-volatile Organics	8270C	(1)
*Gel-Permeation Cleanup (GPC)	3640A	(1)
Halogenated Volatile Organics	8010B	(1)
Headspace	3810	(1)
Heat of Combustion (BTU)	D240-87-MOD	(2)
Ion Chromatography	9056	(1)
Ignitability Liquid, actual flashpoint, no suspended solids	1020A, 1010	(1)
Ignitability Liquid, at 140°F, no suspended solids	8b	(4)
Ignitability Liquid, room temperature	D4982-89	(2)
Ignitability Liquid, actual flashpoint, suspended solids (sludge)	1010	(1)
Ignitability Sludge, at 140°F	8b	(4)
Ignitability Solids, room temperature	D4982-89	(2)
Ignitability Solids, at 140°F	1020-MOD	(1)
*Iron (AA)	7380, 7381	(1)
Iron (ICP)	6010A	(1)

TABLE 4
ANALYTICAL PARAMETERS AND ASSOCIATED METHODS

PARAMETER	METHOD NUMBER	REFERENCE
Lead (ICP)	6010A	(1)
*Lead (AA)	7420, 7421	(1)
LEL	14	(4)
Liquids, Sludge Compatibility (see note 3)	D5058-90 Test Method A	(2)
Magnesium (ICP)	6010A	(1)
*Magnesium (AA)	7450	(1)
Manganese (ICP)	6010A	(1)
*Manganese (AA)	7460, 7461	(1)
Mercury Cold Vapor (AA)	7470A, 7471A	(1)
Microwave Assisted Acid Digestion of Aqueous Samples and Extracts	3015	(1)
Microwave Assisted Acid Digestion of Sediments, Sludges, Soils and Oils	3051	(1)
Moisture (organic liquids)	D1533	(2)
Moisture (Inorganics)	2540B	(5)
Molybdenum (ICP)	6010A	(1)
*Molybdenum (AA)	7480, 7481	(1)
Nickel (ICP)	6010A	(1)
*Nickel (AA)	7520	(1)
Total Kjeldahl Nitrogen	D3590-89	(2)
Nitrate/Nitrite Ion Chromatography	9056	(1)
Nitrogen, Total	7.025-7.031	(7)
Nonhalogenated Volatile Organics	8015B	(1)
Organic Extraction and Sample Preparation	3500A	(1)
Organochlorine Pesticides	8080A, 8081A	(1)
*Organophosphorus Pesticides	8140	(1)
*Organophosphorus Compounds by Capillary Column GC	8141A	(1)
Oxidizer Screen	D4981-89	(2)
Paint Filter	9095	(1)
*PCDD	8280, 8290	(1)
*PCDF	8280, 8290	(1)

TABLE 4 ANALYTICAL PARAMETERS AND ASSOCIATED METHODS		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
PCBs	8082	(1)
*PCB and Pesticides (GC/MS)	680	(6)
PCB Wipes	5503	(8)
pH Electrometric	9040B	(1)
pH Paper	9041A	(1)
pH Waste	9045C	(1)
pH Solids	9045C	(1)
Physical Description	D4979-89	(2)
Potassium (ICP)	6010A	(1)
*Potassium (AA)	7610	(1)
Purge-and-Trap	5030A	(1)
Radioactivity Screen	6	(4)
Reactive Cyanide Screen (Spot Test) Confirmation (see note 2)	D5049-90 Test Method A	(2)
Reactive Cyanide Screen (Drager) Prime (see note 2)	D5049-90 Test Method D	(2)
Reactive Sulfide Screen (Spot Test) Confirmation (see note 2)	D4978-89 Test Method A	(2)
Reactive Sulfide Screen (Drager) Prime (see note 2)	D4978-89 Test Method B	(2)
Cyanide (Releasable)	Chapter 7, Sec. 7.3.3.2	(1)
Sulfide (Releasable)	Chapter 7, Sec. 7.3.4.2	(1)
Selenium (ICP)	6010A	(1)
*Selenium (AA)	7740, 7741A	(1)
Separatory Funnel Liq-Liq Extraction	3510B	(1)
Silica Gel Cleanup	3630B	(1)
Silver (ICP)	6010A	(1)
*Silver (AA)	7760A, 7761	(1)
Sodium (ICP)	6010A	(1)
*Sodium (AA)	7770	(1)
Solids Compatibility	N/A	(9)
Sonication Extraction	3550A	(1)
Soxhlet Extraction	3540B	(1)

TABLE 4
ANALYTICAL PARAMETERS AND ASSOCIATED METHODS

PARAMETER	METHOD NUMBER	REFERENCE
Specific conductance	120.1	(3)
Specific Gravity	D1429-86-MOD	(2)
*Sulfides	9030A, 9031	(1)
Sulfate Ion Chromatography	9056	(1)
*Sulfur	D2784-89, D1266-87	(2)
Sulfur Cleanup	3660A	(1)
Sulfuric Acid Cleanup	3665	(1)
Thallium (ICP)	6010A	(1)
*Thallium (AA)	7841, 7840	(1)
Tin (ICP)	6010A	(1)
TCLP	1311	(1)
Total and Amenable Cyanide (Colorimetric, Manual)	9010A	(1)
*Total and Amenable Cyanide (Colorimetric, Automated UV)	9012	(1)
Total Organic Carbon	9060	(1)
Total Halogen	5050, 9253	(1)
Vanadium (ICP)	6010A	(1)
*Vanadium (AA)	7910, 7911	(1)
Viscosity	D2983-87	(2)
Waste Dilution	3580A	(1)
Water Reactivity Screen (see note 1)	D5058-90 Test Method C	(2)
Zinc (ICP)	6010A	(1)
*Zinc (AA)	7950, 7951	(1)

** Off-site laboratory only*

TABLE 4
ANALYTICAL PARAMETERS AND ASSOCIATED METHODS

(1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 [3rd Edition (November, 1986), with current updates]

(2) American Society for Testing and Materials

(3) Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020

(4) Aragonite Methods

(5) Standard Methods for the Examination of Water and Wastewater, Latest Edition, APHA, WEF

(6) Alford-Steven, A.; Eichelberger, J.W. and Budde W.L. Method 680. Determination of Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry. Physical and Chemical Methods Branch. Environmental Monitoring and Support Laboratory Office of Research and Development. U.S. EPA, Cincinnati, Ohio 45268. November 1985.

(7) Association of Official Analytical Chemists, 14th Edition

(8) National Institute for Occupational Safety and Health

(9) A Method for Determining the Compatibility of Hazardous Wastes, EPA-600/2-80-076, April, 1980

NOTES:

1. A significant temperature change as called out in paragraph 24.8 of ASTM method D5058-90 is defined as ≥15°C. The test does not apply to wastes already in contact with excess water, nor is a waste water reactive if the heat generation is due solely to a strong acid/base reaction as verified by pH analysis. Occurrence of the reactions listed in paragraph 24.4 of ASTM method D5058-90 result in failure of the water reactivity test, except that formations of precipitates or emulsions are considered failures only if the ability to mix and pump the resulting liquids is impaired.

2. The test is not required for wastes with pH <6.

3. A temperature rise as called out in paragraph 11.8 of ASTM method D5058-90 is defined as ≥15°C. Occurrence of the reactions listed in paragraph 11.7 of ASTM method D5058-90 result in failure of the compatibility test, except that formations of layers, precipitation, emulsification, or increases in viscosity are considered failures only if the ability to mix and pump the resulting liquids is impaired.

Aragonite Methods

Radioactivity Screen (Aragonite-6)

All incoming waste shipments will be monitored for radioactivity using a count rate meter with a Geiger-Mueller (GM) detector. The detector window shall have at least a 2.54 centimeters diameter opening utilizing window material of approximately 1.7 milligrams per square centimeter. The detector shall be operated in accordance with the manufacturer's recommended procedures. Detectors shall be calibrated at least annually and after repair.

The detector window shall be placed within one (1) inch (but not in contact) of the sample surface of bulk materials until a steady, time weighted count rate is obtained. Three (3) measurements shall be taken of each sample and recorded.

Results of surveys are to be recorded in terms of counts per minute. Any waste found to have a count rate exceeding background by three (3) times or greater for any measurement shall not be accepted without receiving authorization from the Utah Division of Radiation Control. A background reading shall be taken for each sampling day prior to each sample event and the measurement recorded.

Ignitability Screen for Sludges (Aragonite-8b)

The ignitability screen for sludges is determined using a modified version of EPA SW-846 Method 1010. Instead of an actual flash point determination as outlined in the 1010, the sludge is heated in the test cup to 140°F. When the temperature in the cup reaches 140°F, the flame is applied to the sample. A flash/no-flash measurement is determined and recorded as positive or negative.

LEL (Aragonite 14)

This method is used for the determination of the presence of explosive vapors dissipating from a waste. A quantitative result in % LEL is indicated on the instrument.

Containers of waste are opened enough to insert the probe. The instrument pulls any vapors above the waste into the detectors. Sufficient time must be allowed to clear the air from the sample line. The container is sampled immediately after opening. The probe inlet is placed close to, but not touching, the waste in the container. The result in % LEL is recorded in the logbook. Care must be exercised to ensure that drafts are avoided in the area that is being sampled as this can cause an erroneous result. The test is not to be run on materials that will poison the detector.

The instrument will be calibrated according to the procedures and at the frequency specified by the manufacturer. It will be operated according to the instructions provided by the manufacturer. Daily sensitivity checks and continuing sensitivity checks every twentieth sample will be conducted. The test will not be run with an instrument that is not functioning correctly.

6.0 Waste Code Tracking and Residue Disposition

This section of the Waste Analysis Plan addresses how waste codes are tracked from arrival on-site, through storage, through incineration, and through characterization to meet land disposal restrictions in 40 CFR §268 for final placement in a landfill. The discussion follows chronologically from receipt to the outbound manifest.

6.1 Waste Code Assignment

The Generator is responsible for assigning waste codes. At the profile step, the Generator includes the waste codes that accompany the waste. Waste Acceptance personnel check the codes to make certain that the waste codes assigned are complete. This step is done by checking the "process generating the waste" against the listed waste codes.

When the truck arrives, the waste codes on the shipping papers/manifest are checked against the waste codes on the profile. The codes on the shipping papers/manifest are the codes assigned to the load once it is accepted for storage, provided that the codes are either identical or a subset of the waste codes on the profile.

6.2 Waste Codes for Containers and Tanks

Waste codes for containers are those contained on the line item of the manifest. Production can elect to track by line item on a manifest or use all the waste codes on the profile or the subset on the manifest.

For tanks, the waste codes on the entire profile or the subset on the manifest are used.

Liquid blend tanks carry all the codes assigned to any storage tank that was pumped to the blend tank. For example, if T-301 and T-304 are pumped to T-321, then T-321 carries all the waste codes in T-301 and T-304.

6.3 Waste Code Removal from Tanks

To remove a waste code from a tank, the tank must be emptied. For liquid and sludge tanks, since they are bottom fed tanks, the waste codes are removed once the material cannot be pumped from the tank. For bulk solids tank, the codes are removed when the clam shell can no longer remove waste. The intent is to remove as much loose material as mechanically possible. P-listed waste codes and PCBs are carried until the tank is triple rinsed with an appropriate solvent.

6.4 Tracking Codes through Incineration

Waste codes are tracked on a daily basis, midnight to midnight. Incineration gives the burn rate per orifice to Production Planning and then Production assigns the waste codes for the day. The Laboratory determines what analysis is needed depending on the codes incinerated that day. Once the analytical results are complete, the laboratory checks to see if LDR standards were met. If the standards were met, the analytical is used as backup for an outbound manifest per rolloff. If the standards are not met, the Laboratory can do an investigation to determine if the results were biased by laboratory contamination. If contamination is suspected, the rolloff will be sampled and analyzed again. If the LDR standards were not met and no contamination is suspected, then the rolloff is slotted to bulk solids for reincineration. Reincinerated material will be discussed later.

6.5 Sampling

Samples of slag, spray dryer residue, and baghouse dust are collected to determine if LDR treatment standards are met. For slag, grab samples are taken as each rolloff is filled. For spray dryer residue, grab samples may be taken as each rolloff is filled or a sample may be taken once every four hours. Sampling logs indicate which protocol is being used on a particular day. For baghouse dust, a sample is taken once every four hours. Alternatively, samples of the slag, spray dryer residue, and baghouse dust may be taken from the rolloff in accordance with the procedures for sampling bulk solids in section 4.11.

6.6 Compositing Samples

All samples are transferred to the laboratory. Composites are prepared using equal portions of the individual grab samples (±10% by weight). Slag samples are composited on either a daily basis or a rolloff basis. The laboratory work order form indicates whether to composite daily or by rolloff. Equal portions of each grab sample, either from the entire day or each container, are combined and mixed to generate a composite for LDR testing.

Spray dryer and baghouse samples may be combined to form a "residue" composite, or each stream may be composited and analyzed separately. The rationale for combining the residue stream is that they are essentially the same stream with the exception that the spray dryer has more moisture. For either residue compositing strategy (composites of both streams or composites of each stream) the compositing may be done on a daily basis or on a rolloff basis. These composites are prepared as discussed above for slag. If the composite is of both waste streams, it shall be proportional by weight of the two residues.

6.7 Analyzing the Samples

The slag and residue composites are analyzed by the Aragonite laboratory or other labs as specified in Section 5. Analytical results are reviewed by on-site lab personnel to determine, based on the waste codes incinerated, whether the applicable LDR treatment standards were achieved.

The frequency of compositing and analysis of slag and residue varies with the parameters to be analyzed. This is described below.

Composite samples are analyzed daily for PCBs to demonstrate TSCA compliance.

Metals analyses may be performed to determine stabilization requirements prior to landfill disposal. If metals analyses are not completed on a daily basis, it will be assumed that the LDR standards for those days have not been met.

The other parameters in the slag and residue may be analyzed on a daily basis or on a weekly basis. If on a weekly basis, it will be done by compositing the daily composites for the entire week and analyzing this sample for the applicable parameters. If any of these parameters are detected above the treatment standards, the slag and/or residue must be managed as outlined in Section 6.9. For weekly composite samples, holding times for analysis will begin the day the last daily sample for the weekly composite is collected.

6.8 Re-sampling

Should re-sampling be required because of contamination, sample holding time expiration, etc., then each rolloff is sampled individually. Six sample points will be selected using the ASTM guidelines. Three of the sample points can be from the surface and three must be deep to at least one foot from the bottom of each rolloff.

6.9 Re-incineration and Re-analysis

Should slag and/or residue not meet LDR standards for organics, it will be either re-incinerated or shipped off-site to a permitted treatment/disposal facility. If it is re-incinerated, the waste code daily assignment sheet will be completed as though the residue/slag is original with one exception. The re-incinerated residue does not need to be tested for the waste codes for which LDR standards were met. However, all waste codes associated with any wastes being incinerated for the first time will also be applied to the laboratory analysis.

Slag and/or residue that fails only for inorganics shall not be re-incinerated, but must be shipped off-site. Slag that meets LDR standards for both organics and inorganics may be placed in the bulk solids tanks and fed to the incinerator for the purpose of improving the slag conditions in the kiln.

6.10 Outbound Manifests

Once it has been determined that the slag/residue will be shipped off-site for further treatment and/or disposal, the outbound manifest will be prepared. All analytical data indicating that applicable LDR standards have been met will be attached. For slag/residue that fails treatment

standards for specific organics and/or inorganics, a statement by Aragonite that further treatment is necessary is required prior to land disposal. Also, generator certifications will be attached as appropriate to each outbound manifest.

APPENDIX 1 – QUALITY ASSURANCE PLAN

insert QUALITY ASSURANCE PLAN FOR ARAGONITE INDUSTRIAL AND HAZARDOUS WASTE FACILITY

APPENDIX 2 – INFECTIOUS WASTE MATRIX

Infectious Waste Matrix

	Animal Wastes					**Human Blood/Human Blood Products/Human Body Fluid Wastes**					
	Carcasses of Animals	Body Parts of Animals	Bulk Blood or Blood Products of Animals	Bulk Body Fluids of Animals (Including Feces and Urine)	Bedding of Animals	Bulk Human Blood	Bulk Human Blood Products	Bulk Human Body Fluids (Including Feces and Urine)	Serum	Plasma	Disposable Items Saturated/Contaminated with Blood and Body Fluids
Arsenic (ppm)	30	30	30	30	30	30	30	30	30	30	30
Beryllium (ppm)	15	15	15	15	15	15	15	15	15	15	15
Cadmium (ppm)	6	6	6	6	6	6	6	6	6	6	6
Chromium (ppm)	30	30	30	30	30	30	30	30	30	30	30
Lead (ppm)	30	30	30	30	30	30	30	30	30	30	30
Mercury (ppm)	150	150	150	150	150	150	150	150	150	150	150
Fluoride (ppm)	60	60	60	60	60	60	60	60	60	60	60
PCB (ppm)	0	0	0	0	0	0	0	0	0	0	0
Halogen (ppm)	500	500	500	500	500	500	500	500	500	500	500
BTU (Btu/lb)	3650	3650	3650	3650	8000	2200	2200	2200	2200	2200	8800
Specific Gravity	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.0	1.0	0.70
Bulk Density	71.7	71.7	71.7	71.7	71.7	71.7	71.7	71.7	62.4	62.4	43.7

	Microbiological Wastes					**Pathological Wastes**		
	Discarded Cultures or Stocks of Infectious Agents	Discarded Cultures or Specimens	Discarded Vaccines	Discarded, Used Disposable Culture Dishes	Discarded, Used Disposable Devices for Culture Processing	Human Materials Removed During Surgery	Human Materials Removed During Labor and Delivery	Human Materials Removed During Autopsy or Embalming
Arsenic (ppm)	30	30	30	30	30	30	30	30
Beryllium (ppm)	15	15	15	15	15	15	15	15
Cadmium (ppm)	6	6	6	6	6	6	6	6
Chromium (ppm)	30	30	30	30	30	30	30	30
Lead (ppm)	30	30	30	30	30	30	30	30
Mercury (ppm)	150	150	150	150	150	150	150	150
Fluoride (ppm)	60	60	60	60	60	60	60	60
PCB (ppm)	0	0	0	0	0	0	0	0
Halogen (ppm)	500	500	500	500	500	500	500	500
BTU (Btu/lb)	2200	2200	2200	2200	2200	3600	3600	3600
Specific Gravity	2.0	2.0	2.0	2.0	2.0	1.15	1.15	1.15
Bulk Density	124.8	124.8	124.8	124.8	124.8	71.7	71.7	71.7

Infectious Waste Matrix Continued

	Sharps							
	Hypodermic Needles	Hypodermic Syringes with Attached Needles	Scalpel Blades	Razor Blades, Disposable Razors and Scissors Used in Medical Procedures	Intravenous Stylets and Rigid Introducers	Glass Pasteur Pipettes, Tubes, Culture Bottles and Slides	Broken Glass from Laboratories	Tattoo Needles, Acupuncture Needles, and Electrolysis Needles
Arsenic (ppm)	30	30	30	30	30	30	30	30
Beryllium (ppm)	15	15	15	15	15	15	15	15
Cadmium (ppm)	6	6	6	6	6	6	6	6
Chromium (ppm)	30	30	30	30	30	30	30	30
Lead (ppm)	30	30	30	30	30	30	30	30
Mercury (ppm)	150	150	150	150	150	150	150	150
Fluoride (ppm)	60	60	60	60	60	60	60	60
PCB (ppm)	0	0	0	0	0	0	0	0
Halogen (ppm)	500	1100	500	500	500	500	500	500
BTU (Btu/lb)	400	19200	400	400	400	400	400	400
Specific Gravity	7.0	0.58	7.0	7.0	7.0	2.0	2.0	7.0
Bulk Density	436.7	36.2	71.7	436.7	436.7	124.8	124.8	436.7

	Common Constituents					
	Formaldehyde Preservatives	Flammable Preservatives, Disinfectants	Mercury Disinfectants, Cleaners	Gluteraldehyde Disinfectants, Cleaners	Bleach Solution Disinfectants, Cleaners	Other Typical Cleaning Solutions
Arsenic (ppm)	30	30	30	30	30	30
Beryllium (ppm)	15	15	15	15	15	15
Cadmium (ppm)	6	6	6	6	6	6
Chromium (ppm)	30	30	30	30	30	30
Lead (ppm)	30	30	30	30	30	30
Mercury (ppm)	150	150	15000	150	150	150
Fluoride (ppm)	60	60	60	60	60	60
PCB (ppm)	0	0	0	0	0	0
Halogen (ppm)	500	500	500	500	10000	500
BTU (Btu/lb)	6680	12500	400	4500	2000	400
Specific Gravity	1.50	1.0	1.50	1.50	1.0	1.0
Bulk Density	93.6	62.4	93.6	93.6	62.4	62.4