MODULE 1
STANDARD CONDITIONS

1.A. EFFECT OF PERMIT

1.A.1. The Permittee is allowed to store and treat hazardous waste in containers, treat and store hazardous waste in tanks and treat hazardous waste in an incinerator in accordance with the conditions of this permit.

1.A.2. Any treatment or storage of hazardous waste not authorized in this or any other hazardous waste permit is prohibited.

1.A.3. Compliance with this permit during its term constitutes compliance, for purposes of enforcement, with the Utah Hazardous Waste Management Rules, except for those requirements not included in this permit which become effective by statute. Specifically, compliance with this permit during its term constitutes compliance, for purposes of enforcement, with Utah Admin. Code ~~R315-8~~ R315-264 only for those management practices specifically authorized by this permit. The Permittee is also required to comply with Utah Admin. Code ~~R315-1, 2, 3, 4, 5, 6, 9, 12, 13, 14, 16, 50,~~ R315-101, 124, 260, 261, 262, 263, 264, 266, 268, 270, 273, ~~101, and~~ 316, and R305-7 as applicable.

1.A.4. Issuance of this permit does not convey property rights of any sort, or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations.

1.A.5. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Sections 3008, 3013, or 7003 of RCRA; Sections 106, 104, or 107 of CERCLA; or any other law providing for protection of public health or the environment, except as provided for in Condition 1.A.3.

1.A.6. Attachments incorporated by reference are enforceable conditions of this permit, as are documents incorporated by reference into the attachments. Language in the modules of this permit supercedes any conflicting language in the attachments or documents incorporated into the attachments.

1.B. ENFORCEABILITY

Violations documented through the enforcement process pursuant to Utah Code Annotated 19-6-112, and upheld through judicial action, may result in penalties assessed in accordance with Utah Admin. Code R315-102.

1.C. NO WAIVER OF AUTHORITY

The Director expressly reserves any right of entry provided by law and any authority to order or perform emergency or other response activities as authorized by law.

1.D. PERMIT ACTIONS

1.D.1. This permit may be modified, revoked and reissued, or terminated for cause as specified in Utah Admin. Code ~~R315-3-4.2~~ R315-270-41 and Utah Admin. Code ~~R315-3-4.4~~R315-270-43. If the Director determines that cause exists to modify, revoke and reissue, or terminate this permit, the action will proceed in accordance with Utah Admin. Code ~~R315-4-1.5~~R315-124-5.

1.D.2. This permit may be modified at the request of the Permittee according to the procedures of Utah Admin. Code ~~R315-3-4.3~~R315-270-42. All modification requests involving design drawings, calculations, sketches, etc., must be reviewed and stamped by a qualified Utah registered professional engineer. All relevant drawings, calculations, sketches, etc., shall be included with the modification request.

1.D.3. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

1.E. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. Invalidation of any State or federal statutory or regulatory provision which forms the basis for any condition of this permit does not affect the validity of any other State or federal statutory or regulatory basis for said condition.

1.F. DUTY TO COMPLY

. The Permittee shall comply with all conditions of this permit, except that the Permittee need not comply with the conditions of this permit to the extent and for the duration any noncompliance is authorized in an emergency permit issued in accordance with Utah Admin. Code ~~R315-3-6.2~~R315-270-61. Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of the Utah Solid and Hazardous Waste Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

1.G. PERMIT EXPIRATION

1.G.1. If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee shall apply for and obtain a new permit, subject to Condition 1.G.2.

1.G.2. This permit will expire at 7:00 am Mountain Daylight Time on September 28, 2022. This permit and all conditions herein will remain in force until the effective date of a new permit, if the Permittee has submitted a timely (at least 180 days prior to permit expiration or by an alternative date if requested by the Director), complete application and through no fault of the Permittee, the Director does not issue a new permit with an effective date on or before the expiration date of the previous permit.

1.H. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

1.I. DUTY TO MITIGATE

In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

1.J. PROPER OPERATION AND MAINTENANCE

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control, and related appurtenances, which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

1.K. DUTY TO PROVIDE INFORMATION

The Permittee shall furnish to the Director, within a reasonable time, any relevant information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

1.L. INSPECTION AND ENTRY

The Permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

1.L.1. Enter at reasonable times upon the Permittee's premises where a regulated facility and or activity is located or conducted, or where records must be kept under the conditions of this permit;

1.L.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

1.L.3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

1.L.4. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Utah Solid and Hazardous Waste Act, any substances or parameters at any location.

1.L.5. Make record of inspections through photographic, magnetic, electronic, or any other reasonable means.

1.M. REPORTING PLANNED CHANGES

The Permittee shall give oral notice to the Director, in advance, of any planned changes to a permitted hazardous waste management unit or activity that the Permittee does not consider as requiring a permit modification. The Director will notify the Permittee orally that either it is agreed that no permit modification is required or the proposed changes require a permit modification. The Director may determine that the changes require a permit modification if the proposed changes modify the original design or operation that was represented in the application even though those portions of the application (i.e., design specifications, drawings, calculations, etc.) may not have been incorporated into the permit.

1.N. CONSTRUCTION CERTIFICATION

For a new hazardous waste management unit, and for a hazardous waste management unit being modified, the Permittee may not treat, store, or dispose of hazardous waste in the new or modified portion of the unit except as provided in Utah Admin. Code ~~R315-4-3~~R315-270-42, until:

1.N.1. The Permittee has submitted to the Director:

a. A letter signed by the Permittee and a qualified Utah registered professional engineer stating that the unit has been constructed in compliance with this permit (i.e., in accordance with the approved design) and is operationally ready; and
b. Stamped as-built engineering plans and specifications with any deviations from the approved design noted and justification for each deviation provided; and

1.N.2. The Director has reviewed and inspected the newly constructed facility and has notified the Permittee in writing that the unit was found to be in compliance with the conditions of this permit; or

1.N.3. The Director has either waived the inspection, or has not, within 15 days of the date of his receipt of the above submission, notified the Permittee of an intent to inspect.

1.O. TRANSFER OF PERMIT

This permit is not transferrable to any person except after notice to the Director and in accordance with Utah Admin. Code ~~R315-3-4.1~~R315-270-40.

1.P. MONITORING AND RECORDS

1.P.1. Samples and measurements taken for the purpose of monitoring to demonstrate compliance with this permit shall be accurate and representative of the monitored activity.

1.P.2. The Permittee shall retain, at the Clean Harbors Aragonite facility, all records required by this permit for a period of at least three years, unless specified otherwise elsewhere in this permit, from the date of the sample, measurement, report, certification, or application. This period may be extended by request of the Director at any time and is automatically extended during the course of any unresolved enforcement action regarding this facility.

1.P.3. Records may be maintained electronically or by microfilm in lieu of paper. However, all records must be available for review at the facility at all times by regulatory personnel. Copies of all records must also be made available in a format requested by regulatory personnel.

1.P.4. The Permittee shall maintain at the facility a current copy of this permit.

1.Q. REPORTING REQUIREMENTS

1.Q.1. The Permittee shall report in writing to the Director, all instances of noncompliance within seven days from the time the Permittee becomes aware of the noncompliance. Reporting shall not excuse any noncompliance.

1.Q.2. The Permittee shall orally report to the Director any incident at the facility which may endanger human health or the environment within 24 hours from the time the Permittee becomes aware of the circumstances. The description of the incident and its cause shall include:

a. Name and telephone number of the person reporting the incident;
b. Date, time and type of incident;
c. Description and quantity of material(s) involved;
d. The extent of injuries, if any;
e. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and
f. Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain the steps taken or planned to prevent recurrence of the incident.

1.Q.3. The Permittee shall comply with the spill response, clean-up, and reporting requirements contained in Utah Admin. Code ~~R315-9~~R315-263-30, 31, and 33. Additionally, the Permittee shall notify the Tooele County Health Department, Environmental Health of any spill requiring reporting as outlined in this condition.

1.Q.4. The Permittee shall comply with the biennial report requirements contained in Utah Admin. Code ~~R315-8-5.6~~R315-264-75.

1.Q.5. Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittee shall submit such facts or corrected information within seven days of becoming aware of the error.

1.Q.6. The Permittee shall orally notify the Director within 24 hours of detection, when a leak or spill occurs from a tank system or a secondary containment system to the environment.

1.Q.7. Within 30 days of detecting a release to the environment from a tank system or a secondary containment system, the Permittee shall submit the following information to the Director:

a. Likely route of migration of the release;
b. Characteristics of the surrounding soil (including soil composition, geology, hydrogeology, and climate);
c. Results of any monitoring or sampling conducted in connection with the release. If the Permittee finds it will be impossible to meet this time period, the Permittee shall submit to the Director a schedule of when the results will be available. This schedule shall be submitted before the required 30 day submittal period expires;

d. Proximity of downgradient drinking water, surface water, and populated areas; and
e. Description of response actions taken or planned.

1.Q.8. In the event that the contents of a tank exceed the maximum allowable capacity designated for that tank in Attachment 9, the Permittee shall notify the Director in writing within seven days indicating the reason for the exceedance and also describing corrective measures taken by the Permittee to preclude future occurrences.

1.Q.9. Each time the emergency vent is opened during operation, the Permittee shall notify the Director in writing within seven days describing the incident and indicating the reason for the emergency vent opening. This notification shall also describe corrective measures taken by the Permittee to prevent future occurrences. For purposes of this requirement, "during operation" shall be defined as meaning any time when the Permittee has fed any wastes within one hour prior to the vent being opened. In response to a notification of an emergency vent opening, the Director may consider appropriate enforcement action to include the cessation of incinerator operation until adequate resolution of the problem occurs.

1.Q.10. If the emergency stop button is activated, the Permittee shall notify the Director in writing within seven days indicating the reason for the button activation and also describing corrective measures taken by the Permittee to preclude future occurrences.

1.Q.11. Each time the baghouse is bypassed during operation, the Permittee shall notify the Director in writing within seven days describing the incident and indicating the reason for the baghouse bypass. This notification shall also describe corrective measures taken by the Permittee to prevent future occurrences. For purposes of this requirement, "during operation" shall be defined as having fed any wastes within one hour prior to the baghouse being bypassed. In response to a notification of a baghouse bypass, the Director may consider appropriate enforcement action to include the cessation of incinerator operation until adequate resolution of the problem occurs.

1.Q.12. Each time the shred tower emergency relief vent(s) is/are opened due to an overpressure event, the Permittee shall notify the Director in writing within seven days describing the incident and indicating the reason for the vent opening(s). This notification shall also describe corrective measures taken by the Permittee to prevent future occurrences. In response to a notification of a shred tower emergency relief vent opening, the Director may consider appropriate enforcement action to include the cessation of shred tower operation until adequate resolution of the problem occurs.

1.Q.13. Each time the shred tower CO_2 system and/or deluge system is activated, the Permittee shall notify the Director in writing within seven days describing the incident and indicating the reason for the fire suppression system activation. This notification shall also describe corrective measures taken by the Permittee to prevent future occurrences. In response to a notification of a shred tower fire suppression system activation, the Director may consider appropriate enforcement action to include the cessation of shred tower operation until adequate resolution of the problem occurs.

1.Q.14. If the automatic waste feed cut-off system fails to function properly, the Permittee shall notify the Director in writing within seven days indicating the reason for the malfunction and also describing corrective measures taken by the Permittee to preclude future occurrences.

1.Q.15. If a compressed gas cylinder is determined to be leaking and it cannot be processed through the glove box, the Permittee shall notify the Director orally within 24 hours of becoming aware of the leaking cylinder and shall notify the Director in writing within seven days indicating the material involved and the actions taken to safely allow the cylinder to leak until empty.

1.Q.16. All reports, notifications, or other submittals that this permit requires to be sent or provided to the Director shall be sent by certified mail or other means with proof of delivery to:

~~Division of Solid and Hazardous Waste~~ Division of Waste Management and Radiation Control
P.O. Box 144880
Salt Lake City, Utah 84114-4880

All hand delivered submissions shall be made during normal business hours at the ~~Division of Solid and Hazardous Waste~~ Division of Waste Management and Radiation Control, MASOB, 195 North 1950 West, Salt Lake City, Utah.

Required oral notifications shall only be provided to the Director, an Environmental Manager, an Environmental Scientist, or an Engineer at the ~~Division of Solid and Hazardous Waste~~ Division of Waste Management and Radiation Control, (801) 536-0200, or if none of these individuals are available, to the Department of Environmental Quality's 24-hour answering service telephone number, (801) 536-4123.

1.R. SIGNATORY REQUIREMENT

All applications, reports or other information requested by or submitted to the Director shall be signed and certified as required by Utah Admin. Code ~~R315-3-2.2~~R315-270-11.

1.S. CONFIDENTIAL INFORMATION

The Permittee may claim confidential any information required to be submitted by this permit in accordance with Utah Code Annotated, 63-2-101 et seq and 19-1-306.

1.T. INFORMATION REPOSITORY

The Director may require the Permittee to establish and maintain an information repository at any time based upon the factors set forth in Utah Admin. Code ~~R315-4-2.33(b)~~R315-124-33(b). The information repository will be governed by the provisions in Utah Admin. Code ~~315-4-2.33~~R315-124-33(c) through (f).

1.U. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as in Utah Admin. Code R315 or 40 CFR 260-270, with definitions in Utah Admin. Code R315 controlling, unless this permit specifically provides otherwise; where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

1. **Accept**, **Accepted** or **Acceptance** means when Clean Harbors Aragonite has determined that a waste shipment received at the facility conforms to the approved profile (or all discrepancies have been resolved) and takes custody of the waste. It is further defined as when a Clean Harbors Aragonite barcode (designated with "AG") is placed on the container and a green label or mark indicating acceptance is placed on the AG barcode, or for bulk materials that won't be accepted into container storage, when the materials are off-loaded to a permitted storage tank. Containers holding wastes which have been repacked from containers already accepted at the facility will have a unique AG barcode (identified by "REPACK" or "CONS" (for consolidate) on the barcode) and will be considered to have been accepted (i.e., no green label or

mark on the barcode is necessary). For a direct burn tanker that will not be accepted into storage in a receiving dock or on a pad, it will be considered accepted when waste tracking indicates the material has been transferred to tank T-411 or T-412 (for the drive through direct burn system) or T-413 or T-414 (for the truck unloading direct burn system).

2. **Approve**, **Approved**, or **Approval** when used in the context of evaluating a profile means all necessary evaluations and analyses have been made and when the generator is notified as described in Condition 2.B.

3. **Auxiliary Fuel, Fuel Oil, or Fuel** means material exempted or excluded from regulation as a hazardous waste by applicable state or federal regulation and/or material used commercially as a fuel. These materials are used to heat up, cool down, and sustain or help sustain operating temperatures in the kiln and afterburner while incinerating regulated wastes. These materials may be placed in fuel oil tank T-601 and blend liquid tank T-305 when used for fuel service.

4. **Director** means the director of the ~~Division of Solid and Hazardous Waste~~ Division of Waste Management and Radiation Control, Utah Department of Environmental Quality.

5. **Infectious waste** means a solid waste that contains or may reasonably be expected to contain pathogens of sufficient virulence and quantity that exposure to the waste by a susceptible host could result in an infectious disease.

6. **Lab pack** means a container (bottle, jar, sealed bag, etc.) or containers packed inside a larger shipping container as described in 40 CFR §264.316 and in accordance with the specifications of 49 CFR §173.12(b).

7. **Qualified Utah Registered Professional Engineer** means any individual who is practicing in one's area of expertise and is licensed as a Professional Engineer by the Utah Department of Commerce.

8. **Receive**, or **Received** means when the transport vehicle passes through the front gate.

9. **Waste stream** means a waste that is, or should be (as defined by the US DOT description), identified as a line item on the Uniform Hazardous Waste Manifest from the same source of generation delivered with the same waste load.

10. Provisions of the Utah Solid and Hazardous Waste Act are cited as Utah Code Annotated 19-6-xxx.

11. Provisions of the Utah Hazardous Waste Management Rules are cited as Utah Administrative Code (Utah Admin. Code) R315-xxx-xxx.

1.V. CORRECTIVE ACTION

1.V.1. The Permittee shall comply with Utah Admin. Code ~~R315-8-6.12~~ R315-264-101 which requires a permit to address corrective action for releases of hazardous waste, including hazardous constituents, from any solid waste management unit at the facility, regardless of when the waste was placed in the unit.

1.V.2. If corrective action becomes necessary at a future solid waste management unit at the facility, the Director shall issue a schedule of compliance to the Permittee and/or initiate a permit modification as stipulated in Condition 1.D.

MODULE 3
STORAGE AND TREATMENT IN CONTAINERS

3.A. APPLICABILITY

3.A.1. The requirements of this module pertain to the operation of hazardous waste container storage and processing areas (also referred to as container management areas) at the facility. The Permittee shall comply with all requirements established in this permit when storing or treating any wastes or other materials in the container management areas, including those which do not carry an EPA waste code (e.g., industrial waste, exempt hazardous waste, site generated waste, non-hazardous waste, etc.).

3.A.2. The Permittee may store wastes, as outlined in this module, in the container storage and processing areas specified below, up to the capacities listed. Storage of wastes in containers in any other areas is prohibited. For purposes of determining compliance with the capacity limitations, all containers shall be considered to be full to their respective capacities.

a. Receiving and holding floor area in building E-1 -- 200 55-gallon containers or 11,000 gallons when Bays 1 and 6 are in storage mode; or 292 55-gallon containers or 16,060 gallons when Bays 1 and 6 are in receiving mode.

b. Receiving and holding floor area in building E-5 -- 200 55-gallon containers or 11,000 gallons when Bays 1 and 6 are in storage mode; or 300 55-gallon containers or 16,500 gallons when Bays 1 and 6 are in receiving mode.

c. Bays 3, 4, and 5 in building E-1 -- 192 55-gallon containers each or 10,560 gallons each when in storage mode; or 96 55-gallon containers each or 5,280 gallons each in bays 3, 4, and 5 when in receiving mode;

d. Bays 1, 2, and 6 in building E-5 -- 192 55-gallon containers each or 10,560 gallons each when in storage mode; or 96 55-gallon containers each or 5,280 gallons each in bays 1, 2, and 6 when in receiving mode;

e. Building E-2 -- 1,452 55-gallon containers or 79,860 gallons (exclusive of the workstations);

f. Workstations WS1, WS2, and WS3 in building E-2 -- four 55-gallon containers each or 220 gallons each;

g. Building E-3 -- 2,690 55-gallon containers or 147,950 gallons (includes two safes in row F each with a capacity of 55 gallons);

h. Building E-6 -- 1,348 55-gallon containers or 74,140 gallons;

i. Building E-7 -- 2,552 55-gallon containers or 140,360 gallons;

j. Building E-4 -- 1,452 55-gallon containers or 79,860 gallons (exclusive of the repack area and decant area);

k. Repack area in building E-4 -- four 55-gallon containers or 220 gallons;

l. Decant area in building E-4 -- four 55-gallon containers or 220 gallons;

m. Breezeway -- 256 55-gallon containers or 14,080 gallons (176 55-gallon containers or 9,680 gallons on the breezeway and 80 55-gallon containers or 4,400 gallons on the conveyors);

~~n. Direct burn pad -- one direct burn vessel (660 gallons);~~

~~o~~n. Drive through direct burn station -- one direct burn tanker in the eastern half of the drive through area, designated as T-411 and up to 12 55-gallon containers, designated as T-411D1, T-411D2, or T-411D3, staged for transfer to a tanker (7,500 gallons total);

~~p~~o. Drive through corrosive direct burn station -- one direct burn tanker or one bulk liquid tote in the western half of the drive through area, designated as T-415 (up to a total of 7,500 gallons);

~~q~~p. Truck unloading direct burn station (east and center bays of truck unloading) -- two direct burn tankers designated as T-413 and T-414 (15,000 gallons); or 144 55-gallon containers on pallets in the east bay (7,920 gallons) and 72 55-gallon containers on pallets in the center bay (3,960 gallons);

~~r~~q. E-1 and E-5 receiving docks -- 100 55-gallon containers or 5,500 gallons on pallets in each dock. A combined total of 84 55-gallon containers or 4,620 gallons in one or two refrigerated trailers may also be parked in the E-1 and E-5 receiving docks. The largest bulk container that may be stored in the E-1 or E-5 receiving docks is 4,888 gallons. For determining remaining dock capacity, the capacity of any bulk containers and containers in a refrigerated trailer is subtracted from the total dock capacity (5,500 gallons);

~~s~~r. E-4 receiving dock -- 40 55-gallon containers or 2,200 gallons on pallets; or one bulk container with a capacity of up to 7,749 gallons in the E-4 dock. In the place of a bulk container, the E-4 receiving dock may store up to 70 55-

gallon containers or 3,850 gallons in a refrigerated trailer parked in the E-4 receiving dock;

~~t~~s. Cylinder storage area and cylinder feed station combined -- 800 9" diameter by 52" high, compressed gas cylinders or equivalent;

~~u~~t. Cylinder feed station -- 20 9" diameter by 52" high, compressed gas cylinders or equivalent. This capacity does not include a cylinder or cylinders in the glove box. The glove box at the cylinder feed station will only be used in emergency situations (i.e., leaking cylinders). The glove box will remain empty at all other times;

~~v~~u. Drum pumping storage on slag pad east of the bulk solids maintenance bay -- 24 55-gallon containers or 1,320 gallons; equipped with portable secondary containment;

~~w~~v. Drum pumping station -- 4 55-gallon containers or 220 gallons;

~~x~~w. Bulk solids/sludge pad/sludge pad direct burn station with the direct burn tanker designated as T-412 -- 144 55-gallon containers or 7,920 gallons in containers on pallets; 23,760 gallons in large or bulk containers;

~~y~~x. Laboratory Cooler -- 2 55-gallon containers or 110 gallons equipped with portable secondary containment.

~~z~~y. Building 68 -- 56 55-gallon containers or 3,080 gallons;

~~aa~~z. Building 69-North -- 32 55-gallon containers or 1,760 gallons;

~~bb~~aa. Building 69-South -- 32 55-gallon containers or 1,760 gallons;

bb. Shred tower storage area – 192 55-gallon containers or 10,560 gallons.

3.A.3. The Permittee may perform only the following treatment or processing operations to wastes in containers, and only in the container management areas listed below. Any other treatment or processing of waste in containers in the container management areas, or any treatment or processing of waste in containers in any other areas is prohibited.

a. Repack room in Building E4 (decanting, repacking, liquid bulk-up, and absorption/solidification, as described in Attachment 8).

b. Decant room in Building E4 (decanting only, as described in Attachment 8).

c. Workstations WS1, WS2, and WS3 in building E2 (decanting, repacking, lab pack inspection, lab pack repacking, lab pack solidification, liquid bulk-up, compatibility testing, and debris processing, as described in Attachment 8).

d. Tipper and Decanter in Building E2 (repackage sharps and/or infectious waste, as described in Attachment 8).

e. Drive through direct burn station (decanting only, as described in Attachment 8).

f. Bulk solids building shredder (shredding only, as described in Attachment 8).

g. The Permittee may transfer wastes from one tanker to another within secondary containment.

h. Feed wastes to the kiln from ~~the direct burn pad,~~ the drive through direct burn station, the truck unloading direct burn station, the sludge pad direct burn station, the drum pumping (educt) station, and to the afterburner from the corrosive drive through direct burn station and the compressed gas cylinder feed station, as described in Attachment 8.

i. Shred tower (shred containers and pallets and feed them to the incinerator, as described in Attachment 8).

3.B. OPERATION AND MAINTENANCE

3.B.1. The Permittee shall maintain the container management areas and secondary containment systems as constructed and in accordance with the drawings contained in Attachment 10.

3.B.2. Modifications to the drawings for the container management areas and secondary containment systems shall be allowed only in accordance with the permit modification requirements in Condition 1.D.

3.B.3. The Permittee shall not proceed with construction or installation of a new or modified container management area or secondary containment system without the approval of the Director unless construction is allowed as outlined in Condition 1.D.

3.B.4. The Permittee shall maintain the container storage and processing areas and any ancillary equipment and secondary containment systems in good repair. Routine maintenance shall be performed at sufficient frequency to ensure that the container storage and processing areas and any ancillary equipment and secondary containment systems remain in good repair. Malfunctions and deterioration shall be corrected as expeditiously as possible.

3.B.5. The container management areas and secondary containment systems shall be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden discharge of hazardous waste or hazardous waste constituents to the air, soil, groundwater, surface water or any other location which could threaten human health or the environment.

3.B.6. The Permittee shall comply with the provisions specified in Attachment 8 -- Waste Storage, Processing, and Tracking.

3.C. PERMITTED AND PROHIBITED WASTES

3.C.1. The Permittee may store, treat, or both in the container storage and processing areas the wastes identified in Condition 2.C.1. unless prohibited in Condition 3.C.2. through 3.C.~~6~~10. subject to the requirements of this permit.

3.C.2. The following shall not be stored or treated in any of the container storage and processing areas at any time.

a. Any waste or material identified in Condition 2.C.2.

3.C.3. Liquids with a flash point less than or equal to 140 °F shall not be stored in any of the container management areas except Buildings E6 and E7. However, these may be located in the following locations for a period of up to ten days as part of the process for staging feed to the incinerator or other processing operations:

a. The receiving and holding floor areas of Buildings E1 and E5,
b. Bays 1-6 when in receiving mode,
c. Building E-4,
d. The repack room or decant room in Building E4,
e. The breezeway,
~~f. the direct burn pad,~~
g. Building E-2 F row (limited to those in inner containers that will not be opened in the repacking process),
h. Building E-2 G row (limited to those in inner containers that will not be opened in the repacking process),
i. Drive through direct burn station,
j. Drive through corrosive direct burn station,
k. Truck unloading direct burn station,
l. Bulk solids/sludge pad,
m. Buildings E1, E5, and E4 receiving docks,

n. Drum pumping storage area,
o. Drum pumping (educt) station.
p. Shred tower storage area

Liquids with a flash point less than or equal to 140 °F may only be processed in the repack area or decant room in building E-4 as described in Condition 3.A.3.

Controlled substances (as characterized by Category Code 6 in Table 2 of Attachment 1, the Waste Analysis Plan), that also contain liquids with a flash point less than or equal to 140 °F may also be stored in the Building E3 safes.

Infectious waste (as characterized by Category Code 7a or 7b in Table 2 of Attachment 1, the Waste Analysis Plan), that also contain liquids with a flash point less than or equal to 140 °F may also be stored in the refrigerated trailer in one of the container building docks.

3.C.4. Cyanide or sulfide bearing waste as described in Utah Administrative Code (UAC) R315-261-23(a)(5) shall not be stored in any of the container management areas except Buildings 69-North and 69-South, with the exception outlined below. However, these may be located in the following locations for a period of up to ten days as part of the process for staging feed to the incinerator or other processing operations:

a. The receiving and holding floor areas of Buildings E1 and E5,
b. Building E4,
c. The repack room or decant room in Building E4,
d. The workstations in Building E2,
e. the breezeway,
~~f. the direct burn pad,~~
g. Drive through direct burn station,
h. Drive through corrosive direct burn station,
i. Truck unloading direct burn station,
j. Bulk solids/sludge pad,
k. Sludge pad direct burn station,
l. Buildings E1, E5, and E4 receiving docks,
m. Drum pumping storage area,
n. Drum pumping (educt) station,
o. Shred tower storage area

Other materials which are potentially incompatible with these materials shall not be stored in the same area as these materials.

If the Permittee anticipates periods where the capacity in Buildings 69-North and 69-South may not be adequate, such as during turn around periods where waste is not being incinerated, or other non-planned events that may result in higher volumes of these materials on site, the Permittee may use the bays in Buildings E1 and E5 on a temporary basis only after providing oral notification to the Director followed by written notification within seven days and only when Buildings 69-North and 69-South are at capacity. The Permittee shall prioritize the processing of these materials stored in the bays in order to minimize the time these materials are stored in areas other than Buildings 69-North and 69-South. The Permittee shall notify the Director in writing within 72 hours of these materials stored in the bays being processed and indicate in the notice that all further storage of these materials is reverting solely back to Buildings 69-North, and 69-South.

3.C.5. Oxidizers as described in UAC R315-261-21(a)(4) shall not be stored in any of the container management areas except Building 68, with the exception outlined below. However, these may be located in the following locations for a period of up to ten days as part of the process for staging feed to the incinerator or other processing operations:

a. The receiving and holding floor areas of Buildings E1 and E5,
b. Building E4,
c. The repack room or decant room in Building E4,
d. The workstations in Building E2,
e. the breezeway,
~~f. the direct burn pad,~~
g. Drive through direct burn station,
h. Drive through corrosive direct burn station,
i. Truck unloading direct burn station,
j. Bulk solids/sludge pad,
k. Sludge pad direct burn station,
l. Buildings E1, E5, and E4 receiving docks,
m. Drum pumping storage area,
n. Drum pumping (educt) station,

Other materials which are potentially incompatible with these materials shall not be stored in the same area as these materials.

If the Permittee anticipates periods where the capacity in Building 68 may not be adequate, such as during turn around periods where waste is not being incinerated, or other non-planned events that may result in higher volumes of these materials on site, the Permittee may use the bays in Buildings E1 and E5 on a temporary basis, only after providing oral notification to the Director followed by written notification within seven days and only when Buildings 68 is at capacity. The Permittee shall prioritize the processing of these materials stored in the bays in order to minimize the time these materials are stored in areas other than Building 68. The Permittee shall notify the Director in writing within 72 hours of these materials stored in the bays being processed and indicate in the notice that all further storage of these materials is reverting solely back to Building 68.

~~3.C.5~~3.C.6. The following shall not be stored in any of the container management areas except the compressed gas cylinder storage area and the cylinder feed station. However, they may be off-loaded into buildings E-1 or E-5 and placed into racks while in E-1 or E-5. Compressed gas cylinders shall not remain in buildings E-1 and E-5 more than 24 hours from the time the cylinders are off-loaded before being transferred to the cylinder storage area.

a. Compressed gas cylinders.

~~3.C.6~~3.C.7. The Permittee shall not store water reactive wastes in the drum pumping storage area or the drum pumping station at any time.

~~3.C.7~~3.C.8. Wastes or materials stored or processed through the drive through corrosive direct burn system will be limited to corrosives, Class IB and IC flammable liquids, combustible liquids, highly toxic and toxic material, where these are defined in the International Fire Code.

~~3.C.8~~3.C.9. Waste or materials processed through the sludge pad direct burn system are limited to those with a flash point above 140ºF.

3.C.10. The Permittee shall not process in the shred tower, oxidizers, infectious waste/sharps, explosives, water reactives, and compressed gas cylinders.

3.D. OPERATING REQUIREMENTS

3.D.1. If a non-cylinder container holding hazardous waste, except for waste carrying the P999 waste code, is not in good condition (e.g., severe rusting, bulging, apparent structural defects) or it begins to leak, the Permittee shall transfer the hazardous waste from such container, or the container of hazardous waste itself, to a DOT acceptable container in accordance with Attachment 8, as soon as possible, but no later than two hours from the time the problem was first discovered. If a compressed gas cylinder is determined to be leaking, it will be transferred to the glove box at the cylinder feed station where it will be allowed to leak into the glove box while the glove box is exhausted to the incinerator. If the incinerator is down when a cylinder is leaking, the cylinder will be transferred to an isolated portion of the property and allowed to leak until empty. If a container holding waste carrying the P999 waste code is not in good condition or begins to leak, the Permittee shall follow Condition 3.D.28.

3.D.2. The Permittee shall assure that wastes or other materials in containers are compatible with the containers. Containers must be made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste stored in them, so that the ability of the containers to contain the waste is not impaired.

3.D.3. The Permittee shall not place incompatible waste or materials in the same container.

3.D.4. The Permittee shall not place hazardous waste or materials in an unwashed container that previously held an incompatible waste or material.

3.D.5. A container holding a waste that is incompatible with any waste or other material shall be separated from the other waste or material by placing it in building 68, 69-North, or 69-South as appropriate. No incompatible wastes shall be stored in the container management areas identified in Condition 3.A.2.a. through s., and u. through y. except under the limited circumstances outlined in Condition 3.C.4. Compressed gas cylinders shall be stored in racks in the cylinder storage area with compatible materials in each rack. Cylinder compatibility and rack separation shall be in accordance with the International Fire Code.

3.D.6. Containers shall always be closed except when the Permittee is adding or removing wastes or treatment reagents, as allowed by this permit, to or from the containers. Containers of waste identified by the P999 waste code must remain closed at all times while at the facility, but may have the retaining ring or other device securing the lid or cover to the container, loosened for safety reasons, as necessary, immediately prior to being fed to the incinerator. For overpacks identified by the P999 waste code, both the inner lid and outer lid may be loosened immediately prior to being fed to the incinerator.

3.D.7. Ventilation of open containers shall be conducted in accordance with Attachment 14. Use of the fume exhausters in buildings E-1 and E-5 during sampling or waste inspection is optional.

3.D.8. Containers shall not be opened, handled, stored, or managed in a manner which may rupture the containers or cause them to leak.

3.D.9. The Permittee shall unload any transport vehicle carrying containers within ten days of being received at the facility. In the event the Permittee cannot unload a received vehicle within the ten days, the Permittee may request oral approval from the Director to extend the timeframe on a temporary basis. This approval shall be followed by written notification to the Director within seven days of the oral approval. Small containers shall be placed in the receiving and holding floor areas of buildings E-1 or E-5, bays 1-6 when in receiving mode, or in the temporary extensions of the receiving areas outlined in Attachment 8 until the material has been accepted. Bulk containers may be placed in the drive through direct burn station (tankers only), the drive through corrosive direct burn station (a tanker or a bulk liquid tote only), the truck unloading direct burn station (tankers only), the bulk solids/sludge pad, the sludge pad direct burn station, or the E-1, E-5, and E-4 receiving docks prior to acceptance. Compressed gas cylinders may be placed into the cylinder storage area prior to acceptance. Those cylinders in the cylinder storage area that are not yet accepted shall be clearly identified in a unique manner from those cylinders that have been accepted.

3.D.10. The Permittee shall maintain sufficient aisle space in the container management areas to allow the unobstructed movement of personnel, fire protection equipment, discharge control equipment, and decontamination equipment to all areas of the container management areas. Sufficient aisle space shall be maintained such that access can be made to each container to check for leaks, container damage or deterioration, and also to view the barcode label. Containers shall be placed, and aisle space maintained, as shown on drawings D-034-M-401, D-800-M-402, and D-800-M-403 in Attachment 10. For larger bulk containers (such as tankers or rolloffs) being stored on the bulk solids/sludge pad, one bulk container occupies the same space as one row of six pallets shown on drawing D-800-M-403. For bulk containers with a similar footprint as a pallet (such as a bulk liquid tote or Flo-bin), the bulk container occupies the same space as one pallet of drums. Bulk containers shall be stored in the same locations as the pallets or rows of pallets indicated on drawing D-800-M-403. For larger bulk containers (such as tankers or rolloffs) being stored in the E-1, E-5, and E-4 receiving docks, one bulk container occupies the same space as two rows of five pallet locations shown on drawing D-800-M-402. For bulk containers with a similar footprint as a pallet (such as a bulk liquid tote or Flo-bin), the bulk container occupies the same space as one pallet of drums. For the truck unloading direct burn station, no containers on pallets shall be stored in a bay at the same time as a bulk container is being stored in the bay.

3.D.11. The Permittee shall not locate containers holding ignitable or reactive waste, including those which have not yet been accepted, within 50 feet of the facility's property line.

3.D.12. No smoking shall be allowed within 50 feet of any of the container management areas. The Permittee shall take precautions to prevent accidental ignition or reaction of waste. The waste shall be separated and protected from sources of ignition or reaction including, but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. Such sources of ignition shall be allowed only after adequate additional precautions have been taken to prevent ignition of wastes or other materials and a hot work permit has been issued. Notwithstanding this condition, a hot work permit is not required for performing storage and acceptance (fingerprint) analyses within the hoods of the E-5 fingerprint area.

3.D.13. The Permittee shall maintain a record of the location of each container in the container storage areas. A history of the movement of each container of waste will be maintained from the time it is placed into one of the container management areas until it is either incinerated or manifested off-site. The Permittee shall comply with the waste tracking provisions in Attachment 8. The Permittee shall provide access to the electronic waste tracking system portion of the operating record for the Director to review. This shall be accomplished by making available a remote link to the computer system and the appropriate query system for accessing the required data. Data to be accessible include manifest information, profile information, processing waste class code, final code dates for wastes that have been accepted or rejected, load sample analyses, weights, current locations, movement histories, and the dates/times incinerated or transferred off-site. Queries shall be provided to access the information for individual drums, manifests, EPA ID numbers, lot numbers, and profiles. It shall also provide the information for containers based on location at the facility, status (rejects, infectious wastes, etc.), and characteristics (ignitables, cyanides, sulfides, oxidizers, corrosives, reactives, etc.).

3.D.14. Several small containers which have been shrink-wrapped or otherwise bound together and attached to a pallet and shipped as a single container may be accepted and managed at the facility as one container. If the containers on a pallet are not bound as described above, they must be managed as individual containers.

3.D.15. Containers, not including gas cylinders and bulk containers, shall be stored on pallets. Compressed gas cylinders are stored in racks as outlined below. Containers on pallets shall be stored on racks where available and as outlined below. Where racks are not available, containers may be stacked on pallets as outlined below. The containers shall be stacked neatly, wrapped, or both, to provide stability and in a manner that will not cause them to fall or leak.

a. For large containers ($\geq$ 50 gallon capacity) the maximum stacking height per pallet is one container. For small containers (<50 gallon capacity), the maximum stacking height per pallet is 48 inches.

b. Containers shall not be stacked more than:
three pallets high in buildings E-2 (exclusive of the workstations and spaces 1 through 12 in row G), E-3 (exclusive of safes in spaces 4 and 5 in row F), E-4 (exclusive of the decant area and repack area), and E-7 (exclusive of row F, space 19), and the shred tower storage area;

two pallets high in building E-6 (exclusive of spaces 1 through 5 in row H), truck unloading direct burn, the refrigerated trailers parked in E-1, E-5, or E-4 receiving docks, the breezeway, spaces 1 through 12 in row G of building E-2, space 19 in row F of building E-7, bays 1-6 when in storage mode and buildings 68, 69-North and 69-South;

one pallet high in the receiving and holding areas of buildings E-1 and E-5, E-1, E-5, and E-4 receiving docks, bulk solids/sludge pad, laboratory cooler, bays 1-6 when in receiving mode, WS1-WS3, the decant area and repack area in building E-4, the safes in spaces 4 and 5 in row F of building E-3, spaces 1 through 5 in row H of building E-6, the drum pumping storage area, the drum pumping station, and the drive through direct burn station.

c. Containers placed or stacked on the feed conveyors need not be on pallets. If they are stacked, they must be stacked in such a way that they will not fall as they move on the conveyor. Stacking height is limited to 48 inches on the conveyors.

d. Containers that have been legally shipped but do not meet the height limitations specified in Condition 3.D.15.a. may be off-loaded and held in the receiving and holding floor areas of buildings E-1 or E-5 or in bays 1-6 when in receiving mode. However, they must be reconfigured to meet the size requirements prior to placement in any of the other container management areas.

e. Compressed gas cylinders shall be stored in racks containing compatible gases, with different types of gases separated in accordance with the International Fire Code. The cylinders shall be secured to prevent falling as described in IFC 30.

3.D.16. The Permittee shall prepare and maintain on site an infectious waste management plan that addresses the applicable requirements of UAC R315-316-2.

3.D.17. Except for sharps, infectious waste shall be contained in plastic bags or inside rigid containers. The bags shall be securely tied and the containers shall be securely sealed to prevent leakage or expulsion of solid or liquid wastes during storage and handling.

3.D.18. Infectious waste sharps shall be contained for storage, handling, and treatment in leak-proof, rigid, puncture-resistant containers which are taped closed or tightly lidded to preclude loss of contents.

3.D.19. All containers for containment of any infectious waste shall be red or orange, or if containers are not red or orange, shall be clearly identified with the international biohazard sign and one of the following labels: "INFECTIOUS WASTE," "BIOMEDICAL WASTE," or "BIOHAZARD."

3.D.20. A rigid infectious waste container may be reused for infectious or non-infectious waste if it is thoroughly washed and decontaminated each time it is emptied or if the surfaces of the container have been completely protected from contamination by disposable, unpunctured, or undamaged liners, bags or other devices that are removed with the infectious waste, and the surface of the liner has not been damaged or punctured.

3.D.21. Storage and containment areas must protect infectious waste from the elements, be ventilated to the outside, be only accessible to authorized persons, and be marked with prominent warning signs on, or adjacent to, the exterior doors or gates. The warning signs shall contain the international biohazard sign and shall state: "CAUTION - INFECTIOUS WASTE STORAGE AREA - UNAUTHORIZED PERSONS KEEP OUT" and must be easily read during daylight from a distance of 25 feet.

3.D.22. If infectious waste is on site longer than seven days, it shall be stored at or below 40 degrees Fahrenheit.

3.D.23. Infectious waste shall be incinerated as soon as possible, but not to exceed 60 days after collection from the generator.

3.D.24. Building E-7 shall have a minimum of five air changes per hour.

3.D.25. The LEL monitor in building E-7 shall alarm at 10% LEL.

3.D.26. Storage of flammable liquids in building E-7 shall be limited to metal containers.

3.D.27. The Permittee shall maintain the foam-water fire protection system to each of the E-6 and E-7 container storage buildings.

3.D.28. If a container holding waste identified by the P999 waste code is not in good condition (e.g., it exhibits severe rusting, bulging, apparent structural defects) or it begins to leak, the Permittee shall immediately secure the area around the container and prohibit access to the area. The Permittee shall immediately notify the generator of the waste and request the generator's assistance in responding to the situation. Access to the container in question shall be prohibited until the generator advises the Permittee on proper management of the situation. Only after the generator has advised the Permittee and recommended that the Permittee respond, may the Permittee approach the container and conduct the necessary response/cleanup activities. The Permittee shall comply with Condition 3.D.1., using the generator if necessary to contain, collect and repackage the waste. The

Permittee shall also orally notify the Director within 24 hours of discovering the problem/leak. These notifications, the generator's advice and all cleanup and response shall be documented in the facility operating record.

3.D.29. Prior to using the bulk solids/sludge pad, truck unloading direct burn station, and the E-1, E-5, or E-4 receiving docks for the storage of large containers holding bulk materials or for the storage of containers on pallets, the storage area(s) shall be delineated by marking the concrete with durable paint where the containers/pallets of containers are to be stored.

3.D.30. When the bulk solids/sludge pad is being used to store waste, it shall be protected with physical barriers sufficient to prevent vehicular damage to containers in the storage areas. The Permittee shall also operate the bulk solids/sludge pad/sludge pad direct burn station in a manner that permits access to, and the movement of personnel, fire protection equipment, discharge control equipment, and decontamination equipment to all areas of the container storage pad while also allowing the necessary access to adjacent waste management units.

3.E. CONTAINMENT

3.E.1. The secondary containment systems shall be operated and maintained so that they are free of both cracks and gaps and are sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.

3.E.2. The Permittee shall empty all liquid and remove accumulated waste from a sump or secondary containment area no later than 24 hours after discovering the contents. All liquids and other materials collected from a sump or secondary containment area shall be considered a hazardous waste and shall be managed appropriately.

3.E.3. Containment for 10% of the maximum capacity volume of containers or the volume of the largest container, whichever is greater, shall be maintained for each container management area identified in Condition 3.A.2., with the exception of the cylinder storage area and cylinder feed station, which require no secondary containment.

~~3.E.4. The Permittee shall maintain the system for diverting liquid run-on around the direct burn pad in good repair so that run-on to the pad is prevented.~~

~~3.E.5. The Permittee shall maintain the secondary containment system for the direct burn vessel feed area so that any liquid will drain from the direct burn pad to sump SP-624 without puddling.~~

~~3.F. DIRECT BURN VESSELS~~

~~3.F.1. The Permittee is authorized to use up to four direct burn vessels, subject to the requirements of this module. Each direct burn vessel shall be marked with a unique identifying number and shall be tracked in accordance with Attachment 8.~~

~~3.F.2. All direct burn vessels shall be stored only in the permitted container management areas specified in Condition 3.A.2.~~

~~3.F.3. The Permittee shall maintain and operate the direct burn vessels in accordance with the drawings and procedures contained in Attachments 10 and 8.~~

~~3.F.4. Modifications to the drawings and operations for the direct burn vessels shall be allowed only in accordance with the permit modification requirements in Condition 1.D.~~

~~3.F.5. All direct burn vessels shall be nitrogen blanketed.~~

~~3.F.6. All direct burn vessels shall have emergency pressure relief valves that shall be vented to atmosphere.~~

~~3.F.7. All direct burn vessels shall be equipped with an anti-static inlet.~~

~~3.F.8. The Permittee shall empty and visually inspect each direct burn vessel for the general condition of the vessel and measure the corrosion of each direct burn vessel at least once each year and certify that it can safely store hazardous waste. The certification shall document that the structural support, seams, connections, and pressure controls for each vessel have been adequately designed and that the vessel has sufficient structural strength and compatibility with the waste to be stored to ensure that it will not collapse, rupture, or fail. This certification must be made by an independent, qualified Utah registered professional engineer.~~

~~3.F.9. The Permittee shall not overfill any of the direct burn vessels.~~

~~3.F.10. The direct burn vessels shall always be closed except when the Permittee is adding or removing wastes, as allowed by this permit, to or from the vessels.~~

3.~~G~~F. DIRECT BURN TANKERS (DRIVE THROUGH DIRECT BURN STATION AND TRUCK UNLOADING DIRECT BURN STATION)

3.~~G~~F.1. Tankers of waste to be fed through the drive through direct burn system and containers to be decanted to a tanker shall be parked or placed within the drive through direct burn station secondary containment (eastern half of the former loadout area south of the slag pad). Tankers of waste to be fed from the truck unloading direct burn system shall be parked in the east bay of the truck unloading building. See drawing D-034-M-002.

3.~~G~~F.2. Wastes stored in either direct burn tanker station (drive through or truck unloading) or fed from either tanker to the kiln shall be tracked in accordance with Attachment 8.

3.~~G~~F.3 The Permittee shall maintain and operate the drive through and truck unloading direct burn tanker systems in accordance with Attachments 8 and 10.

3.~~G~~F.4. Modifications to the operation of the drive through and truck unloading direct burn tanker systems shall be in accordance with Condition 1.D.

3.~~G~~F.5. The drive through and truck unloading direct burn tankers shall be nitrogen blanketed.

3.~~G~~F.6. The drive through and truck unloading direct burn tankers shall be grounded prior to and while being fed, filled, or both.

3.~~G~~F.7. The Permittee shall comply with UAC R315-266-111(d)(2). The certification by the local Fire Marshall shall be obtained prior to the drive through and truck unloading direct burn tanker systems being placed into operation.

3.~~G~~F.8. As viewed from an area between the afterburner and front wall of the kiln, the Permittee shall maintain clear visibility of the direct burn tanker and the manifold/pump area of the drive through direct burn station at all times waste is present in the unit. The Permittee shall maintain a view of the direct burn tanker and the manifold/pump area of the truck unloading direct burn station through a video camera connected to a monitor in the control room at all times waste is present in the unit. An operator shall be present at the decant area whenever decant operations are occurring in the drive through direct burn station.

3.~~G~~F.9. Wastes from either the drive through direct burn system or the truck unloading direct burn system may be fed to either the sludge lance (A-103) or to the direct burn lance (A-101). While feeding wastes from either the drive through direct burn system or the truck unloading direct burn system to the sludge lance (A-103), the lines shall be isolated from the sludge recirculation line to prevent ignitable or incompatible wastes from entering either of the sludge storage tanks (T-401 or T-406). Following the feeding of wastes from either the drive through direct burn system or the truck unloading direct burn system to the sludge lance (A-103), the lines shall be adequately flushed with an appropriate solvent to prevent ignitable or incompatible wastes from entering either of the sludge storage tanks (T-401 or T-406).

3.~~G~~F.10. When using the vacuum pump to decant from a container to a direct burn tanker, the vacuum pump shall automatically shut down and decant operations cease when the LEL measurement of the combined dilution air and vacuum pump vent reach 60% LEL.

3.~~G~~F.11. When the backup carbon adsorption system is being used, no vacuum pump transfer of waste from a container to a tanker is allowed.

3.~~H~~G. DIRECT BURN FROM A CONTAINER

3.~~H~~G.1. Containers of waste to be fed through the drum pumping station shall be placed inside the glove box at the drum pumping station. See drawing D-034-M-002. The glove box will be sealed and vented prior to opening the drums or feeding to the kiln when processing flammable liquids, oxidizers, toxic and highly toxic materials.

3.~~H~~G.2. Wastes processed through the drum pumping station shall be tracked in accordance with Attachment 8.

3.~~H~~G.3. The Permittee shall maintain and operate the drum pumping station in accordance with Attachments 8 and 10.

3.~~H~~G.4. Modifications to the operation of the drum pumping station shall be in accordance with Condition 1.D.

3.~~H~~G.5. All containers holding flammable liquids at the drum pumping station shall be grounded prior to and while the waste is being fed to the kiln from the drum pumping station. The glove box and feed system shall also be grounded according to supplier recommended practice.

3.~~H~~G.6. The Permittee shall comply with UAC R315-266-111(d)(2). The certification by the local Fire Marshall shall be obtained prior to the drum pumping station being placed into operation.

3.~~H~~G.7. The drum pumping feed station feed system shall be flushed with an appropriate fluid prior to feeding an incompatible waste so that reactions will not occur in the feed system.

3.~~H~~G.8. Nitrogen blanketing will be used as needed to prevent explosive atmospheres from developing in the glove box and piping system.

3.~~H~~G.9. The glove box shall be vented to the afterburner. In the event that air to the eductor fails, it shall automatically switch to nitrogen to continue venting the glove box.

3.~~H~~G.10. The glove box shall be equipped with a fire detection system and a CO_2 fire suppression system. This system shall be maintained to immediately extinguish any fire in the glove box.

3.~~H~~G.11. The glove box shall be equipped with an LEL sensor and alarms to provide warnings prior to the development of potentially explosive situations. The Permittee shall use these alarms and take appropriate corrective actions to prevent fires and explosions.

3.~~H~~G.12. The glove box shall be equipped with explosion panels designed to protect workers in the area.

3.~~H~~G.13. Prior to using the drum pumping station storage area, the storage area shall be delineated by marking the concrete with durable paint where the pallets of drums are to be stored.

3.~~H~~G.14. When the drum pumping station storage area is in use, it shall be protected with physical barriers sufficient to prevent vehicular damage to containers in the area. It shall also be maintained clear of equipment, containers, debris, or other objects such that access to, and the movement of personnel, fire protection equipment, discharge control equipment, and decontamination equipment to all areas of the container storage area will not be impeded.

3.~~I~~H. CORROSIVE DIRECT BURN TANKERS AND TOTES (DRIVE THROUGH CORROSIVE DIRECT BURN STATION)

3.~~I~~H.1. Tankers or bulk liquid totes of waste to be fed through the drive through corrosive direct burn system shall be parked or placed within the drive through corrosive direct burn station secondary containment (western half of the former loadout area south of the slag pad). See drawing D-034-M-002.

3.~~I~~H.2. Wastes stored in or fed from the drive through corrosive direct burn station shall be tracked in accordance with Attachment 8.

3.~~I~~H.3. The Permittee shall maintain and operate the drive through corrosive direct burn tanker system in accordance with Attachments 8 and 10.

3.~~I~~H.4. Modifications to the operation of the drive through corrosive direct burn tanker system shall be in accordance with Condition 1.D.

3.~~I~~H.5. All tankers and bulk liquid totes in the drive through corrosive direct burn station shall be nitrogen blanketed.

3.~~I~~H.6. All tankers and bulk liquid totes in the drive through corrosive direct burn station shall be grounded while being fed to the incinerator.

3.~~I~~H.7. The Permittee shall comply with UAC R315-266-111(d)(2). The certification by the local Fire Marshall shall be obtained prior to the drive through corrosive direct burn tanker system being placed into operation.

3.~~I~~H.8. The Permittee shall maintain a view of the corrosive direct burn tanker or tote and the manifold/pump area of the drive through corrosive direct burn station through a video camera connected to a monitor in the control room at all times waste is present in the unit.

3.~~I~~H.9. Wastes from the drive through corrosive direct burn system may only be fed to the south afterburner burner location A-106B-5.

3.~~J~~I. <u>SLUDGE DIRECT BURN TANKERS (SLUDGE PAD DIRECT BURN STATION)</u>

3.~~J~~I.1. Tankers of waste to be fed through the sludge pad direct burn station shall be placed within the sludge pad direct burn station secondary containment (northeast of the bulk solids tower and directly east of T-406 (see drawing D-034-M-002)).

3.~~J~~I.2. Wastes stored in the sludge pad direct burn station or fed from a tanker to the kiln shall be tracked in accordance with Attachment 8.

3.~~J~~I.3 The Permittee shall maintain and operate the sludge pad direct burn station in accordance with Attachments 8 and 10.

3.~~J~~I.4. Modifications to the operation of the sludge pad direct burn tanker system shall be in accordance with Condition 1.D.

3.~~J~~I.5. The sludge pad direct burn tankers shall be nitrogen blanketed.

3.~~J~~I.6. The sludge pad direct burn tankers shall be grounded prior to and while being fed.

3.~~J~~I.7. The Permittee shall comply with UAC R315-266-111(d)(2). The certification by the local Fire Marshall shall be obtained prior to the sludge pad direct burn tanker system being placed into operation.

3.~~J~~I.8. The Permittee shall maintain a view of the sludge pad direct burn tanker and the manifold/pump area of the sludge pad direct burn station through a video camera connected to a monitor in the control room at all times that waste is present in the unit.

3.~~J~~I.9. Wastes from the sludge pad direct burn station system may be fed to either the sludge lance (A-103) or to the direct burn lance (A-101). While feeding wastes from the sludge pad direct burn station to the sludge lance (A-103), the lines shall be isolated from the sludge recirculation line to prevent ignitable or incompatible wastes from entering either of the sludge storage tanks (T-401 or T-406).

3.~~J~~I.10. Following the feeding of wastes from the sludge pad direct burn station to the sludge lance (A-103), the lines shall be adequately flushed with an appropriate solvent to prevent ignitable or incompatible wastes from entering either of the sludge storage tanks (T-401 or T-406).

3.J. SHRED TOWER

3.J.1. The Permittee shall maintain and operate the shred tower system in accordance with the drawings and specifications contained in Attachment 10.

3.J.2. The Permittee shall maintain the shred tower and ancillary equipment in good repair. Routine maintenance shall be performed at sufficient frequency to ensure that the shred tower remains in good repair. Malfunctions and deterioration shall be corrected as expeditiously as possible as outlined in Attachment 3.

3.J.3. Hazardous wastes may be fed to the shred tower only when all instruments required by this condition are on-line and operating properly.

3.J.4. The Permittee shall maintain and operate the monitoring and recording equipment specified in Attachment 16 while shredding and feeding hazardous waste. The data shall be monitored and recorded in accordance with Attachment 16. The monitoring equipment specified in Attachment 16 shall provide accurate data.

3.J.5. The shred tower instruments shall be calibrated in accordance with Attachment 13.

3.J.6. The Permittee shall operate the shred tower in such a way as to minimize the opening of the emergency relief vent(s).

3.J.7. The Permittee shall record in the operating record all instances where the emergency relief vent(s) is/are opened. The record shall include a description of the cause of the opening, and corrective actions implemented to prevent future occurrences.

3.J.8. The Permittee shall record in the operating record all instances where the CO_2 system and/or deluge system are activated. The record shall include a description of the cause of the activation, and corrective actions implemented to prevent future occurrences.

3.J.9. The Permittee shall operate and maintain a video recording system to record the containers fed to the shred tower. The system shall be capable of recording a legible picture of the tracking numbers of the containers fed.

3.J.10. The Permittee shall only operate the shred/feed system when the oxygen concentration in the shred chamber is less than 5%. If any shred chamber has greater than 5% oxygen, the shredders shall be stopped, the isolation valve between the kiln and shred system shall be closed, and the airlock exit door shall remain closed until the oxygen concentration drops below 4.5%.

3.J.11. The Permittee shall not feed containers to the shredders if the oxygen concentration in the airlock is greater than 5%. If the oxygen concentration in the airlock is greater than 5%, the airlock exit door shall remain closed until the oxygen concentration in the airlock has dropped below 4.5%.

3.J.12. The Permittee shall only operate the shred/feed system when the shred tower external LEL monitors read less than 10%. If any of the monitors reads greater than 10% LEL, the shredders shall be stopped, the isolation valve between the kiln and shred system shall be closed, and the airlock exit door shall remain closed until the LEL drops below 5%.

3.J.13. The excess gases from the airlock and shred chambers shall be vented, via a pressure blower, through a flame arrestor and discharged directly into the afterburner. If the afterburner temperature drops below 1400°F, the shred tower systems (except for the external conveyor systems) shall shut down.

3.J.14. The shred feed system shall automatically shut down and the isolation valve shall automatically close on all waste feed cutoffs identified as types 1 through 4 in Condition 5.F.

3.J.15. Containers shall not remain on any of the shred tower conveyors/elevator longer than 24 hours.

3.J.16. The Permittee shall inspect the shredding system in accordance with Attachment 3.

ATTACHMENT 1

WASTE ANALYSIS PLAN

Attachment 1
Waste Analysis Plan

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List of Tables

1.0 Overview

The objective of the Waste Analysis Plan (WAP) is to describe the procedures and processes that will be used to obtain sufficient information about waste streams to operate the facility in accordance with applicable permit requirements. More specifically, the waste analysis plan: (1) ensures that wastes accepted by Aragonite are appropriate for management at the facility; (2) specifies the collection of information about each load of waste to enable the facility to properly store, manage, and incinerate the material; and (3) 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, treatment, or both at the Aragonite facility. These wastes will be sampled and fingerprint chemistry will be determined as outlined in Section 3.2, and incineration burn chemistry will be developed based on Section 3.3. Profiles are developed using appropriate knowledge and/or analysis and are periodically recertified. Rainwater and snowmelt, collected in containment areas where spill cleanup procedures have been completed (if necessary) and transferred to a tank are not subject to the incoming load analyses. If the waste is generated from a spill of waste accepted, the information necessary to store and incinerate this material may be obtained from the spilled waste profile and acceptance sampling data.

This waste analysis plan addresses the RCRA-regulated, TSCA-regulated, and other wastes that will be transferred, stored, 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 that 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 or rejected.

- 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 WAP. 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 UDWMRC approval.

2.0 Identification of Wastes to be Managed

Aragonite accepts wastes for storage and treatment. 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 that are acceptable and that are prohibited at the facility. Conditions 3.C., 4.C., and 5.C. specify wastes and waste codes that are acceptable or 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, incineration, or 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.

Aragonite also temporarily (ten days or less) holds wastes manifested to another facility at the Aragonite facility during transit similar to that allowed in R315-263-12. This is referred to as transfer operations. The waste may be part of a load for which some of the material is destined for the Aragonite facility. When transfer wastes are shipped off site, the original manifest accompanies the waste. This differs from wastes that are accepted for storage only and then subsequently shipped to another facility where a new manifest is generated with the Aragonite facility as the generator in this situation.

No profile approval procedures are necessary for transfer wastes. The load is not accepted but rather is held on a temporary basis. There are no requirements for sampling or ensuring that the wastes are comparable to a profile. Aragonite will comply with the transporter requirements in R315-263-30 and 31 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.

Since these transfer containers are not incinerated at the facility, determination of incineration parameters is not necessary.

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.

To facilitate the waste receiving and management process, Aragonite categorizes the waste based on the form in which it is received. This categorization defines how the waste will be received, sampled, analyzed and ultimately managed at the facility. Incineration parameters will also be determined according to the waste category. Table 2 provides a description of the waste categories, a waste category code for each category, a definition of the category, and examples of waste in the category.

Table 2
Waste Categories

Category	Category Code	Definition	Examples
Routine Waste	1a (liquid) 1b (solid) 1c (sludge) 1d (mixture)	Wastes that can be sampled and analyzed	Containerized wastes, commingled liquids and sludges, commingled solids, PCB's
Lab Packs	2	A container (bottle, jar, sealed bag, etc.) or containers packed inside a larger shipping container as described in R315-264-316 and in accordance with the specifications of 49 CFR §173.12(b). The following restriction applies to lab packs: water reactives may not exceed four liters in the inner containers. Lab packs will have the following attributes: A lab pack profile, and a Packing Slip or Inventory Sheet.	Chemicals from the cleanout of commercial, industrial, educational or institutional laboratories
Consolidation Containers	3	Shipping containers containing small containers (bottles, jars, cans, bags) of consumer packaged materials. The outer container may or may not contain loose absorbent or absorbent pads.	Aerosols, batteries, paints in cans, single substance waste streams (all with the same DOT hazard class), mixed waste streams that are not regulated by either the EPA or the DOT (latex paints, resins, driveway sealers, caulking and sealing compounds, spackling, etc.), mixed solid or liquid pesticide streams from Household Hazardous Waste and Agriculture Pesticide collection events (not containing E.P.A. F027)

Table 2 Waste Categories			
Category	Category Code	Definition	Examples
Debris	4	Debris means a homogeneous or heterogeneous solid material exceeding a 60 mm particle size that is intended for disposal and that is: a manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: any material for which a specific treatment standard is provided in R315-268-40 through 49, namely lead acid batteries, cadmium batteries, and radioactive lead solids; process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emission residues; and intact containers of hazardous waste that are not ruptured and that retain at least 75% of their original volume.	Debris contains a wide variety of materials. Examples include steel plates, glass, rocks, and small identical empty containers or objects, mixtures of spill absorbent, Tyvek® suits, rubber booties and gloves, bricks, rocks, metal, and paper towels. Items that may not be part of a debris profile include containers containing any liquid.
Consumer Products (includes Pharmaceuticals and Gas Cylinders)	5	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. SDS may or may not be available for this material. 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 of consumer products and pharmaceuticals include personal care products and over-the-counter or prescription medications. Examples of gas cylinders include butane, ethane and acetylene
Controlled Substances	6	Containerized material that is defined as a controlled substance by the DEA, the FDA, or both (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.	Schedule I-V Controlled Substances

Table 2 Waste Categories			
Category	Category Code	Definition	Examples
Infectious Waste	7a (Hi-Merc) 7b (Lo-Merc)	A solid waste that contains or may reasonably be expected to contain pathogens of sufficient virulence and quantity that exposure to the waste by a susceptible host could result in an infectious disease. Containers of infectious waste must meet the following packaging criteria: either be poly or fiber containers (no steel drums) and DOT approved for the packaged wastes; maximum size 85-gallon outer containers; sharps in puncture resistant containers; 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.	Animal wastes, carcasses, body parts, human blood, human blood products, human body fluid wastes, microbiological wastes, pathological wastes, sharps.
APHIS Waste	8	A solid waste that is regulated by the Animal and Plant Health Inspection Service of the US Department of Agriculture due to the presence of animal and/or plant invasive pests or noxious weeds that, if released, could be damaging to crops or native species.	Samples from testing laboratories, experimental plant seeds, soil from remediation activities conducted in an APHIS quarantine zone, soil, seeds, weeds, soil or seed samples, brush, insects, fruit, plants

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 analyze the different waste matrices varies, different procedures are necessary. Section 3.1 describes the profile approval procedures for each of these waste categories. Section 3.2 describes waste acceptance and handling of discrepancies. Section 3.3 describes determination of incineration parameters. Aragonite will clearly document the waste category for each waste stream accepted at the facility by noting the Category Code for each waste stream on the *Waste Receiving Report*. 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.

The storage and acceptance (fingerprint) parameters in Table 3 are determined prior to the waste being accepted. This is because appropriate information must be known in order to properly store and manage the waste prior to incineration. The incineration parameters in Table 4 do not need to be determined at the time of acceptance but must be determined prior to incineration.

For routine wastes (Section 3.2.1) the fingerprint parameters are determined through sampling and analysis and documented in waste tracking. However, for other waste categories (Sections 3.2.2 through 3.2.9) samples are not necessarily taken and analyzed. In order to assure that the proper characterization is documented, the following scheme will be followed:

Ignitability:

- Liquid samples that test positive for ambient ignitability or flash point at 140°F will be considered ignitable liquids subject to the restrictions in Conditions 3.C.3., 4.C.3., and 4.C.4.
- For wastes that are not sampled and analyzed, the characterization as an ignitable liquid will be determined from the manifest and/or profile.
- Material shipped as “flammable liquids” or with a DOT hazard class of “3” will be considered ignitable liquids.
- Aerosols shipped with a DOT hazard class of “2.1” shall be considered ignitable liquids.
- Wastes with profiles that list the flash point as less than 140°F shall be considered ignitable.
- If the waste is ignitable and any part of the waste is a liquid or sludge, it will be considered an ignitable liquid.
- If a waste is considered to be ignitable, this will be documented on the *Waste Receiving Report*.
- If any of the above indicate that the waste is an ignitable liquid, but Aragonite does not believe that it is an ignitable liquid, the reason for the decision to not manage the waste as an ignitable liquid will be noted on the *Waste Receiving Report*.

Reactive Cyanides/Sulfides:

- If a waste tests positive for the cyanide or sulfide screen, it will be considered a reactive cyanide or sulfide subject to the restrictions in Conditions 3.C.4. However, if a waste tests positive for the cyanide or sulfide screen that is not expected (i.e., the profile, manifest, and pre waste class code do not indicate that it should contain cyanides/sulfides), the cyanide/sulfide spot test will be done to confirm the screen. If the spot test is positive, the cyanide/sulfide determination will be confirmed and, if required, the discrepancy will be resolved. If the spot test is negative, the results from the screen will be considered a false positive and the waste will not be characterized as a reactive cyanide or sulfide.
- For wastes that are not sampled and analyzed, the characterization as a reactive cyanide/sulfide will be determined from the manifest and/or profile.
- Material shipped as “cyanide” or “sulfide”, or that contains any cyanides or sulfides in the profile constituents will be considered reactive cyanide or sulfide.
- If a waste is considered to be a reactive cyanide or sulfide, this will be documented on the *Waste Receiving Report*.
- If any of the above indicate that the waste is a reactive cyanide or sulfide, but Aragonite does not believe that it is a reactive cyanide or sulfide, the reason for the decision to not manage the waste as a cyanide or sulfide will be noted on the *Waste Receiving Report*.

Oxidizers:

- If a waste tests positive for the oxidizer screen, it will be considered an oxidizer subject to the restrictions in Conditions 3.C.4. and 4.C.2. However, if a waste tests positive when screening for oxidizers but is known to contain a compound that may provide a false positive result for this screening method or if the concentration of the constituent(s) causing the positive result is lower than the DOT concentration for Class 5.1, this determination will be noted on the *Waste Receiving Report* and it will not be characterized as an oxidizer.
- For wastes that are not sampled and analyzed, the characterization as an oxidizer will be determined from the manifest and/or profile.
- Material shipped as defined in Module 3.C.4 will be considered an oxidizer and managed accordingly
- Wastes that contain any known oxidizers in the profile constituents will be considered oxidizers.
- If a waste is considered to be an oxidizer, this will be documented on the *Waste Receiving Report*.
- If any of the above indicate that the waste is an oxidizer, but Aragonite does not believe that it is an oxidizer, the reason for the decision to not manage the waste as an oxidizer will be noted on the *Waste Receiving Report*.

pH:

- If the pH of a waste measures less than 2.0 (acid) or greater than 12.5 (base), it will be considered corrosive and subject to the restrictions in 4.C.6. and any compatibility considerations necessary for proper management.
- For wastes that are not sampled and analyzed, the characterization as a corrosive will be determined from the manifest and/or profile.
- Wastes that contain any known acids or bases in the profile constituents, or carry the D002 waste code, will be considered corrosive.
- If a waste is considered to be corrosive, this will be documented on the *Waste Receiving Report*.
- If any of the above indicate that the waste is corrosive, but Aragonite does not believe that it is corrosive, the reason for the decision to not manage the waste as corrosive will be noted on the *Waste Receiving Report*.

Water Reactive:

- If a waste tests positive for the water reactivity test (subject to the conditions identified in Note 3 of Table 7), it will be considered water reactive subject to the restrictions in Conditions 2.C.2.a. and 3.C.6.
- For wastes that are not sampled and analyzed, the characterization as a water reactive waste will be determined from the manifest and/or profile.
- Material shipped as "water reactive" or with a DOT hazard class of "4.3" will be considered water reactive.
- Wastes that contain any known water reactive constituents in the profile constituents will be considered water reactive.

- If a waste is considered to be water reactive, this will be documented on the *Waste Receiving Report*.
- If any of the above indicate that the waste is water reactive, but Aragonite does not believe that it is water reactive, the reason for the decision to not manage the waste as water reactive will be noted on the *Waste Receiving Report*.

When using the DOT shipping descriptions or hazard classes in characterizing the wastes for management at the facility, all applicable shipping names and hazard classes will be used, not just the primary ones. These will be properly documented in the *Waste Receiving Report.*

Clean Harbors Aragonite may perform the Table 3 storage and acceptance analyses 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 Profile Approval Process

3.1.1 Routine Wastes

Before Aragonite can approve a waste stream for storage or treatment at the facility, a completed Waste Profile Sheet must be provided by the generator. Profiles can be submitted electronically or via hard copy. 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 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 waste acceptance personnel. Final approval is electronically documented in WIN as approved with a one year expiration date. This electronic documentation can be provided upon request. 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 R315-264-12(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 that do not result in the waste stream being unacceptable, the profile will be updated and recertified. If there are changes in the waste stream that 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 Lab Packs

The profile approval process for lab packs is the same as described in Section 3.1.1 except as described in this section.

Lab packs are packaged by Clean Harbors' employees on behalf of Aragonite or are packaged by personnel who are not employed by Clean Harbors.

If packaged by Clean Harbors' personnel, an inventory sheet for each lab pack is not required for profile approval, but is included with each shipment. All of the chemicals are inventoried as the lab packs are packaged by Clean Harbors' employees; as a result, Aragonite will know the contents of each lab pack.

If the lab packs are packaged by non-Clean Harbors' personnel, inventory packing lists must be sent to Clean Harbors' technical personnel, acting on behalf of Aragonite, and preapproved prior to shipment. 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 profile approval being sent to the generator) is the same as for lab packs packaged by Clean Harbors' employees.

3.1.3 Consolidation Containers

The profile approval process for consolidation containers is the same as described in Section 3.1.1. The generator will also supply a detailed written description of the waste stream.

3.1.4 Debris

The profile approval procedures for debris are identical to those for routine waste in Section 3.1.1. The generator will also supply a detailed written description of the waste stream.

3.1.5 Consumer Products, Pharmaceuticals, and Gas Cylinders

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

3.1.6 Controlled Substances

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

3.1.7 Infectious Wastes

Generators shipping infectious waste to the Aragonite facility are required to identify the type of material that is being sent on the profile.

The profile approval procedures for infectious waste are the same as those for routine wastes in Section 3.1.1.

For waste that 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.

Wastes or materials shipped as a DOT hazard class of “6.2” will be considered infectious.

Certain types of disinfectants and preservatives used in conjunction with infectious waste can contain various levels of mercury. Generators are required to identify the concentration of mercury in their infectious waste on the Waste Profile.

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

3.1.8 APHIS Wastes

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

3.2 Load Receiving, Acceptance and Handling of Discrepancies

Aragonite's inbound inspection and sampling process insures that incoming waste materials conform to information provided on the shipping paper and waste profile and can be managed safely at the facility. Certain waste streams, however, are not sampled and analyzed and alternative methods are used to determine conformance to the manifest and profile information and to determine the incineration parameters. In general, wastes that are not subject to sampling and analysis include, but are not limited to:

- Waste streams not conducive to sampling – those wastes for which representative samples cannot be easily obtained or sampling is impractical,
- Waste streams that inhibit analysis – those wastes that could possibly be sampled but may not be easily analyzed,
- Wastes streams that could cause health, safety or environmental concerns if sampled and analyzed,
- DEA Controlled Substances

3.2.1 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:

- conformance 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.

Quantity discrepancies are determined by conducting a piece count of the number of individual containers or weighing bulk shipments and comparing the results with the quantity indicated on the manifest. The number of containers must be correct: there is no tolerance for a quantity discrepancy. The weight of bulk shipments must be within ±10% of the manifested weight.

Waste type discrepancies are determined by inspection and by comparing analyses of the incoming load to the profile information and the manifest description. A waste type discrepancy is defined as obvious differences between the waste and what is indicated on the shipping paper which can be discovered by inspection or waste analysis. A difference that would change the regulatory status or the USDOT shipping name of the waste would be considered a discrepancy.

Examples include:

- The waste is profiled with a flash point of 160ºF and is not characterized as flammable (D001) but the waste received has a flash point <140ºF and should be characterized as flammable (D001).
- The waste is manifested as a "Waste Corrosive Liquid" D002 but the waste received and the profile describe the waste as "Waste Flammable Liquid" D001.

If discrepancies in the quantity or type of waste occur, Aragonite will attempt to reconcile the discrepancy with the generator.

For quantity discrepancies, Aragonite will conduct a recount of the shipment, contact the generator to confirm the quantity that was actually shipped, and will contact locations where intermediate stops were made between the generator and the facility to insure that drums were not inadvertently added or removed from the shipment.

If discrepancies of waste type occur, the waste may be rejected out-of-hand, or it may be re-evaluated for possible acceptance by the facility despite the variance. This procedure is intended to prevent the unnecessary movement of a waste material back and forth between the facility and the generator in cases where the material can be readily handled by the facility. By eliminating this unnecessary movement, the facility is attempting to reduce further possible exposure of this waste to human health and the environment. The re-evaluation process involves the following steps:

- 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 can be managed at the facility in a safe and environmentally sound manner, the discrepancy is resolved between Aragonite and the generator by creating a new profile for the waste or updating the existing profile. Waste that is not amenable to acceptance by Aragonite is rejected.

- If the profile or shipping description overclassifies the waste (e.g., the material is shipped as a flammable but is not actually flammable, or the profile and manifest show it as a cyanide but it tests negative as a cyanide) then the generator will be contacted to resolve the discrepancy. If the generator indicates that he overclassified the waste, this will be documented on the manifest and operating record. However, a new profile will not need to be created nor will the existing profile need to be updated.

The resolution of the manifest discrepancy will be noted on both the manifest and in the operating record. If the discrepancy cannot be resolved within 15 days, the Director 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 3. If the wastes can be managed and are not prohibited at the facility, the containers can then be accepted. As discussed in Section 3.3.1.1, the composite samples are analyzed for the incineration parameters listed in Table 4 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. Tankers of bulk liquid waste may also be placed in the drive through corrosive direct burn station prior to being accepted. 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 3. As discussed in Section 3.3.1.2, the blended liquids and sludges are analyzed for the incineration parameters listed in Table 4 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 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 3. As discussed in Section 3.3.1.3, the bulk solids are analyzed for the incineration parameters listed in Table 4 prior to incineration of the waste to ensure compliance with permit feed limitations.

The wastes may be processed (i.e., decanted, shredded, etc.), commingled, or both 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.

3.2.2 Lab Packs

Upon receipt at the facility, the lab pack waste will be inspected and the accompanying paperwork reviewed. Any discrepancies in piece count will be considered a manifest discrepancy and managed using the process described in Section 3.2.1.

All lab packs arriving at the facility will be accompanied by a detailed inventory of the contents of each container.   The container packing list details each small container within the primary container, including the chemical name, number of containers, container size, and physical state. The items on each inventory sheet are reviewed and compared to the manifest and profile to ensure that it matches the manifest and profile and can be accepted. Differences between the inventory sheet and the profile will be considered discrepancies per Section 3.2.1 and will be resolved as outlined in Section 3.2.1. Differences between the inventory sheet and the container contents will be considered discrepancies per Section 3.2.1 and will be resolved as outlined in Section 3.2.1.

Lab packs packaged by Clean Harbors' personnel will not be opened to compare packing lists with contents. This step has already been verified during the packing process. The packing list will clearly show who packed the lab pack and easily identify that they are Clean Harbor's personnel. Lab packs packaged by non-Clean Harbors' personnel will have 10% of containers shipped per manifest opened and the contents compared with the packing lists. Aragonite will document which lab packs are verified and the result of the verification process.

Individual containers within the lab pack will not normally be opened and tested. However, all inner containers greater than four liters will be tested for LEL using Aragonite Method 14 if they are designated for processing as kiln-direct or in the bulk solids building. Liquid waste streams of organic peroxides, oxidizers, aromatic and aliphatic ethers, nitric acid >10%, isocyanates, and ignitables that exceed four liters will be decanted or poured off rather than being fed as direct charges.

Materials that are determined not to be acceptable, either through review of the container contents sheet or physical examination, will be returned to the generator or shipped off-site to an approved transfer, treatment/disposal facility. The generator will be contacted prior to any subsequent off-site movement of the waste.

Since the inner containers are generally not sampled and analyzed, the profile, manifest, and/or inventory sheets will be reviewed to establish the characteristics that identify the proper management for storage and/or processing of the waste while at the facility.

3.2.3 Consolidation Containers

The process for receiving, acceptance and the handling of discrepancies for consolidation containers is the same as described in Section 3.2.1. except for sampling and analysis.

Prior to accepting the consolidation container, the contents of each container are inspected for physical appearance. The person conducting the inspection will ascertain the type (aerosols, batteries, paint in cans, single substance waste streams, caulk, etc.), and confirms that the contents meet the criteria of a consolidation container defined under Table 2. He will also document that the contents are the same as described on the profile.
Since the inner containers are generally not sampled and analyzed, the profile and manifest will be reviewed to establish the characteristics that identify the proper management of the waste while at the facility.

3.2.4 Debris

The process for receiving, acceptance and the handling of discrepancies for debris is the same as described in Section 3.2.1, except that debris is not sampled or analyzed.

Prior to accepting the debris waste, the contents of each container or each bulk load are inspected for physical appearance. The person conducting the inspection will ascertain the contents of the container and confirm that it meets the criteria for debris defined under Table 2. He will also document that the contents are the same as described on the profile.

Since the waste is not sampled and analyzed, the profile and manifest will be reviewed to establish the characteristics that identify the proper management of the waste while at the facility.

If the debris 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, upon examination, the debris is found to contain intact containers of waste, process residuals, air emission residues, or batteries (in other words, it does not meet the regulatory definition of debris), a discrepancy exists which will be resolved using the process described in Section 3.2.1.

3.2.5 Consumer Products, Pharmaceuticals, and Gas Cylinders

The process for receiving, acceptance and the handling of discrepancies for Consumer Products, Pharmaceuticals and Gas Cylinders (collectively Consumer Products) is the same as described in Section 3.2.1, except that consumer products are not sampled or analyzed.

Prior to accepting the Consumer Product waste, the contents of each container are inspected for physical appearance and to ensure that the product labeling is consistent with the profile information. If any of the product containers (excluding cylinders) are found to have been opened, or are not sealed, the person conducting the inspection will reopen the containers and the contents will be compared to one of the unopened containers to ascertain that the material is the same. This information will be documented in the operating record.

Gas cylinders are inspected for physical appearance and to ensure that the product labeling is consistent with the profile information. The operating record will document how each cylinder's contents are classified in accordance with the material types defined in the International Fire Code.

The inspector will confirm that the material meets the criteria for consumer products and pharmaceuticals defined under Table 2. Other information necessary to properly manage the material (e.g. flash point, potential incompatibilities, etc.) will be obtained and evaluated from the profile provided by the generator.

3.2.6 Controlled Substances

Due to DEA regulations, only designated Aragonite personnel will accept and maintain control of the shipment upon its arrival at the facility.

The general requirements for receiving and acceptance for waste classified as Controlled Substances, and the handling of discrepancies, are the same as described in Section 3.2.1, except that these materials are not sampled or analyzed. Controlled substances can be placed in a locked office of someone authorized to maintain control of DEA wastes, in a locked van on one of the docks of the container storage buildings, or in one of the two safes in Building E3 prior to acceptance. Aragonite may receive controlled substances from DEA registered generators or directly from the ultimate user as defined by DEA.

DEA wastes may come from two different types of sources that have different verification procedures: those shipped with DEA form 222 or form 41, and those that are part of a take-back or mail-back program under 21 CFR §1317.

Container contents are checked and verified to match DEA form 222 or form 41. Discrepancies in piece count, waste type or individual unit count are subject to specific DEA notification and resolution requirements. 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 cannot 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.

When the facility incinerates DEA regulated materials, such as take-back or mail-back programs that cannot be opened in accordance with 21 CFR §1317, the facility will not open, inspect and/or sample these containers. For acceptance, the facility will weigh each container and verify a piece count with the shipping documentation. Additionally, a radioactive screen will be performed on each container in accordance with the Aragonite Radioactivity Screen (Aragonite-6) (except that the containers will not be opened for the test).

3.2.7 Infectious Wastes

The process for receiving, acceptance and the handling of discrepancies for Infectious Waste is the same as described in Section 3.2.1, except that wastes are not inspected, sampled or analyzed.

Each container of infectious waste shall be weighed individually at Aragonite prior to being fed to the incinerator or being repackaged when shipped in reusable primary containers with sealed inner containers or containing sharps. This weight shall be recorded in the facility operating record. If this container was shipped from another Clean Harbors facility, the container(s) weight information will already be populated in WIN and that weight may be used instead of weighing the container again.

Since the waste is not sampled and analyzed, the profile and manifest will be reviewed to establish the characteristics that identify the proper management of the waste while at the facility.

3.2.8 APHIS Wastes

The process for receiving, acceptance and the handling of discrepancies for APHIS Waste is the same as described in Section 3.2.1. However, Aragonite may make a request to the Director that the containers from a specific waste stream not be opened due to circumstances unique to that waste stream. Aragonite will not need to open and/or sample these containers if the request is granted by the Director.

Bulk shipments of APHIS waste (e.g., soil from a remediation site) may also be accepted to be incinerated. Any bulk shipments will be sampled and analyzed as described in Section 3.2.1.

Each container of APHIS waste shall be weighed individually at Aragonite prior to being fed to the incinerator. This weight shall be recorded in the facility operating record. If this container was shipped from another Clean Harbors facility, the container(s) weight information will already be populated in WIN and that weight maybe used instead of weighing the container again.

If the waste is not sampled and analyzed, the profile and manifest will be reviewed to establish the characteristics that identify the proper management of the waste while at the facility.

3.3 Determination of Incineration Parameters

Incineration parameters for routine wastes will be based on the analysis taken of each shipment that is destined for incineration at the facility. For those wastes which cannot be sampled or analyzed during the normal receiving process the facility will develop set(s) of incineration parameters for each category of waste using the procedures described in Sections 3.3.2 - 3.3.8

below.

3.3.1 Routine Wastes

This section describes the methods for determining the incineration parameters (Table 4) for routine wastes received at Aragonite. Section 3.3.1.1 describes the procedures for containerized wastes that have not been commingled with other wastes. Sections 3.3.1.2 and 3.3.1.3 describe the requirements for wastes that have been processed and/or commingled with other wastes prior to incineration.

3.3.1.1 Containerized Wastes

Container shipments are sampled as described in Section 4.8. The sample composites are analyzed for the incineration parameters listed in Table 4 prior to incineration.

3.3.1.2 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 D5058-90 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 4 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.

3.3.1.3 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 D5058-90 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 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 4 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 or transferred into the feed tank from other tank(s) (e.g., when material from T-404A, T-404B-East or T-403 is being shredded or 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 will be estimated using weighted averages of the incineration parameters analyzed for individual rolloffs or end dumps placed in the tank 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 3) 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. Mixing will be accomplished with a backhoe, or equivalent, that 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.

3.3.1.4 Commingled Wastes for the Shred Tower

Containers will be selected for the shred tower process through profile review and knowledge of the chemicals in each container. No oxidizers, infectious wastes/sharps, explosives, water reactives, or compressed gas cylinders are allowed to be processed in the shred tower.

Materials are processed in the shred tower in “feed drops”. A feed drop consists of a combination of barrels, boxes, overpacks, and other containers up to 52" x 48" x 60". These containers can either be on a pallet or on a slip-sheet. A feed drop for the shred tower will be compiled by checking for compatibility by using EPA-600/2-80-076 or ASTM Method D5058-90 Test Method A. Each such evaluation for compatibility will be documented in the operating record. No incompatible materials will be placed on the same feed drop or placed next to each other on the conveyor belt. When a feed drop is incompatible with the previous feed drop, the shred tower will be purged prior to feeding the incompatible feed drop. The purge will consist of a minimum of two drops of stacked pallets and two bags of vermiculite, or two feed drops of material that is compatible with the incompatible feed drops. This will ensure incompatible materials will not mix while in the shredder or auger.

The incineration chemistry of each of the containers making up the feed drop will be determined as described in this plan. The chemistry of the feed drops will then be determined by using a mass balance of the chemistry of the waste contained in the containers of the feed drop. The chemistry will be applied to the entire weight of the feed drop, which includes the weight of the drums. The weight of the feed drop is determined by the combined weight of containers and material when they were accepted. There will be preprogramed chemistry determined for feed drops of pallets and vermiculite. Material will be considered incinerated as it enters the upper shred chamber (i.e., after it exits the airlock).

3.3.2 Lab Packs

Since individual containers in lab packs are not sampled or analyzed upon receipt at the Aragonite facility, the process used to determine the incineration parameters for these lab pack materials differs from the one provided for routine wastes in Section 3.3.1. The process for lab packs relies on the development of an average (or mean) plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, and the application of this set of values to each type of lab pack received by the facility. Using the process outlined below, the facility will develop a matrix that provides a unique set of incineration parameters for each type of lab pack that is received. The type of lab pack received will be based upon the DOT hazard class code.

For each lab pack DOT hazard class code, Aragonite will randomly select fifty (50) lab packs (Example: 50 lab pack containers shipped as DOT class 9 are selected). The inner containers in each of the selected lab packs are composited into one sample. The composite sample will then be analyzed for all incineration parameters in Table 4. The average and two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, for the composite samples will be determined and will represent the incineration parameters for the lab pack classification. This process will be repeated for each lab pack DOT hazard class. Once this process has been completed for all DOT hazard classes, the matrix will be populated with incineration parameters for each lab pack hazard class. Subsequently, whenever a lab pack is incinerated, it will be assigned the incineration parameters from the matrix that corresponds to the DOT hazard class of the lab pack.

The evaluation process will be repeated with a minimum of 10 lab pack containers from each DOT hazard class annually and the matrix updated annually to ensure that it reflects the current mix of lab packs received by the facility. Further, the process will be conducted and the matrix updated whenever a lab pack is received at the facility with a DOT hazard class code that has not been previously received.

Records of supporting analyses and calculations used to determine lab pack incineration parameters will be maintained in the facility operating record.

As an alternative, the inventory sheets that accompany specific lab pack shipments may be used to develop incineration parameters instead of using the matrix parameters. Aragonite will document how the incineration parameters for these specific wastes are calculated from the inventory sheets.

3.3.3 Consolidation Containers

Individual containers shipped in consolidation containers are not sampled or analyzed at the Aragonite facility. The process used to determine incineration parameters for these consolidated materials relies on the development of an average (or mean) plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, and the application of this set of values to each type of consolidation container received by the facility. Using the process outlined below, the facility will develop a matrix that provides a unique set of incineration parameters for each type of consolidation container that is received. The type of consolidation container received will be based upon the DOT hazard class code.

For each consolidation container DOT hazard class code, Aragonite will randomly select fifty (50) consolidation containers. Each type of material (paint, caulking, aerosol, etc.) in the consolidation container will be identified and a relative percentage of the material in each of the containers determined. To develop the incineration parameters for each material, special homogenizing and blending methods, such as cryogenic shredding, will be used to generate analytical data from samples of each type of material. The incineration parameters may also be determined from the description of the material, generating process, generator knowledge, literature searches, good engineering judgment, and data generated by the facility on similar waste streams. If the consolidation container holds containers that contain more than four ounces of a material for which a representative sample can be obtained and analyzed, a representative sample of the material in the inner containers will be collected and analyzed for the parameters on Table 4.

Using the analytical data for each of the materials in the sampled container and the relative percentage of the material in the container, the values of the incineration parameters for that container will be determined. The average and two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, for the individual sampled consolidation containers will then be determined and will represent the incineration parameters for that consolidation container classification. This process will be repeated for each consolidation container DOT hazard class. Subsequently, whenever a consolidation container is incinerated, it will be assigned the incineration parameters of the applicable consolidation container hazard class.

The evaluation process will be repeated and the incineration parameters updated annually with a minimum of 10 containers from each DOT hazard class to ensure that it reflects the current mix of materials held within consolidation containers. This new data will be added to the current data and a new average plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, calculated. Further, the process will be conducted and the incineration parameters updated whenever the facility has information that the current mix within the consolidation containers being received is not representative of that class of consolidation containers.

Records of supporting analyses and calculations used to determine incineration parameters for consolidation containers will be maintained in the facility operating record.

3.3.4 Debris

Individual containers and bulk shipments of debris are not sampled or analyzed at the Aragonite facility. The process for determining the incineration parameters for debris relies on the development of an average (or mean) plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, and the application of this set of values to each type of debris containers or bulk shipments received by the facility. Using the process outlined below, the facility will develop a matrix that provides a unique set of incineration parameters for each type of debris that is received. The type of debris received will be based upon the DOT hazard class code.

For each debris DOT hazard class code, Aragonite will randomly select fifty (50) debris containers (including rolloffs) shipped. Each type of debris (wood, steel, pipe, bricks, plastic, etc.) in the debris container will be identified and a relative percentage of the material in each of the containers determined. To develop the incineration parameters for the debris, techniques such as, but not limited to, scarifying, scraping, pulverizing, homogenizing, or wiping will be used to generate analytical data from samples of each type of debris. The incineration parameters may also be determined from the description of the material, generating process, generator knowledge, literature searches, good engineering judgment, and valid data generated by the facility or customers on similar waste streams.

Using the analytical data for each of the materials in the sampled container and the relative percentage of the material in the container, the values of the incineration parameters for that container will be determined. The average and two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, for the individual sampled debris containers will then be determined and will represent the incineration parameters for that debris container classification. This process will be repeated for each debris DOT hazard class. Subsequently, whenever a debris container, or a batch from a bulk shipment, is incinerated, it will be assigned the incineration parameters of the applicable debris hazard class.

The evaluation process will be repeated with a minimum of 10 containers (including rolloffs) from each DOT hazard class and the incineration parameters updated annually to ensure that it reflects the current mix of materials held within each type of debris container. This new data will be added to the current data and a new average plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, calculated. Further, the process will be conducted and the incineration parameters updated whenever the facility has information that the current mix within the debris containers being received is not representative of that class of debris.

Records of supporting analyses and calculations used to determine incineration parameters for debris will be maintained in the facility operating record.

3.3.5 Consumer Products, Pharmaceuticals, and Gas Cylinders

Individual containers shipped in consumer product / pharmaceutical containers are not sampled or analyzed at the Aragonite facility. The process used to determine incineration parameters for these materials relies on the development of an average (or mean) plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, and the application of this set of values to each type of consumer product / pharmaceutical received by the facility. Using the process outlined below, the facility will develop a matrix that provides a unique set of incineration parameters for each type of consumer product / pharmaceutical that is received. The type of consumer product / pharmaceutical received will be based upon the DOT hazard class code.

For each consumer product / pharmaceutical DOT hazard class code, Aragonite will randomly select fifty (50) consumer product / pharmaceutical containers. Each type of material (shampoo, pills, liquid medicine, etc.) in the consumer product / pharmaceutical container will be identified and a relative percentage of the material in each of the containers determined. To develop the incineration parameters for each material, special homogenizing and blending methods, such as cryogenic shredding, will be used to generate analytical data from samples of each type of material. The incineration parameters may also be determined from the description of the material, generating process, generator knowledge, literature searches, good engineering judgment, and valid data generated by the facility on similar waste streams. If the consumer product / pharmaceutical container holds containers that contain more than four ounces of a material for which a representative sample can be obtained and analyzed, a representative sample of the material in the inner containers will be collected and analyzed for the parameters on Table 4.

Using the analytical data for each of the materials in the sampled container and the relative percentage of the material in the container, the values of the incineration parameters for that container will be determined. The average and two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, for the individual sampled consumer product / pharmaceutical containers will then be determined and will represent the incineration parameters for that consumer product / pharmaceutical classification. This process will be repeated for each consolidation container DOT hazard class. Subsequently, whenever a consumer product / pharmaceutical container is incinerated, it will be assigned the incineration parameters of the applicable consumer product / pharmaceutical hazard class.

The evaluation process will be repeated and the incineration parameters updated annually with a minimum of 10 containers from each DOT hazard class to ensure that it reflects the current mix of materials held within a consumer product / pharmaceutical container. This new data will be added to the current data and a new average plus two standard deviations, or the maximum, for Btu, and three standard deviations, or the maximum, for each of the other incineration parameters in Table 4, calculated. Further, the process will be conducted and the incineration parameters updated whenever the facility has information that the current mix within the consumer product / pharmaceutical containers being received is not representative of that class of consumer product / pharmaceuticals.

Records of supporting analyses and calculations used to determine incineration parameters for consumer products and pharmaceuticals will be maintained in the facility 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. Alternatively, Aragonite may feed each cylinder separately using its own incineration chemistry.

3.3.6 Controlled Substances

In compliance with DEA regulations, individual containers of controlled substances are not sampled or analyzed at the Aragonite facility. A predetermined controlled substances matrix, located in Table 6, shall be used for all DEA-regulated materials received at the Aragonite facility. However, if the profile and/or packing list (e.g., form 41) indicate that there are chemicals or compounds in addition to DEA wastes that could affect the incineration chemistry, these chemicals or compounds will be factored into the incineration chemistry.

3.3.7 Infectious Wastes

Individual containers of infectious waste are not opened for purposes of inspecting, sampling, or analyzing at the Aragonite facility. Reusable primary containers packed with sealed inner containers or sharps may be opened for purposes of repackaging the sealed inner containers or sharps into containers destined for incineration via drum dump or direct feed. The facility will not, at any time, open any of the sealed inner containers being repackaged. The process for determining the incineration parameters for infectious wastes relies on the use of the matrix that is found in Table 5. The incineration parameters provided in Table 5 were determined from literature information, historic generator profile information, generator analysis, and limited facility testing.

Infectious wastes will be subcategorized into Hi-merc or Low-merc subcategories based on the presence or absence of mercury disinfectants and / or cleaners in the profile and the concentration of mercury in the waste. For the determination of incineration parameters, infectious wastes will be subcategorized into Hi-Merc and Low-Merc depending upon the concentration of mercury in the waste. Low-Merc infectious waste will be considered any infectious waste with a mercury concentration <300 ppm. Hi-Merc infectious waste will be considered any infectious waste with a mercury concentration >300 ppm up to 2,500 ppm. For burn chemistry planning, Low-Merc waste will assume the container has 300 ppm mercury and High-Merc waste will assume the container has 2,500 ppm mercury. Any infectious waste container profiled with >2500 ppm mercury can be approved for management, but incineration parameters will be based on the profiled mercury concentration.

3.3.8 APHIS Wastes

The facility will follow all APHIS permit and regulatory requirements to insure noxious seeds, weeds or pests do not escape the feed tanks and equipment. Once the APHIS waste is completely processed, any tanks and equipment used in the material transfer will be decontaminated using a disinfecting solution. Used solution will be containerized and burned in the incinerator as in-house waste. The incineration parameters for APHIS waste will be determined from the analysis of the sample collected. Alternatively, if a sample is not required as described in Section 3.2.8, the determination of the incineration parameters for the wastes relies on the use of information provided by the generator on the waste profile. Aragonite will document how the incineration parameters for these specific wastes are calculated from the profile.

Table 3 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 4 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.
PCBs	PCB concentration is required in order to maintain compliance with the TSCA 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.

Table 5
Infectious Waste Matrix

	Low Mercury Infectious Waste (Low-Merc)	High Mercury Infectious Waste (Hi-Merc)
Arsenic (ppm)	30	30
Beryllium (ppm)	15	15
Cadmium (ppm)	6	6
Chromium (ppm)	30	30
Lead (ppm)	30	30
Mercury (ppm)	300	2,500
Fluoride (ppm)	60	60
PCB (ppm)	0	0
Halogen (ppm)	10,000	10,000
BTU (Btu/lb)	8263	8263
Specific Gravity	1.5	1.5
Bulk Density (lb/ft^3)	104.1	104.1

The matrix provided in here has been developed using historic information available to the facility. It will be modified as needed to reflect new information or to add specific constituents that have been identified on customer profiles.

Table 6
Controlled Substances Matrix

Arsenic (ppm)	10
Beryllium (ppm)	9
Cadmium (ppm)	8
Chromium (ppm)	28
Lead (ppm)	219
Mercury (ppm)	.31
Fluoride (ppm)	480

PCB (ppm)	0
Halogen (ppm)	9908
BTU (Btu/lb)	10752
Specific Gravity	1.8

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 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 UDWMRC.

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 Labeling

Samples will be labeled to provide identification of samples. The sample 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

Bar code labels may be used as an alternative to, or in conjunction with, the labeling indicated above. The bar code will directly tie the collected sample with the waste stream that was received and may be used to track the sample through waste analysis.

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~~9 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 that 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 that represents that particular mix of bulk solids.

4.~~11~~10 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 that represents that particular bulk solids shipment.

Bulk liquids are sampled by using a COLIWASA or similar device that 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. This is the only case in which the incoming load sample may be collected off-site.

4.~~12~~11 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. Alternatively, containers may be placed on the receiving floor until thawed. 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 5. 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); 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; and 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 7 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 7, 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 Director.

TABLE 7
ANALYTICAL PARAMETERS AND ASSOCIATED METHODS

PARAMETER	METHOD NUMBER	REFERENCE
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)
*Alumina Column Cleanup	3610A	(1)
Aluminum (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Antimony (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Arsenic (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Ash	D482-07	(2)
Barium (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Beryllium (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Bromide	9056A	(1)
Cadmium (ICP)	6010B, 6010C, 6020A	(1)
Calcium (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
*Carbamate pesticides (LCMS)	8321	(1)
Chloride	9252A, 9253	(1)
Chloride (Ion Chromatography)	9056A	(1)
Chlorinated Herbicides	8150B, 8151A, 8150B/8151-MOD	(1) (1)
Chromium (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Cobalt (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Copper (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
*Continuos Liquid-Liquid Extraction	3520C	(1)
Fluoride (Ion Chromatography)	9056A	(1)
Fluoride (Potentiometric, Ion Specific Electrode)	340.2 5050	(3) (1)
Florisil Column Cleanup	3620B	(1)
Gas Chromatography	8000C	(1)
Gas Chromatography/Mass Spectrometry for Volatile Organics	8260B, 8260C	(1)
Gas Chromatography/Mass Spectrometry for Semi-volatile Organics	8270C, 8270D	(1)

TABLE 7 ANALYTICAL PARAMETERS AND ASSOCIATED METHODS		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Gel-Permeation Cleanup (GPC)	3640A	(1)
Headspace	3810	(1)
Heat of Combustion (BTU)	D240-09	(2)
Ion Chromatography	9056A	(1)
Ignitability Liquid, actual flashpoint, no suspended solids	1020B-MOD, 1010	(1)
Ignitability Liquid, at 140°F, no suspended solids	1020B-MOD	(1)
Ignitability Liquid, room temperature	D4982-95	(2)
Ignitability Liquid, actual flashpoint, suspended solids (sludge)	1010, 1020B-MOD	(1)
Ignitability Sludge, at 140°F	8b, 1020B-MOD	(4)(1)
Ignitability Solids, room temperature	D4982-95	(2)
Ignitability Solids, at 140°F	1020B-MOD	(1)
Iron (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Lead (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
LEL	14	(4)
Liquids, Sludge Compatibility (see note 3)	D5058-90 Test Method A	(2)
Magnesium (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Manganese (ICP) (ICPMS)	6010B, 6010C, 6020A	(1)
Mercury Cold Vapor (AA)	7470A, 7471B	(1)
Microwave Assisted Acid Digestion of Aqueous Samples and Extracts	3015A	(1)
Microwave Assisted Acid Digestion of Sediments, Sludges, Soils and Oils	3051A	(1)
Moisture (organic liquids)	D1533	(2)
Moisture (Inorganics)	2540B	(5)
Molybdenum (ICP)	6010B, 6010C, 6020A	(1)
Nickel (ICP)	6010B, 6010C, 6020A	(1)
Nitrate/Nitrite Ion Chromatography	9056B	(1)
Nitrogen, Total	7.025-7.031	(7)
Nonhalogenated Volatile Organics	8015B	(1)
Organic Extraction and Sample Preparation	3500A	(1)

TABLE 7 ANALYTICAL PARAMETERS AND ASSOCIATED METHODS		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
Organochlorine Pesticides	8080A, 8081A	(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)
PCBs	8082A	(1)
*PCB and Pesticides (GC/MS)	680	(6)
PCB Wipes	5503	(8)
pH Electrometric	9040C	(1)
pH Paper	9041A	(1)
pH Waste	9045D	(1)
pH Solids	9045D	(1)
Physical Description	D4979-89	(2)
Potassium (ICP)	6010B, 6010C, 6020A	(1)
Purge-and-Trap	5030B, 5030C	(1)
Radioactivity Screen	6	(4)
Reactive Cyanide Screen (Spot Test) Confirmation (see note 2)	D5049-90 Test Method A	(2)
Reactive Cyanide Screen (Dräger) 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 (Dräger) 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)	6010B, 6010C, 6020A	(1)
Separatory Funnel Liquid-Liquid Extraction	3510C	(1)
Silica Gel Cleanup	3630B	(1)
Silver (ICP)	6010B, 6010C, 6020A	(1)
Sodium (ICP)	6010B, 6010C, 6020A	(1)

TABLE 7 ANALYTICAL PARAMETERS AND ASSOCIATED METHODS		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
Solids Compatibility	N/A	(9)
Ultrasonic Extraction	3550B, 3550C	(1)
Soxhlet Extraction	3540B, 3540C	(1)
Specific conductance	120.1	(3)
Specific Gravity	D1429-86-MOD	(2)
*Sulfides	9030A, 9030B, 9031	(1)
Sulfate Ion Chromatography	9056B	(1)
*Sulfur (ICP)	6010B, 6010C, 6020A	(1)
Sulfur Cleanup	3660A, 3660B	(1)
Sulfuric Acid Cleanup	3665A	(1)
Thallium (ICP)	6010B, 6010C, 6020A	(1)
Tin (ICP)	6010B, 6010C, 6020A	(1)
TCLP	1311	(1)
Total and Amenable Cyanide (Colorimetric, Manual)	9010C, 9014	(1)
*Total and Amenable Cyanide (Colorimetric, Automated UV)	9012	(1)
Total Organic Carbon	9060	(1)
Total Halogen	5050, 9253	(1)
Vanadium (ICP)	6010B, 6010C, 6020A	(1)
Viscosity	D2983-87	(2)
Waste Dilution	3580A	(1)
Water Reactivity Screen (see note 1)	D5058-90 Test Method C	(2)
Zinc (ICP)	6010B, 6010C, 6020A	(1)

** Off-site laboratory only*

TABLE 7
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 or microroentgen per hour. 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 UDWMRC. 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 1020B. Instead of an actual flash point determination as outlined in the 1020B, 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 R315-268 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 re-incineration. Re-incinerated 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 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 within one foot from the bottom of each rolloff.

6.9 Re-incineration and Re-analysis

Should slag 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 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

ATTACHMENT 3

INSPECTIONS

Table of Contents

1.0 Introduction

The inspections outlined in this Attachment are the minimum required. All inspections required by this permit will be documented on forms and maintained as part of the operating record. Those forms are not included in this Attachment, but a list of all required inspection items, frequencies, and what is being inspected is included as an Inspection Matrix. Although the format of the inspection forms may change, all items on the Inspection Matrix will be included on the forms and inspected.

This Inspection Attachment addresses those areas that store and or treat hazardous waste or have the potential to come in contact with hazardous waste. It addresses mainly the lab and areas south of Main Street. It also includes inspection items which pertain to the Aragonite facility's ability to respond quickly to a spill, fire, explosion or natural disaster.

All inspections are documented and the documentation is kept in the vault in the administration building. Reports may be maintained electronically or be microfilmed with the on-site capability to produce a legible hard copy. All inspection forms will note the day, the inspector's name, the time of the inspection, any deficiencies found or corrective action taken and the work order number which indicates that a repair request has been submitted to the maintenance department. If the repair is minor and the inspector can fix it (such as by replacing a sign, or getting another fire extinguisher) the notation of what was done will be made on the form rather than referencing a work order number. All items on the inspection logs will be filled in (i.e., no blanks). If a particular item is not applicable for some reason, it will be noted on the form along with the reason. Actual gauge readings from inspected apparatus where gauges are present or readings are taken will be noted on the inspection logs.

2.0 Frequency of Inspections

The Inspection Matrix specifies the minimum frequency of inspection for each required item. The following outlines the basis for the frequencies specified in the Inspection Matrix.

2.1 Daily

- Loading and unloading areas when in use.
- Operability of doors on Buildings 68, 69-North and 69-South when in use.
- Aboveground piping visually inspected for leaks.
- Tank systems for leaks, leaking pumps, leaking piping, gauge readings, data gathered from the leak detection equipment, monitor printouts, equipment operation, waste levels, emission control equipment, indications of leaks or spills, use of overflow equipment, detect corrosion, secondary containment integrity, seal pot liquid level above the bottom of pipe to form a seal, and nitrogen blanket on tank. Spills/leaks must be cleaned up with 24 hours.

- Welded flanges, joints, connections.
- Tank monitoring equipment.
- Inspect incinerator and associated equipment (e.g., pumps, valves, conveyors, pipes, etc.) for leaks, spills, fugitive emissions, deterioration, excessive wear, and signs of tampering.
- Visually inspect the incinerator monitoring instrumentation for out of tolerance and/or recorded operational data.
- Kiln combustion air system.
- Continuous Emissions Monitoring System.
- Temperature in refrigerated trailers when in use.
- Cylinder storage area when in use.
- Cylinder feed station when in use.
- Drum pumping storage area when in use.
- Drum pumping station when in use.
- Shred tower when in use.

2.2 Weekly

- Carbon vent systems
- Condensation traps
- Fire pump check
- Emergency generator check
- Eyewash and showers
- Perimeter lights, signs on fence, fence
- Containers and containment systems
- Test alarm system
- Carbon vent systems

2.3 Monthly

- Fire Extinguishers
- Tank secondary containment system for indications of cracks, gaps, and peeling of the epoxy sealant.

2.4 Quarterly

- Potable water system check must be done for the Utah Division of Drinking Water.
- Spill kit inspection. The required spill kits and contents of each kit are outlined in the Preparedness and Prevention Plan (Attachment 5). If used, the kits must be

fully restored prior to being placed in-service. The kits will also be inspected once per quarter to insure their integrity.

- Evacuation drills.

2.5 Annual

- The closed vent system between the bulk solids building, the shredder, the apron feeder, the sludge receiving tank and the inlet to the ID fans (both kiln/ABC combustion air fans and the carbon adsorption system ID fan) will be inspected initially and annually thereafter for holes, gaps, loose connections, etc. that could lead to air pollution emissions.
- The duct work sections between the carbon adsorption system ID fan (K-401) and the carbon adsorbers, and between the combustion air fans (K-101 and K-102A/B) and the incinerator will be monitored initially and annually thereafter by EPA Method 21 to ensure there are "no detectable emissions" (no readings greater than 500 ppm above background levels). All components and connections will be visually inspected each year after the initial monitoring to check for defects that could lead to air emissions. Any components that are repaired or replaced will be monitored to ensure that it operates with no detectable emissions.
- The sludge receiving tank fixed roof and its closure devices will be inspected initially and annually thereafter for defects such as cracks, holes, gaps, broken, cracked, or otherwise damaged seals, broken or missing hatches, access covers, caps, or other closure devices, etc.

2.6 Other

- When the hydrocarbon vent system carbon canisters are in operation, they must be monitored every 3 hours for breakthrough.
- The ~~direct burn vessel (DBV), the~~ drive through direct burn system, the truck unloading direct burn system, the direct burn corrosive feed system, the sludge pad direct burn system, and the drum pumping station must be inspected at least once each operating hour when hazardous waste is being transferred from the ~~DBV,~~ drive through direct burn tanker, the truck unloading direct burn tanker, the direct burn corrosive tanker/tote, the sludge pad direct burn tanker, or container in the drum pumping station to the kiln/afterburner.
- The sludge and bulk solids tanks will be emptied and inspected every four years for the general condition and to measure the corrosion of each tank.
- All of the blend and aqueous tanks will be emptied and inspected every five years for the general condition and to measure the corrosion of each tank.

3.0 Types of Problems

The personnel conducting the inspections shall be trained on the types of problems they should be looking for. The Inspection Matrix briefly outlines the types of problems that will be looked for. However, more detailed, written instructions describing what the inspector should look for, the acceptable criteria (e.g., gauge readings, liquid levels, valve positions, etc.), and the proper notation to be placed on the inspection log (e.g., "ok", "x", "clean", "out-of-service", etc.) for each inspection item will also be used by the inspectors. These instructions may be specified on the form itself, or they may be specified in instructions which will accompany the applicable log.

The following sections outline some of the items that will be looked for during the inspections. Additional detail will be included in the instruction book and communicated to the inspectors. These instructions shall be developed with sufficient detail to avoid inconsistencies and confusion between inspections and log entries between different inspectors. These instructions will be in place for all items on the Inspection Matrix.

Any item currently out-of-service or active work orders will be listed on the backlog list maintained by maintenance and on the inspection forms. A historical list of out-of-service items or work orders will also be maintained on paper or electronically.

3.1 Containers

Hazard labels, AG barcode labels with green acceptance labels or marks on the barcode, which are required for storage of the containers, are inspected. Unique barcode labels (identified by “REPACK” or “CONS” (for consolidate) on the barcode) are used for repacks and the green label or mark on the barcode is not required. Any labels that have fallen off are replaced. Label deficiency is noted on the weekly form and corrected in-place.

The drums and containers are inspected to ensure that the lids/covers and bungs are in place.

The containers are inspected for signs of corrosion. The drum/container will be overpacked/ repackaged if it has lost its integrity.

Drums/containers are inspected for leaks. If a leak is found, the source of the leak is determined. The contents may be transferred to another suitable container. Absorbent is used to contain and cleanup the spilled liquid. As an alternative, the container may be overpacked into a salvage drum.

The stacking of containers is inspected to ensure stability. There is also a check for the minimum required aisle space.

Compressed gas cylinders are checked for leakage daily by walkthrough monitoring with a photo ionization detector and color indicating tubes.

3.2 Tanks

Tanks are inspected to determine that the overflow has not been used, the seal pot has integrity, and nitrogen is blanketing the tank farm tanks and sludge storage tank (T-401). Tank level is checked to determine compliance with the capacity limitations.

Each tank is inspected once per day to detect corrosion or erosion and leaking of fixtures or seams.

The overfilling control equipment is inspected visually every day. The seal pot is checked to determine if liquid level is above the discharge pipe which maintains the seal. The tank and its auxiliary equipment, i.e., pump, levels, piping, valves, seals, etc. will be checked.

Equipment used to off-load, such as hoses and couplings, are visually inspected after each use. The unloading bay is sufficient to contain a tanker spill in case of ultimate failure by a hose. The hose will be replaced on any visual indication of a leak.

Data collected on all monitoring equipment, such as pressure gauges, level indicators, etc. is logged each day to ensure that the tank is operating according to design specifications and operation procedures. Plant maintenance is responsible for all calibration.

The level of waste in each tank (including bulk solids) is checked at least once each day to ensure that the tanks have not exceeded their permitted capacity.

The bulk solids tanks are in a building. Inside the tanks and the areas above the tanks within the internal walls of the building are treated as a confined space. There is a walkway that runs under the bulk solids tanks. The tanks set on 12" beams. The inspector will walk underneath the bulk solids tanks and check for leaks under the four tanks: T-403, T-404A, T-404B-East, and T-404B-West. The inspector illuminates the area under each tank to look for leaks. If there are any leaks, a spill report will be prepared. If the leak came from a tank, then the tank will be declared out-of-service and the contents of the leaking tank will be transferred to another bulk solids tank.

The blend liquids and aqueous tanks are emptied and visually inspected and the shell thickness measured at least once every five years. A similar inspection and measurement of the sludge and bulk solids tanks is conducted at least once every four years. A report of these inspections will be retained on-site.

All the tanks (except the bulk solids tanks, T-403, T-404A and T-404B East and West, and the sludge receiving tank, T-406) contain manways to allow access for visual inspections. Tank entry procedures will conform to OSHA standards for confined space entry.

Should the tank be found defective, it will be taken out of service and repaired or replaced. Defective is defined as a leak, bulge, or a split seam.

3.3 Incinerator

The inspection schedules for the incinerator are included in this section. The waste feed flow is recorded continuously as are the combustion parameters, such as air, oxygen, temperature, etc. Also, parameters that are mandated in the permit will be monitored at the frequency specified.

Daily inspections at the incinerator will be conducted for all equipment associated with the incinerator train, material feed systems, process and residue handling system. The inspector will check for leaks or spills, fugitive emissions, and signs of tampering. Any evidence of leaking must be reported to the shift supervisor as a possible indication of a worn seal.

The emergency waste feed cut-off controls and alarms will be tested every 168 operating hours. The test is detailed in Attachment 12.

3.3.1 Instruments

The instrument checklist is signed off by a shift supervisor daily. All of the instruments critical to monitoring the incinerator and gas cleaning process are included on the checklist. These are listed on the Inspection Matrix. The supervisor signs off that the instrument is in good working order.

Typically, the shift supervisor and operators will be looking for the following indications of faulty instruments:

Thermocouples. The transmitters are set up to have the 4-20 ma signal fail low if the thermocouple breaks and fail high if the transmitter fails. In either case, the signal will show in the plant control system as "BAD" and provide a "SENSOR" alarm. Various other conditions could cause the reading to drift. An instrument will be checked if the variation in reading between any two instruments is greater than 10% of the lower value.

Oxygen Probes. These instruments will generally fail high. By comparison to each other and the oxygen probe in the stack, response of each instrument to the process, and visual examination of process conditions, a determination can be made of which instrument is reading correctly.

Pressure Transmitters. If the transmitter fails, the signal should fail to the low end of the span. If the measuring diaphragm is damaged, then the signal should read zero, which may not be the low end of the span. If the sensing line is plugged, then the signal will not vary during changing process conditions. The process can also be used to determine if a pressure instrument has failed by comparison to other pressure instruments in the process.

Flame Sensors. These will fail open indicating no flame. Since each BMS has two flame sensors both would have to fail during running to trip the BMS. In the process of relighting the burner, the bad flame sensor would be found.

Pressure Switches. Failure of these devices can only be determined by process conditions. A specific action is expected under certain process conditions. If that does not occur, then the switch is considered bad.

Magnetic Flowmeters. These instruments are set to fail low when the signal strength fails. The instruments would be reading correctly otherwise.

pH Probes. Deposit build-up on the probe can cause the reading to respond very slowly or even not at all.

3.4 Sumps and Secondary Containment Areas

Sumps are inspected daily to determine if they contain liquids or other material. The locations of the sumps subject to these inspection requirements are found on Drawings D-034-M-002 SP and SK-090-997-AR in Attachment 10.

If a sump, drip pan, or secondary containment area contains any material, it will be emptied within 24 hours of discovering the contents. This means that all material, liquid, solid, or both, will be removed. If ongoing precipitation prevents the emptying of all material from a sump or secondary containment system located outside of a building, the sump or secondary containment system will be emptied within 24 hours of the end of the precipitation event. If this occurs, an explanation to this effect, and the time and date of the end of the precipitation event will be noted on the inspection forms. However, sufficient material must be removed during the event to maintain sufficient secondary containment capacity of the system. Solid material which accumulates in sumps inside buildings from the routine processing of containers (e.g., dried mud falling off of pallets, small pieces of wood from pallets, dust, etc. (but not spill material)) will be noted on the daily inspection forms but may be removed weekly.

Any material removed will be managed as a hazardous waste except for liquid collected in sumps SP-614A, B, C, and D and their associated bermed areas which is returned to the neutralization system for use in the process. It will follow the management procedures as outlined in the Waste Analysis Plan (Attachment 1).

3.5 Closed Vent Systems and Carbon Adsorbers

The combustion air ductwork and the ductwork for the backup carbon adsorbers will be visually inspected annually. The inspections will look for leaks, holes, cracks, gaps, etc. which could lead to emissions from the ductwork and the carbon adsorption vessels.

3.6 Other Areas

Safety and security inspections are made of the fence, locks, fire extinguishers, alarms, eyewash stations and showers. In addition, the fire pumps, both electric and diesel are started-up and checked for operability. The emergency generator is also started-up with oil and gas checks for operability. Drawing D-034-M-005 in Attachment 10 specifies the location of this equipment.

Two spill kits are located at opposite ends of the plant. There will also be one located for the container management buildings (in building E-4). Each kit is inspected for complete inventory. If the seal is broken, the inventory sheet is checked, initialed and placed back in the spill kit. A quarterly check will be made to determine integrity of the contents of the spill kit.

4.0 Corrective Action

All items on the inspection logs will have a notation of their status (i.e., blanks will not be used to indicate that an item was acceptable or that the status had not changed). If the status is not acceptable, there will be a notation of the corrective actions performed (if it can be fixed immediately) or a reference to a work order if additional work needs to be done.

The method of documenting that a request for repair has been made is through the work order system. That same system is also used to indicate when the work has been completed. The form itself may change but will contain sufficient information to be able to clearly track all the work completed.

All work orders will clearly indicate the work that was performed. It will also indicate who performed the work. It will also clearly indicate that all of the required work is completed and the date of completion. If some of the work is done but additional work is needed, this will be noted on the work order or reference additional work orders.

Any malfunction or deterioration discovered by an inspection shall be corrected within 72 hours. If the remedy requires more time, Clean Harbors Aragonite will submit to the Director, before the expiration of the 72-hour period, a proposed time schedule for correcting the problem. All corrective actions will be completed in a timely manner. Until the problem is corrected, the equipment will be declared out-of-service. This will be noted on the inspection logs.

For purposes of these reporting requirements, deterioration shall be reported to the Director when it has proceeded to such an extent as to make the device inoperable or unable to function according to its intended purpose. However, all deterioration leading to this final state shall be noted on the appropriate inspection forms and reported internally so that corrective action will be taken when necessary.

If a problem is discovered during an inspection where a hazard to human heath or the environment is imminent or has already occurred, remedial action shall be taken immediately.

If a tank is determined to be unfit for use, it will be removed from service immediately and emptied. If the nitrogen blanket is removed the tank must be isolated from the fume management system.

5.0 Inspection Matrix

The items that will be inspected, the frequency of inspection, and a brief description of what is being inspected is contained in this section.

INSPECTION MATRIX

Inspection Item	Minimum Frequency	Types of Problems
Laboratory		
Lab refrigerators and freezers	Daily	Operable, correct temperature
Lab instrument eyewashes	Weekly	Operable
Lab instrument showers	Weekly	Operable
Lab sample prep eyewashes	Weekly	Operable
Lab sample prep showers	Weekly	Operable
Lab cooler storage secondary containment	Daily (when in use)	In place, empty
Lab cooler storage access	Weekly (when in use)	Adequate
Lab cooler storage containers	Weekly (when in use)	Bulging, leaking, corroding
Lab cooler storage containers	Weekly (when in use)	Proper placement
Lab cooler storage containers	Weekly (when in use)	Closed, bungs in
Lab cooler storage containers	Weekly (when in use)	Labels intact and legible
Lab cooler storage waste segregation	Weekly (when in use)	Incompatibility check
Lab cooler storage portable secondary containment	Monthly (when in use)	Visually free of damage

Inspection Item	Minimum Frequency	Types of Problems
Container Buildings (E-1, E-2, E-3, E-4, E-5, E-6, E-7, 68, 69-North, and 69-South)		
E-1 sump and sump in each bay (B-3, B-4, B-5)	Daily	Empty
E-1 sump at dock (SP-625)	Daily	Empty
E-1 loading/unloading area	Daily (when in use)	Leaks, spills
E-1 loading/unloading area	Monthly	Visually free of cracks, gaps, damage
E-1 debris drum	Weekly	Closed, labeled, dated, <90 days
E-1 aisles	Weekly	Adequate
E-1 containers	Weekly	Bulging, leaking, corroding
E-1 containers	Weekly	Proper placement and stacking
E-1 containers	Weekly	Closed, bungs in
E-1 containers	Weekly	Labels intact and legible
E-1 pallets	Weekly	Provide 4" clearance
E-1 eyewashes	Weekly	Operable
E-1 showers	Weekly	Operable
E-1 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-1 waste segregation	Weekly	Incompatible check
E-1 floor, berms	Monthly	Visually free of cracks, gaps, damage
E-1 carbon filters	Weekly	Operable, carbon level, free of plugging, breakthrough
E-2 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible

Inspection Item	Minimum Frequency	Types of Problems
E-2 aisles	Weekly	Adequate
E-2 containers	Weekly	Bulging, leaking, corroding
E-2 containers	Weekly	Proper placement and stacking
E-2 containers	Weekly	Closed, bungs in
E-2 containers	Weekly	Labels intact and legible
E-2 pallets	Weekly	Provide 4" clearance
E-2 eyewashes	Weekly	Operable
E-2 showers	Weekly	Operable
E-2 waste segregation	Weekly	Incompatible check
E-2 floor, berms	Monthly	Visually free of gaps, cracks, damage
E-2 repack carbon filter	Weekly	Operable, carbon level, free of plugging, breakthrough
E-3 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-3 aisles	Weekly	Adequate
E-3 containers	Weekly	Bulging, leaking, corroding
E-3 containers	Weekly	Proper placement and stacking
E-3 containers	Weekly	Closed, bungs in
E-3 containers	Weekly	Labels intact and legible
E-3 pallets	Weekly	Provide 4" clearance
E-3 eyewashes	Weekly	Operable
E-3 showers	Weekly	Operable

Inspection Item	Minimum Frequency	Types of Problems
E-3 waste segregation	Weekly	Incompatible check
E-3 floor, berm	Monthly	Visually free of cracks, gaps, damage
E-4 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-4 aisles	weekly	Adequate
E-4 containers	Weekly	Bulging, leaking, corroding
E-4 containers	Weekly	Proper placement and stacking
E-4 containers	Weekly	Closed, bungs in
E-4 containers	Weekly	Labels intact and legible
E-4 pallets	Weekly	Provide 4" clearance
E-4 eyewashes	Weekly	Operable
E-4 showers	Weekly	Operable
E-4 decant eyewash/shower	Weekly	Operable
E-4 repack eyewash/shower	Weekly	Operable
E-4 waste segregation	Weekly	Incompatible check
E-4 floor, berms	Monthly	Visually free of cracks, gaps, damage
E-4 sump at dock (SP-627)	Daily	Empty
E-4 loading/unloading area	Daily (when in use)	Leaks, spills
E-4 loading/unloading area	Monthly	Visually free of cracks, gaps, damage
E-4 decant LEL/O_2/HCN/H_2S alarms	Monthly	Calibrate, alarms audible

Inspection Item	Minimum Frequency	Types of Problems
E-4 repack LEL/O_2/HCN/H_2S alarms	Monthly	Calibrate, alarms audible
E-4 decant LEL/O_2/HCN/H_2S alarms	Weekly	Instruments operable
E-4 repack LEL/O_2/HCN/H_2S alarms	Weekly	Instruments operable
E-4 decant carbon filters	Weekly	Operable, carbon level, free of plugging, breakthrough
E-4 repack carbon filters	Weekly	Operable, carbon level, free of plugging, breakthrough
E-5 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-5 aisles	Weekly	Adequate
E-5 containers	Weekly	Bulging, leaking, corroding
E-5 containers	Weekly	Proper placement and stacking
E-5 containers	Weekly	Closed, bungs in
E-5 containers	Weekly	Labels legible and intact
E-5 pallets	Weekly	Provide 4" clearance
E-5 eyewashes	Weekly	Operable
E-5 showers	Weekly	Operable
E-5 waste segregation	Weekly	Incompatibility check
E-5 floor, berms	Monthly	Visually free of cracks, gaps, damage
E-5 sump and sump in each bay (B-1, B-2, B-6)	Daily	Empty
E-5 sump at dock (SP-619)	Daily	Empty
E-5 loading/unloading area	Daily (when in use)	Leaks, spills

Inspection Item	Minimum Frequency	Types of Problems
E-5 loading/unloading area	Monthly	Visually free of cracks, gaps, damage
E-5 carbon filter	Weekly	Operable, carbon level, free of plugging, breakthrough
E-6 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-6 aisles	Weekly	Adequate
E-6 containers	Weekly	Bulging, leaking, corroding
E-6 containers	Weekly	Proper placement and stacking
E-6 containers	Weekly	Closed, bungs in
E-6 containers	Weekly	Labels intact and legible
E-6 pallets	Weekly	Provide 4" clearance
E-6 eyewashes	Weekly	Operable
E-6 shower	Weekly	Operable
E-6 waste segregation	Weekly	Incompatibility check
E-6 floor, berm	Monthly	Visually free of cracks, gaps, damage
E-7 aisles	Weekly	Adequate
E-7 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-7 containers	Weekly	Bulging, leaking, corroding
E-7 containers	Weekly	Proper placement and stacking
E-7 containers	Weekly	Closed, bungs in
E-7 containers	Weekly	Labels intact and legible
E-7 pallets	Weekly	Provide 4" clearance

Inspection Item	Minimum Frequency	Types of Problems
E-7 eyewashes	Weekly	Operable
E-7 showers	Weekly	Operable
E-7 waste segregation	Weekly	Incompatibility check
E-7 floor	Monthly	Visually free of gaps, cracks, damage
E-7 LEL Alarm	Monthly	Calibrate, alarm audible
E-7 LEL Alarm	Weekly	Instrument operable
Building 68 secondary containment including tank T-611	Daily (when in use)	Empty
Building 68 doors	Daily (when in use)	Operational check
Building 68 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
Building 68 containers	Weekly	Bulging, leaking, corroding
Building 68 containers	Weekly	Proper placement and stacking
Building 68 containers	Weekly	Closed, bungs in
Building 68 containers	Weekly	Labels intact and legible
Building 68 pallets	Weekly	Provide 4" clearance
Building 68 waste segregation	Weekly	Incompatibility check
Building 68 floor, berm	Monthly	Visually free of gaps, cracks, damage
Buildings 69-North/69-South secondary containment	Daily (when in use)	Empty

Inspection Item	Minimum Frequency	Types of Problems
Buildings 69-North/69-South doors	Daily (when in use)	Operational check
Buildings 69-North/69-South alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
Buildings 69-North/69-South containers	Weekly	Bulging, leaking, corroding
Buildings 69-North/69-South containers	Weekly	Proper placement and stacking
Buildings 69-North/69-South containers	Weekly	Closed, bungs in
Buildings 69-North/69-South containers	Weekly	Labels intact and legible
Buildings 69-North/69-South pallets	Weekly	Provide 4" clearance
Buildings 69-North/69-South waste segregation	Weekly	Incompatibility check
Buildings 69-North/69-South floor, berm	Monthly	Visually free of gaps, cracks, damage
Breezeway		
Breezeway sump SP-626	Daily	Empty
Breezeway aisles	Weekly	Adequate
Breezeway eyewash	Weekly	Operable
Breezeway shower	Weekly	Operable
Breezeway alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
Breezeway floor, berms	Monthly	Visually free of cracks, gaps, damage
Breezeway containers	Weekly	Bulging
Breezeway containers	Weekly	Leaking, corroding
Breezeway containers	Weekly	Closed, bungs in

Inspection Item	Minimum Frequency	Types of Problems
Breezeway containers	Weekly	Labels intact and legible
Breezeway waste segregation	Weekly	Incompatibility check
Breezeway pallets	Weekly	Provide 4" clearance
E-1, E-5, E-4 Receiving Docks - Refrigerated Trailers and Containers		
Refrigerated trailer containers	Weekly (when in use)	Bulging, leaking, corroding
Refrigerated trailer containers	Weekly (when in use)	Proper placement and stacking
Refrigerated trailer containers	Weekly (when in use)	Closed, bungs in
Refrigerated trailer containers	Weekly (when in use)	Labels intact and legible
Refrigerated trailer pallets	Weekly (when in use)	Provide 4" clearance
Refrigerated trailer aisles	Weekly (when in use)	Adequate
Refrigerated trailers	Daily (when in use)	Temperature ≤ 40 ºF
E-1, E-5, E-4 receiving dock aisles and access	Weekly (when in use)	Adequate
E-1, E-5, E-4 receiving dock containers	Weekly (when in use)	Bulging, leaking, corroding
E-1, E-5, E-4 receiving dock containers	Weekly (when in use)	Proper placement

Inspection Item	Minimum Frequency	Types of Problems
E-1, E-5, E-4 receiving dock containers	Weekly (when in use)	Covered/closed, bungs in
E-1, E-5, E-4 receiving dock containers	Weekly (when in use)	Labels intact and legible
E-1, E-5, E-4 receiving dock pallets	Weekly (when in use)	Provide 4" clearance
E-1, E-5, E-4 receiving dock waste segregation	Weekly (when in use)	Incompatible check
E-1, E-5, E-4 receiving dock secondary containment	Monthly	Visually free of cracks, gaps, damage
Gas cylinder storage area		
Cylinder storage area cylinders	Daily (when in use)	Bulging, leaking, corroding
Cylinder storage area cylinders	Weekly (when in use)	All cylinders capped
Cylinder storage area cylinders	Weekly (when in use)	Barcodes/labels intact and legible
Cylinder storage area segregation	Weekly (when in use)	Incompatibility check
Cylinder storage area	Weekly (when in use)	All barriers and signs in place
Cylinder storage area	Weekly (when in use)	Area clear of combustible waste and vegetation
Gas cylinder feed station		
Cylinder feed station cylinders	Daily (when in use)	Bulging, leaking, corroding

Inspection Item	Minimum Frequency	Types of Problems
Cylinder feed station cylinders	Weekly (when in use)	All cylinders capped
Cylinder feed station cylinders	Weekly (when in use)	Barcodes/labels intact and legible
Cylinder feed station fittings	Daily (when in use)	Leaks, visible damage
Cylinder feed station hoses	Daily (when in use)	Leaks, visible damage
Cylinder feed station lance assembly	Daily (when in use)	Leaks, visible damage
Cylinder feed station LEL Alarm	Monthly (when in use)	Calibrate, alarm audible
Cylinder feed station LEL Alarm	Weekly (when in use)	Instrument operable
Gas cylinder feed station glove box		
Cylinder feed station glove box doors, north	Daily (when in use)	Leaks, visible damage
Cylinder feed station glove box doors, north	Weekly (when in use)	Operational check
Cylinder feed station glove box doors, south	Daily (when in use)	Leaks, visible damage
Cylinder feed station glove box doors, south	Weekly (when in use)	Operational check
Cylinder feed station glove box seals	Daily (when in use)	Leaks, visible damage

Inspection Item	Minimum Frequency	Types of Problems
Cylinder feed station glove box lexan	Daily (when in use)	Leaks, visible damage
Cylinder feed station glove box safety latches, north	Daily (when in use)	Visible damage
Cylinder feed station glove box safety latches, south	Daily (when in use)	Visible damage
Cylinder feed station glove box lance assembly	Daily (when in use)	Leaks, visible damage
Drum pumping storage		
Drum pumping storage secondary containment	Daily (when in use)	In place, empty
Drum pumping storage barriers	Daily (when in use)	In place, damage
Drum pumping storage aisles and access	Weekly (when in use)	Adequate
Drum pumping storage containers	Weekly (when in use)	Bulging, leaking, corroding
Drum pumping storage containers	Weekly (when in use)	Proper placement
Drum pumping storage containers	Weekly (when in use)	Closed, bungs in
Drum pumping storage containers	Weekly (when in use)	Labels intact and legible
Drum pumping storage waste segregation	Weekly (when in use)	Incompatibility check
Drum pumping storage portable secondary containment	Monthly (when in use)	Visually free of damage
Drum pumping storage pad	Monthly	Check for cracks, damage

Inspection Item	Minimum Frequency	Types of Problems
Drum pumping station		
Drum pumping station containers/educt system and waste feed system pump and piping integrity	Hourly (when in use)	Spill control equipment, corrosion, erosion, other damage/deterioration, releases, gauge readings
Drum pumping station secondary containment	Daily (when in use)	Empty
Drum pumping station containers	Weekly (when in use)	Bulging, leaking, corroding
Drum pumping station containers	Weekly (when in use)	Closed, bungs in
Drum pumping station containers	Weekly (when in use)	Labels intact and legible
Drum pumping station containers	Weekly (when in use)	Incompatibility check
Drum pumping station secondary containment	Monthly	Check for cracks/gaps/damage
Drum pumping station LEL Alarm	Weekly	Instrument operable
Drum pumping station LEL Alarm	Monthly	Calibrate, alarm audible
CO_2 fire suppression system	Daily (when in use)	Isolation valve open, cylinder charged and connected
Drum pumping station glove box doors	Daily (when in use)	1" WC vacuum, visible damage
Drum pumping station glove box lexan	Daily (when in use)	1" WC vacuum, visible damage
Drum pumping station glove box seals	Daily (when in use)	1" WC vacuum, visible damage
Drum pumping station grounding	Daily (when in use)	Good connections, deterioration

Inspection Item	Minimum Frequency	Types of Problems
~~Direct Burn Vessel/~~Direct Burn Tanker Systems and Container Storage/Direct Burn Corrosive System		
~~Direct burn vessel and piping integrity~~	~~Hourly (when in use)~~	~~Spill control equipment, corrosion, erosion, releases, gauge readings~~
~~Direct burn vessel berm floor and berm~~	~~Monthly~~	~~Check for cracks/gaps/damage~~
~~Direct burn vessel interior inspection~~	~~Annual (when in use)~~	~~Inspect interior of each direct burn vessel for pitting, corrosion, general condition, thickness~~
Drive through direct burn tanker, piping integrity and pump system	Hourly (when in use)	Spill control equipment, corrosion, erosion, releases, gauge readings
Drive through direct burn station secondary containment	Monthly	Check for cracks/gaps/damage
Drive through direct burn tankers/containers	Weekly (when not being fed to the incinerator)	Leaking, deterioration
Drive through direct burn station	Daily (when in use)	Check for the presence of combustible debris
Drive through direct burn station eyewash	Weekly	Operable
Drive through direct burn station shower	Weekly	Operable
Truck unloading direct burn tanker, piping integrity and pump system	Hourly (when in use)	Spill control equipment, corrosion, erosion, releases, gauge readings
Truck unloading direct burn station secondary containment	Monthly	Check for cracks/gaps/damage

Inspection Item	Minimum Frequency	Types of Problems
Truck unloading direct burn tankers	Weekly (when not being fed to the incinerator)	Leaking, deterioration
Truck unloading direct burn station	Daily (when in use)	Check for the presence of combustible debris
Truck unloading direct burn station eyewash	Weekly	Operable
Truck unloading direct burn station pad shower	Weekly	Operable
Truck unloading aisles and access	Weekly (when in use)	Adequate
Truck unloading containers	Weekly (when in use)	Bulging, leaking, corroding
Truck unloading containers	Weekly (when in use)	Proper placement and stacking
Truck unloading containers	Weekly (when in use)	Closed, bungs in
Truck unloading containers	Weekly (when in use)	Labels intact and legible
Truck unloading pallets	Weekly (when in use)	Provide 4" clearance
Truck unloading waste segregation	Weekly (when in use)	Incompatibility check
Drive through corrosive direct burn tanker/tote, piping integrity and pump system	Hourly (when in use)	Spill control equipment, corrosion, erosion, releases, gauge readings
Drive through corrosive direct burn station secondary containment	Monthly	Check for cracks/gaps/damage

Inspection Item	Minimum Frequency	Types of Problems
Drive through corrosive direct burn tanker/tote	Weekly (when not being fed to the incinerator)	Leaking, deterioration
Drive through corrosive direct burn station	Daily (when in use)	Check for the presence of combustible debris
Drive through corrosive direct burn station eyewash	Weekly	Operable
Drive through corrosive direct burn station shower	Weekly	Operable
Drive through corrosive direct burn station LEL/O_2/HCN/H_2S alarms	Monthly	Calibrate, alarms audible
Drive through corrosive direct burn station LEL/O_2/HCN/H_2S alarms	Weekly	Instruments operable
Sludge Tanks T-401 and T-406		
T-401 sump SP-620	Daily	Empty
T-406 sump SP-618	Daily	Empty
T-401	Daily	Nitrogen blanket, leaking piping, waste levels
T-406	Daily	Leaking pump(s)
sludge pit O_2 instrument/alarm	Monthly	Calibrate, alarm audible
sludge pit O_2 instrument/alarm	Weekly	Instrument operable
T-401 integrity	Daily	No visible leaks, check for corrosion
T-406 integrity	Daily	No visible leaks, check for corrosion
T-401 and T-406 interior inspection	Every Four Years	Inspect interior of each tank for pitting, corrosion, general condition, thickness

Inspection Item	Minimum Frequency	Types of Problems
T-406 berm (secondary containment system)	Monthly	Concrete free of gaps/cracks, clean
T-401 berm (secondary containment system)	Monthly	Concrete free of gaps/cracks, clean
T-401 waste level	Daily	Acceptable, record
T-406 waste level	Daily	Acceptable, record
valves for T-401 & T-406	Daily	Leaks
The sludge receiving tank fixed roof and its closure devices	Annually	Check for defects such as cracks, holes, gaps, broken, cracked, or otherwise damaged seals, broken or missing hatches, access covers, caps, or other closure devices, etc.
T-406 berm eyewash	Weekly	Operable
T-406 berm shower	Weekly	Operable
Bulk Solids Tanks		
T-403 waste level	Daily	Acceptable
T-404B-East/West waste level	Daily	Acceptable
T-404A waste level	Daily	Acceptable
T-403, T404A, T-404B-East/West interior inspection	Every Four Years	Inspect interior of each tank for pitting, corrosion, general condition, thickness
Bulk Solids Tunnel		
T-403	Daily	Evidence of leak
T-404B-East/West	Daily	Evidence of leak
T-404A	Daily	Evidence of leak
Tunnel concrete	Monthly	Visually free of cracks/gaps, clean

Inspection Item	Minimum Frequency	Types of Problems
Bulk Solids Unloading Berm/Sludge System Unloading Berm, Bulk Solids/Sludge Pad Container Storage, and Sludge Pad Direct Burn Station		
Bulk solids unloading area	Daily (when in use)	Spills
Sludge unloading area	Daily (when in use)	Spills
Concrete/secondary containment	Monthly	Free of cracks/gaps, damage, clean
Sump SP-617	Daily	Empty
Alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
Bulk solids/sludge pad storage barriers	Daily (when in use)	In place, free from damage
Bulk solids/sludge pad aisles	Weekly (when in use)	Adequate
Bulk solids/sludge pad containers	Weekly (when in use)	Bulging, leaking, corroding
Bulk solids/sludge pad containers	Weekly (when in use)	Proper placement
Bulk solids/sludge pad containers	Weekly (when in use)	Covered/closed, bungs in
Bulk solids/sludge pad containers	Weekly (when in use)	Labels intact and legible
Bulk solids/sludge pad pallets	Weekly (when in use)	Provide 4" clearance

Inspection Item	Minimum Frequency	Types of Problems
Bulk solids/sludge pad waste segregation	Weekly (when in use)	Incompatible check
Sludge pad direct burn station tankers	Weekly (when not being fed to the incinerator)	Leaking, deterioration
Sludge pad direct burn station	Daily (when in use)	Check for the presence of combustible debris
Sludge pad direct burn station pumps (P420A, B)	Hourly (when in use)	No leaks/drips observed
Sludge pad direct burn station tanker and piping integrity	Hourly (when in use)	Spill control equipment, corrosion, erosion, releases, gauge readings
Truck Unloading (E-14)		
Truck unloading areas	Daily (when in use)	Spills
West bay concrete	Monthly	Visually free of cracks/gaps/damage
Middle bay concrete	Monthly	Visually free of cracks/gaps/damage
E-14 sumps (3)	Daily	Empty
Sump SP-309	Daily	Empty
Hoses/fittings	Daily	Good condition
Piping	Daily	No leaks observed from truck unloading to tank farm
Pumps (P302A,B)	Daily	No leaks/drips observed
Alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible

Inspection Item	Minimum Frequency	Types of Problems
Truck unloading LEL alarms	Monthly	Calibrate, alarms audible
Truck unloading LEL alarms	Weekly	Instrument operable
Eyewashes	Weekly	Operable
Showers	Weekly	Operable
Thaw Shed		
Spill Kit	Quarterly	Verify contents
Fire Station		
Spill Kit	Quarterly	Verify contents
Container Building		
Spill Kit	Quarterly	Verify contents
Tank Farm Pump Houses (E-15 and E-16)		
E-15 sump	Daily	Empty
P306A	Daily	Check for leaking
P306B	Daily	Check for leaking
P303A, B	Daily	Check for leaking
E-15 nitrogen blankets for T-301 through T-324	Daily	Blanket present
E-15 piping and headers	Daily	Check for leaking, empty drip pans
E-15 containment area	Daily	Spills
E-15 eyewash	Weekly	Operable
E-15 shower	Weekly	Operable

Inspection Item	Minimum Frequency	Types of Problems
E-15 containers	Weekly	Closed container; label is current; no leaks; <90 days
E-15 concrete floor	Monthly	Free of cracks/gaps/damage
E-15 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-15 LEL alarms	Monthly	Calibrate, alarms audible
E-15 LEL alarms	Weekly	Instrument operable
E-16 sump	Daily	Empty
P304A	Daily	Check for leaking
P304B	Daily	Check for leaking
P312	Daily	Check for leaking
E-16 piping and headers	Daily	Check for leaking, empty drip pans
E-16 containment area	Daily	Spills
E-16 eyewash	Weekly	Operable
E-16 shower	Weekly	Operable
E-16 containers	Weekly	Closed container; label is current; no leaks; <90 days
E-16 concrete floor	Monthly	Free of gaps/cracks/damage
E-16 alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
E-16 LEL alarms	Monthly	Calibrate, alarms audible
E-16 LEL alarms	Weekly	Instrument operable
Tank Farm (T-301-312 and T-321-324)		
T-301-312 and T-321-324 seal pots and overflows	Daily	Check level of liquid and signs of waste

Inspection Item	Minimum Frequency	Types of Problems
T-301-312 and T-321-324 integrity	Daily	Check if tank is leaking, check for corrosion
T-301-312 and T-321-324 tank temperatures, waste levels, valve positions	Daily	Acceptable, record
T-301-304, T-305-308, T-309-312, and T-321-324 berm floors	Monthly	Check for cracks/gaps/damage
T-301-304, T-305-308, T-309-312, and T-321-324 berm walls	Monthly	Check for cracks/gaps/damage
T-301-312 and T-321-324 interior inspection	Every Five Years	Inspect interior of each tank for pitting, corrosion, general condition, thickness
Sumps SP-310A, B, C, and D	Daily	Empty
lower T-323-324 shower/eyewash	Weekly	Operable
upper T-322-321 shower/eyewash	Weekly	Operable
lower T-303-304 shower/eyewash	Weekly	Operable
upper T-303-304 shower/eyewash	Weekly	Operable
lower T-309-310 shower/eyewash	Weekly	Operable
upper T-309-310 shower/eyewash	Weekly	Operable
Tank Farm Carbon Canister Fume Management System		
condensation traps	Weekly	liquid accumulation
hydrocarbon sensor ports	3 hrs (when in use)	Breakthrough
carbon canisters	3 hrs (when in use)	Temperature
Combustion Air System Inspection		
Shredder vent duct	Daily	Check for presence of dust or liquids

Inspection Item	Minimum Frequency	Types of Problems
Bulk solids building vent	Daily	Check for presence of dust or liquids
North ABC combustion air duct	Daily	Check for presence of dust or liquids
South ABC combustion air duct	Daily	Check for presence of dust or liquids
Kiln combustion air silencer	Daily	Check for presence of dust or liquids
Drain valves/traps, Bottom of kiln, Combustion air silencer	Daily	Open and drain any liquids; record amount drained
Sludge X309	Daily	Open, drain, record
Decant X308	Daily	Open, drain, record
Kiln X310	Daily	Open, drain, record
Trap X311	Daily	Open, drain, record
The closed vent system between the bulk solids building, the shredder, the apron feeder, the sludge receiving tank and the inlet to the ID fans (both kiln/ABC combustion air fans and the carbon adsorption system ID fan)	Annually	Check for leaks, holes, gaps, loose connections, etc. that could lead to emissions
The duct work sections between the carbon adsorption system ID fan (K-401) and the carbon adsorbers, and between the combustion air fans (K-101 and K-102A/B) and the incinerator	Annually	No detectable emissions (Method 21), defects that could lead to emissions
Carbon Adsorption Vessels F-412A/B	Annually	Check for leaks, holes, gaps, that could cause emissions
Kiln Area		
Kiln/ABC berm	Daily	Clean; free of spills
Kiln/ABC and associated equipment (including feed conveyors, deslagger, piping, etc.)	Daily	Fugitive emissions, deterioration, excessive wear, signs of tampering, leaks, spills
Sump SP-624	Daily	Empty
Sump SP-615	Daily	Empty

Inspection Item	Minimum Frequency	Types of Problems
Eyewashes	Weekly	Operable
Showers	Weekly	Operable
Slag Pad Area		
Sumps SP-623A/B	Daily	Empty
Eyewash	Weekly	Operable
Shower	Weekly	Operable
Wet End I Area		
Sump SP-629	Daily	Empty
Sump SP-614B	Daily	Empty
Sump in dust loadout	Daily	Empty
Wet End I equipment (pumps, piping, valves, tanks, etc.)	Daily	Fugitive emissions, deterioration, excessive wear, signs of tampering, leaks, spills
Sump SP-614A	Daily	Empty
Eyewashes	Weekly	Operable
Showers	Weekly	Operable
Wet End II Area		
Soda Ash Sump SP-614D	Daily	Empty
Sump SP-616	Daily	Overflowing, pump operable
WESP Sump SP-614C	Daily	Empty
Wet End II equipment (pumps, piping, valves, tanks, etc.)	Daily	Fugitive emissions, deterioration, excessive wear, signs of tampering, leaks, spills

Inspection Item	Minimum Frequency	Types of Problems
Eyewashes	Weekly	Operable
Showers	Weekly	Operable
CEM system	Daily	Sample transport and interface system, CEMS calibration data
Emergency Equipment		
Emergency Generator	Weekly	Start generator, operable, check oil & gas
primary electric fire pump	Weekly	Start pump, operable
secondary diesel fire pump	Weekly	Start pump, operable
Safety and Security		
Fence	Weekly	All gates closed and locked, poles upright, no holes that would allow unauthorized entry
Warning signs	Weekly	Are signs secured to fence? Are signs visible and legible?
perimeter lighting	Weekly	Check for lights working
all fire extinguishers plant wide	Monthly	Tagged, charged, in place, damaged
evacuation drills	Quarterly	Check for proper response
Instrumentation		
kiln temperature TT 1005 A,B,C	Daily (when in operation)	Good working order, out of tolerance, recording properly
ABC temperature TE/TT 1009 A,B,C	Daily (when in operation)	Good working order, out of tolerance, recording properly
Stack CO AE/AT 2199 A,B,C	Daily (when in operation)	Good working order, out of tolerance, recording properly

Inspection Item	Minimum Frequency	Types of Problems
Gas velocity FE/FT 2195	Daily (when in operation)	Good working order, out of tolerance, recording properly
combustion zone pressure PIT 1006 A,B,C	Daily (when in operation)	Good working order, out of tolerance, recording properly
baghouse pressure drop PIT 2020 A,B	Daily (when in operation)	Good working order, out of tolerance, recording properly
Activated carbon feed rate WT 2037 RL	Daily (when in operation)	Good working order, out of tolerance, recording properly
1st stage flow FT 2092A/B	Daily (when in operation)	Good working order, out of tolerance, recording properly
2nd stage flow FT 2095A/B	Daily (when in operation)	Good working order, out of tolerance, recording properly
1st stage pH AE/AT 2104 A,B	Daily (when in operation)	Good working order, out of tolerance, recording properly
2nd stage pH AE/AT 2130 A,B	Daily (when in operation)	Good working order, out of tolerance, recording properly
2nd stage effluent pH AE/AT 2129 A,B	Daily (when in operation)	Good working order, out of tolerance, recording properly
saturator flow FT 2081A/B	Daily (when in operation)	Good working order, out of tolerance, recording properly
spray dryer gas temperature TE/TT 2001 A,B,C	Daily (when in operation)	Good working order, out of tolerance, recording properly
saturator gas temperature TE/TT 2082 A,B,C	Daily (when in operation)	Good working order, out of tolerance, recording properly
hot duct O_2 AT 1010 A,B	Daily (when in operation)	Good working order, out of tolerance, recording properly

Inspection Item	Minimum Frequency	Types of Problems
kiln rotation ST1003	Daily (when in operation)	Good working order, out of tolerance, recording properly
secondary air pressure PT 1018	Daily (when in operation)	Good working order, out of tolerance, recording properly
Vent position ZSC 1017	Daily (when in operation)	Good working order, out of tolerance, recording properly
atomization air differential pressure PDSL 1124, 1187, 1224	Daily (when in operation)	Good working order, out of tolerance, recording properly
waste liquid pressure PSL 1119A, 1119B, 1196	Daily (when in operation)	Good working order, out of tolerance, recording properly
combustion air pressure PSL 1127, PI 1191, 1244	Daily (when in operation)	Good working order, out of tolerance, recording properly
BMS operating A104M, A106AM, A106BM	Daily (when in operation)	Good working order, out of tolerance, recording properly
Shred Tower		
Shred equipment and piping integrity	Daily (when in use)	Leaking, deterioration
Shred tower conveyor containment pans	Monthly	Check for cracks/gaps/damage
Shred tower conveyor containment pans	Daily	Empty
Shred tower eyewashes and safety showers	Weekly	Operable
Sump SP-624	Daily	Empty
Sump SP-650	Daily	Empty
Shred tower 0_2 instrumentation/alarm	Monthly	Calibrate, alarm audible

Inspection Item	Minimum Frequency	Types of Problems
Shred tower 0_2 instrumentation/alarm	Weekly	Instrument operable
Shred tower LEL instrumentation/alarm	Monthly	Calibrate, alarm audible
Shred tower LEL instrumentation/alarm	Weekly	Instrument operable
Shred tower vent system	Daily (when in use)	Check for leaks, holes, gaps, loose connections, etc. that could lead to emissions
Shred tower alarms (plant alarms for fire, evacuation, and paging system)	Weekly	Alarms audible
Shred Tower Storage Area		
Shred tower storage area secondary containment	Monthly	Check for crack/gaps/damage
Shred tower storage area secondary containment	Daily	Empty
Shred tower storage area barriers	Weekly	In place, free from damage
Shred tower storage area containers	Weekly	Closed, bung in
Shred tower storage area containers	Weekly	Labels intact and legible
Shred tower storage area containers	Weekly	Proper placement and stacking
Shred tower storage area containers	Weekly	Incompatibility check
Shred tower storage area containers	Weekly	Leaking, corroding
Shred tower storage area containers	Weekly	Bulging

Closure Cost Estimate
Clean Harbors Aragonite
Incineration Facility
Aragonite, Utah

Prepared By:

Americon, Inc.
Salt Lake City, UT   Boulder, CO

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SECTION I

EXECUTIVE SUMMARY

I. Executive Summary

At the request of Safety-Kleen, Inc, now Clean Harbors Aragonite, LLC, Americon, Inc. has prepared the following closure cost estimate for the Aragonite incineration facility. This estimate is based on the eventual closure of the entire facility by a third party.

This revised closure cost estimate totals $~~11,739,658~~11,960,077. In Section II of this document, tables are provided which summarize the total closure cost estimates broken out by closure activity and area. In Section III, detailed closure cost estimates are provided for each major process area. These estimates indicate costs by area closure activity. Additionally, a table is provided for each of these major process areas, which tabulates the closure activity total for that process area.

Costs associated with the removal and disposal of waste in storage were calculated by using 2001 gate rates for waste disposal at the Clean Harbors Deer Park, TX facility. Costs associated with sampling and analyses were calculated by utilizing the sampling and analytical methods for decontamination verification approximating the methodology used in the Northeast Casualty Real Property Clive facility closure efforts. All costs have been adjusted for inflation to make current as of 2012.

This closure cost estimate is based upon the assumption that all areas are full to their permitted capacities, off-site transportation and disposal costs are calculated using commercially available rates, independent third party closure, analytical costs are quoted by Utah certified commercial laboratories, and closure certification is made by a Utah registered Professional Engineer. All cost estimates use available 2001 pricing adjusted for inflation using the U.S. Department of Commerce Implicit Price Deflators for the Gross Domestic Product to make the prices current as of 2012. The adjustment to 2012 prices was calculated by multiplying the 2001 cost estimates by the 2011 Implicit Price Deflator for the Gross Domestic Product divided by the 2001 Implicit Price Deflator for the Gross Domestic Product as released by the U.S. Department of Commerce, January 27, 2012, i.e., 113.327/90.727. Sampling and closure standards for verification of decontamination are assumed to be consistent with those applicable to the Northeast Casualty Real Property Clive incineration facility closure.

SECTION II

CLOSURE COST SUMMARIES

AREA SUMMARY TABLE (includes costs from all areas)	
Activity	**Cost**
Removal of Waste	$~~1,004,432~~1,009,617
Decontamination	$~~957,536~~1,054,080
Sampling and Analysis	$~~231,908~~243,934
Transportation	$~~1,382,371~~1,395,683
Treatment and Disposal	$~~6,521,724~~6,585,496
Subtotal of Closure Costs	**$~~10,097,971~~10,288,810**
Engineering Expenses	$~~504,898~~514,440
Certification of Closure	$69,547
Subtotal of Closure Costs	**$~~10,672,416~~10,872,797**
Contingency Allowance	$~~1,067,242~~1,087,280
TOTALS	**$~~11,739,658~~11,960,077**

Clean Harbors Aragonite Incineration Facility
Closure Cost Estimate by Area

Area	Activity	Cost	Area Subtotal
Container Storage	Decontamination	$~~209,269~~214,313	
	Sampling and Analysis	$~~57,630~~59,348	
	Transportation	$~~984,375~~997,500	
	Treatment and Disposal	$~~3,835,326~~3,891,067	
	Subtotal	**$~~5,086,600~~5,162,228**	
	Engineering	$~~254,330~~258,111	
	Certification	$18,173	
	Subtotal	**$~~5,359,103~~5,438,512**	
	Contingency	$~~535,910~~543,851	
	Area Total	**$~~5,895,013~~5,982,363**	**$~~5,895,013~~5,982,363**
Tank Farm	Waste Removal	$13,097	
	Decon (including flush, purge)	$273,444	
	Sampling and Analysis	$27,110	
	Transportation	$244,185	
	Treatment and Disposal	$894,351	
	Subtotal	**$1,452,187**	
	Engineering	$72,609	
	Certification	$18,173	
	Subtotal	**$1,542,969**	
	Contingency	$154,297	
	Area Total	**$1,697,266**	**$1,697,266**
Bulk Solids	Waste Removal	$6,498	
	Decontamination	$118,121	
	Sampling and Analysis	$22,026	
	Transportation	$107,415	

	Treatment and Disposal	$1,406,724	
	Subtotal	**$1,660,784**	
	Engineering	$83,039	
	Certification	$10,484	
	Subtotal	**$1,754,307**	
	Contingency	$175,431	
	Area Total	**$1,929,738**	**$1,929,738**
Sludge Tanks	Waste Removal	$9,326	
	Decon (including flush)	$60,455	
	Sampling and Analysis	$5,622	
	Transportation	$14,606	
	Treatment and Disposal	$220,405	
	Subtotal	**$310,414**	
	Engineering	$15,521	
	Certification	$4,543	
	Subtotal	**$330,478**	
	Contingency	$33,048	
	Area total	**$363,526**	**$363,526**
Kiln	Removal of Waste Residue	$~~975,511~~980,696	
	Decon (including disassembly)	$~~296,247~~387,747	
	Sampling and Analysis	$~~119,520~~129,828	
	Transportation	$~~31,790~~31,977	
	Treatment and Disposal	$~~164,918~~172,949	
	Subtotal	**$~~1,587,986~~1,703,197**	
	Engineering	$~~79,399~~85,160	
	Certification	$18,174	
	Subtotal	**$~~1,685,559~~1,806,531**	
	Contingency	$~~168,556~~180,653	

	Area Total	**$~~1,854,115~~1,987,184**	**$~~1,854,115~~1,987,184**
	Total Cost Estimates		**$~~11,739,658~~11,960,077**

SECTION III

CLOSURE COSTS BY AREA

Container Storage Area - General Summary Sheet

SUMMARY TABLE		
Activity Number	**Activity**	**Activity Cost**
1	**Demolition and Removal of Containment System**	**$0**
2	**Removal of Soil**	**$0**
3	**Backfill**	**$0**
4	**Decontamination**	**$~~209,269~~214,313**
5	**Sampling and Analysis**	**$~~57,630~~59,348**
6	**Monitoring Well Installation**	**$0**
7	**Transportation**	**$~~984,375~~997,500**
8	**Treatment and Disposal**	**$~~3,835,326~~3,891,067**
9	**SUBTOTAL OF CLOSURE COSTS**	**$~~5,086,600~~5,162,228**
10	**Engineering Expenses**	**$~~254,330~~258,111**
11	**Certification of Closure**	**$18,173**
12	**SUBTOTAL OF CLOSURE COSTS**	**$~~5,359,103~~5,438,512**
13	**Contingency Allowance**	**$~~535,910~~543,851**
14	**Landfill Closure**	**$0**
	TOTALS	**$~~5,895,013~~5,982,363**

Container Storage

Activity Number

4. Decontamination

Note 1:

Decontamination costs are detailed in Section V of this document. After waste is removed from storage and process areas, units will be decontaminated using appropriate equipment, such as ultra-high pressure water blaster, or other suitable means.

Note 2:

Rinsate generation is expected to be approximately 1.0 gallon per square foot of unit surface area which came in contact with waste. This rate is based on generation rates from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

A. Decontamination:

Costs detailed in Section V. Decontamination Cost by Area and Task **$~~209,269~~214,313** This cost is calculated by multiplying the overall total decontamination cost in Section V by the ratio of mandays for this task to the total mandays required overall. 231/1262 x $1,170,838 = $214,313

5. Sampling and Analysis

Note 1:

To be consistent with the analytical requirements for the Clive Incineration Facility, PCB wipes will be used to verify PCB decontamination. No RCRA analysis will be performed on wipe samples. Rinsewater sample will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI of this document) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in the quotation reference section. Sample quantities by location are indicated below.

Note 2:

Rinsewater samples will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in Section IV of this document. Sample locations are indicated below.

Note 3:

The Container Management areas are comprised of several storage units. These unit containment areas will be sampled individually. Quantities of samples by unit location are indicated below.

A. Wipe Samples (for PCB Confirmation)

15 samples each Bays 1, 2, 3, 4, 5, 6, Buildings 68 and 69	= 120 samples
25 samples each E1, E2, E3, E4, E5, E6, E7	= 175
35 samples from breezeway	= 35
10 samples from shred tower storage area	= 10
Total Wipe samples	~~330~~340

~~330~~ 340 wipe sample locations x $125/wipe = **$~~41,250~~42,500**

B. Rinse Samples (for RCRA confirmation)

1 sample each Bays 1, 2, 3, 4, 5, 6, Building 68 and 69	= 8 samples
2 samples each E1, E2, E3, E4, E5, E6, E7	= 14
3 samples from breezeway	= 3
2 samples from bulk solids pad	= 2
3 samples from slag pad	= 3
1 sample each E-1, E-5, E-4 docks	= 3
2 samples from truck unloading direct burn	= 2
1 sample from shred tower storage area	= 1
Total rinsewater samples	~~35~~36

~~35~~ 36 sample locations x $468/sample = **$~~16,380~~16,848**

C. Total Sampling Cost

$~~41,250~~42,500 wipe samples + $~~16,380~~16,848 rinse samples = **$~~57,630~~59,348**

7. Transportation of Waste in Storage

Note 1:

Mileage rates based on $3.75 per loaded mile, the prevailing non-discounted transportation rate for hazardous waste cargo. Included mileage of 1750 from

Aragonite, UT to Deer Park, TX. Actual transportation quotes may result in a lower mileage rate.

A. Transportation of Waste in Drums

~~11, 967~~ 12,147 drums of waste/80 drums per truck = 15~~0~~2 truckloads of drums
15~~0~~2 drum loads x 1,750 miles from Aragonite, UT to Deer Park, TX x $3.75/mile = **$~~984,375~~997,500**

8. Treatment and Disposal

Note 1:

Waste volumes and containment surfaces are based on permitted capacities and areas. The Container Storage Areas(s) have a combined maximum permitted capacity of ~~11,967~~12,147 drums (55-gal). This capacity includes an equivalent of 213 55-gallon containers for the compressed gas cylinder capacity, ~~and an additional 12 55-gallon containers for the capacity of one direct burn vessel on the direct burn pad,~~ but does not include any capacity from the bulk solids/sludge pad, truck unloading or drive through/drive through corrosive direct burn stations as the capacity for these units is considered as bulk solids and bulk liquids and is included in the cost estimate for closure of the bulk solids tanks and the tank farm. The total cumulative containment surface area of all of the container storage areas is ~~116,332~~117,332 sq.ft.

Note 2:

Disposal rate for material in storage calculated at $0.55/lb (or $1,099/ton) based on a weighted average of gate rates of similar drummed waste at the CH-Deer Park, TX incineration facility.

Note 3:

Rinsate generation is expected to be approximately 1.0 gallon per square foot of unit surface area which came in contact with waste. This rate is based on generation rates from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

Note 4:

Frac tanks will be used to temporarily store the liquids generated during decontamination efforts. These tanks are commonly available, and typically contain 20,000 gallons per tank. These tanks are available at a non-discounted rate of $874 per month. Tanks will be placed in suitable containment during use.

Note 5:

Bulk liquid transportation and disposal rate of $1.89/gallon based on bulk transport to Deer Park, TX by rail in a 20,000 gallon tank car. For details of transportation, and disposal rates, see Section IV of this document.

A. Disposal of Waste in Drums

~~11,967~~ 12,147 drums x 55 gal/drum/7.48 gal/ft^3/27 ft^3/yd = ~~3,259~~3,308 cu.yd waste

~~3,259~~ 3,308 cu.yd waste for disposal x 1.00775 tons/cu.yd = ~~3,285~~3,334 tons of waste in drums for disposal

~~3,285~~ 3,334 tons x $1,099/ton disposal cost = **$~~3,610,215~~3,664,066**

B. Transportation and Disposal of Decontamination Fluid

~~116,332~~ 117,332 sq. ft containment x 1.0 gal/sq. ft decon fluid = ~~116,332~~117,332 gallons

~~116,332~~ 117,332 gal x $1.89/gal disposal cost = **$~~219,867~~221,757**

C. Tank Rental

three 20,000 gallon frac tanks required for two months

3 tanks x $874/month x 2 months = **$5,244**

D. Total Treatment and Disposal Cost

$~~3,610,215~~3,664,066 + $~~219,867~~221,757 + $5,244 = **$~~3,835,326~~3,891,067**

9. Sub-Total of Area Closure Costs

$~~209,269~~214,313 + $~~57,630~~59,348 + $~~984,375~~997,500 + $~~3,835,326~~3,891,067 = **$~~5,086,600~~5,162,228**

10. Engineering Expense

A. Engineering Expense equal to 5% of Subtotal = **$~~254,330~~258,111**

11. Certification of Closure

A. Engineering Certification - Professional Engineer

100 hours x $156/hr = **$15,600**

B. Engineering Certification - Direct costs = **$2,573**

C. Total Engineering Certification
$15,600 + $2,573 = **$18,173**

12. Sub-Total of Area Closure Costs

$~~5,086,600~~5,162,228 + $~~254,330~~258,111 + $18,173 = **$~~5,359,103~~5,438,512**

13. Contingency Allowance

A. Contingency Allowance equal to 10% of Subtotal = **$~~535,910~~543,851**

Total Area Closure Cost = $~~5,895,013~~5,982,363

Tank Farm - General Summary Sheet

SUMMARY TABLE		
Activity Number	**Activity**	**Activity Cost**
1	Removal of Waste	$13,097
2	Tank System Purging	Incl w/decon
3	Flushing Tank and Piping	Incl w/decon
4	Excavation, Disassembly, and Loading	$0
5	Demolition and Removal of Containment System	$0
6	Removal of Soil	$0
7	Backfill	$0
8	Decontamination	$273,444
9	Sampling and Analysis	$27,110
10	Monitoring Well Installation	$0
11	Transportation	$244,185
12	Treatment and Disposal	$894,351
13	SUBTOTAL OF CLOSURE COSTS	$1,452,187
14	Engineering Expenses	$72,609
15	Certification of Closure	$18,173
16	SUBTOTAL OF CLOSURE COSTS	$1,542,969
17	Contingency Allowance	$154,297
18	Landfill Closure	$0

	TOTALS	**$1,697,266**

Tank Farm

Activity Number

1. Inventory Removal

Note 1:

Volumes of waste in inventory based on permitted tank farm capacity of 461,504 gallons. Additionally, the capacity from the drive through/drive through corrosive and truck unloading direct burn stations adds four 7500 gallon tankers or 30,000 additional gallons of waste for a total of 491,504 gallons. The tank farm has 18,900 sq.ft. of surface area. This area does not include the drive through/drive through corrosive and truck unloading direct burn station surface areas as they are included in the container storage area closure.

A. Remove Tank Farm Inventory

Remove 491,504 gallons from storage - 30 mandays
30 mandays x $31/hr x 8 hrs/day = $7,440
Equipment - lump sum = $5,657
Labor plus equipment total = **$13,097**

2. Tank System Purging

Included in Decontamination Costs

3. Flush Tank and Piping

Included in Decontamination Costs

8. Decontamination

Note 1:

Decontamination costs are detailed in Section V of this document. After waste is removed from storage and process areas, units will be decontaminated using appropriate equipment, such as ultra-high pressure water blaster, or other suitable means.

Note 2:

Rinsate generation is expected to be approximately 1.0 gallon per square foot of unit surface area which came in contact with waste. This rate is based on generation rates from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

Note 3:

Tanks and piping will be emptied, flushed, then rinsed prior to dismantling. Tanks and piping will then be cut up for disposal as RCRA waste. Volume of waste based on tank volumes, and pipe system lineal footage.

A. Decontamination

Costs detailed in Section V. Decontamination Cost by Area and Task **$273,444**
This cost is calculated by multiplying the overall total decontamination cost in Section V by the ratio of mandays for this task to the total mandays required overall.

9. <u>Sampling</u>

Note 1:

To be consistent with the analytical requirements for the Clive Incineration Facility, PCB wipes will be used to verify PCB decontamination. No RCRA analysis will be performed on wipe samples. Rinsewater sample will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI of this document) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in the quotation reference section. Sample quantities by location are indicated below.

Note 2.

Rinsewater samples will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in Section IV of this document. Sample locations are indicated below.

Note 3.

The Tank Farm is comprised of four identical containment areas, and two pump houses. These unit containment areas will be sampled individually. Quantities of samples by unit location are indicated below.

A. Wipe Samples (for PCB Confirmation)

25 samples per containment area = 100 samples

10 samples per pump house	= 20 samples
10 miscellaneous structural steel samples	= 10 samples
12 miscellaneous piping, strainer, pump samples	= 12 samples
Total wipe samples	142

142 wipe sample locations x $125/wipe = **$17,750**

B. Rinse Samples (for RCRA confirmation)

4 samples each for four containment areas	= 16 samples
2 samples each for two pump houses	= 4 samples
Total rinsewater samples	20

20 sample locations x $468/sample = **$9,360**

C. Total Sampling Cost

$17,750 wipe samples + $9,360 rinse samples = **$27,110**

11. Transportation

Note 1:

Mileage rates based on $3.75 per loaded mile, the prevailing non-discounted transportation rate for hazardous waste cargo. Included mileage of 1750 from Aragonite, UT to Deer Park, TX. Actual transportation quotes may result in a lower mileage rate.

A. Transportation of Waste in Drums

It is expected that approximately 34 drums of waste from the tank farm will be removed.

34 drums of waste/80 drums per truck = 1 truckload of drums

1 drum load x 1750 miles from Aragonite, UT to Deer Park, TX x $3.75/mile = **$6,562**

B. Transportation of Bulk Liquid in Storage, and Flush (by Rail tanker)

461,504 gallon tank farm capacity + 30% flush to remove PCBs + 30,000 gallons from direct burn stations = 629,955 gallons total

629,955 gal/20,000 gal per railcar = 32 railcars

32 railcars x $7,303 per load from Aragonite, UT to Deer Park, TX = **$233,696**

C. Transportation of Bulk Waste (tank scrap in roll-off boxes)

16 tanks x 10,000 lb per tank = 160,000 lb steel scrap from tank dismantling

160,000/15,000 per box = 10.5 loads

assume same weight, volume in pipe, pumps and strainers = 10.5 loads

total number of roll-off box loads = 21 boxes
21 roll-off boxes x $187 per load to transport 25 miles to Grassy Mountain = **$3,927**

D. Total Transportation Costs
$6,562 + $233,696 + $3,927 = **$244,185**

12. Treatment and Disposal

Note 1:

Volumes of waste in inventory based on permitted tank farm capacity, plus piping capacity, totaling 461,504 gallons. Additionally, 30,000 gallons of direct burn tanker station capacity will be included as waste to be managed under tank farm closure. The tank farm has 18,900 sq.ft. of surface area.

Note 2:

Rinsate generation is expected to be approximately 1.0 gallon per square foot of unit surface area which came in contact with waste, plus 10,000 gallons rinsate generated from rinse of tank interiors prior to dismantling. This rate is based on generation rates from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

Note 3:

Volume of waste for disposal includes permitted capacity of tank system (including pipe) plus 30% by volume to account for flush of system to remove TSCA designation plus 30,000 gallons of the direct burn stations capacity. Three (3) flushes of 10% by volume are assumed, although some flush may be re-used if tested to contain less than 50 ppm PCB.

Note 4:

Disposal prices calculated at $0.14/lb ($280/ton) for organic waste, and $0.184/lb ($368/ton) for aqueous waste, based on gate rate at CH-Deer Park, TX incineration facility.

Note 5:

Frac tanks will be used to temporarily store the liquids generated during decontamination efforts. These tanks are commonly available, and typically contain 20,000 gallons per tank. These tanks are available at a non-discounted rate of $874 per month. Tanks will be placed in suitable containment during use.

Note 6:

Bulk liquid transportation and disposal rate of $1.89/gallon based on bulk transport to Deer Park, TX by rail in a 20,000 gallon tank car. For details of transportation and disposal rates, see Section IV of this document.

A. Treatment and Disposal of Aqueous Waste in Bulk
114,755 gallons capacity + 30 % flush by volume + 15,000 gal from direct burn = 164,182 gal total
164,182 gal/7.48 gal/ft^3/27 cu ft/cu. yd = 812.9 cu. yd.
812.9 cu. yd waste for disposal (including flush) x 0.843 tons/cu. yd = 685.3 tons for disposal
685.3 tons x $368/ton disposal cost = **$252,190**

B. Treatment and Disposal of High BTU Waste in Bulk
346,749 gallons capacity + 30% flush by volume + 15,000 gal from direct burn = 465,774 gal
465,774 gal/7.48 gal/ft^3/27 cu ft./cu. yd = 2,306.3 cu. yd.
2,306.3 cu. yd waste for disposal (including flush) x 0.843 tons/cu.yd = 1,944.2 tons for disposal
1,944.2 tons x $280/ton disposal cost = **$544,376**

C. Treatment and Disposal of Tank and Pipe Scrap Metal
16 tanks at 10,000 per tank plus same weight in pipe, pumps = 320,000 lbs
320,000 lbs/2,000 lb per ton = 160 tons for disposal (landfill)
160 tons x $237/ton disposal cost = **$37,920**

D. Transportation and Disposal of Decontamination Fluid

18,900 sq.ft tank farm containment x 1.0 gal./ft^2 rinsate	= 18,900 gal
rinsate generated from tank rinseout prior to dismantling	= 10,000 gal
total decontamination fluid volume	28,900 gal

28,900 gal x $1.89/gal transportation and disposal = $**54,621**

E. Tank Rental
three 20,000 gallon frac tanks required for two months
3 tanks x $874/month x 2 months = **$5,244**

F. Total Cost of Treatment and Disposal (including decontamination fluid T&D)
$252,190 + $544,376 + $37,920 + $54,621 + $5,244 = **$894,351**

13. <u>Subtotal of Closure Costs</u>

$13,097 + $273,444 + $27,110 + $244,185 + $894,351 = **$1,452,187**

14. Engineering Expense

A. Engineering Expense equal to 5% of Subtotal = $**72,609**

15. Certification of Closure

A. Engineering Certification - Professional Engineer
100 hours x $156/hr = **$15,600**

B. Engineering Certification - Direct Costs = $**2,573**

C. Total Engineering Certification
$15,600 + $2,573 = **$18,173**

16. Subtotal of Closure Costs

$1,452,187 +$72,609 + $18,173 = **$1,542,969**

17. Contingency Allowance

A. Contingency allowance equal to 10% of Subtotal = **$154,297**

Total Area Closure Cost = $1,697,266

Bulk Solids - General Summary Sheet

SUMMARY TABLE		
Activity Number	**Activity**	**Activity Cost**
1	Removal of Waste	$6,498
2	Tank System Purging	$0
3	Flushing Tank and Piping	$0
4	Excavation, Disassembly, and Loading	$0
5	Demolition and Removal of Containment System	$0
6	Removal of Soil	$0
7	Backfill	$0
8	Decontamination	$118,121
9	Sampling and Analysis	$22,026
10	Monitoring Well Installation	$0
11	Transportation	$107,415
12	Treatment and Disposal	$1,406,724
13	SUBTOTAL OF CLOSURE COSTS	$1,660,784
14	Engineering Expenses	$83,039
15	Certification of Closure	$10,484
16	SUBTOTAL OF CLOSURE COSTS	$1,754,307
17	Contingency Allowance	$175,431
18	Landfill Closure	$0
	TOTALS	$1,929,738

Bulk Solids

Activity Number

1. <u>Inventory Removal</u>

Note 1:

Volumes of waste in inventory based on permitted bulk tank capacity of 229,000 gallons. Also included as bulk solids capacity is the capacity in bulk containers of the bulk solids/sludge pad. This adds an additional 23,760 gallons of waste to be managed for a combined total of 252,760 gallons. The tanks have 7,057 sq.ft. of surface area. This area does not include the bulk solids/sludge pad surface areas as they are included in the container storage area closure.

A. Remove equivalent of 229,000 gallons of waste from bulk solids tanks and 23,760 gallons from the bulk solids/sludge pad - 20 mandays
20 mandays x $31/hr x 8 hrs/day = $4,960
Equipment - lump sum = $1,538
Labor plus equipment total = **$6,498**

8. <u>Decontamination</u>

Note 1:

Decontamination costs are detailed in Section V of this document. After waste is removed from storage and process areas, units will be decontaminated using appropriate equipment, such as ultra-high pressure water blaster, or other suitable means.

Note 2:

Rinsate generation is expected to be approximately 30,000 gallons. This rate is primarily based on generation rates of decon fluid from the Clive facility, and from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

A. Decontamination
Costs detailed in Section V. Decontamination Cost by Area and Task **$118,121**
This cost is calculated by multiplying the overall total decontamination cost in Section V by the ratio of mandays for this task to the total mandays required overall.

9. <u>Sampling and Analysis</u>

Note 1:

To be consistent with the analytical requirements for the Clive Incineration Facility, PCB wipes will be used to verify PCB decontamination. No RCRA analysis will be performed on wipe samples. Rinsewater sample will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI of this document) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in the quotation reference section. Sample quantities by location are indicated below.

Note 2:

Rinsewater samples will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in Section IV of this document. Sample locations are indicated below.

Note 3:

The Bulk Solids Building is comprised of three tanks, and one containment area. These tanks and containment area will be wipe sampled individually. Additionally, core samples will be taken from the concrete walls of the building. Rinsate samples will be taken from tanks, and containment. Quantities of samples by unit location are indicated below.

A. Wipe Samples (for PCB Confirmation)

15 samples per tank	= 45 samples
5 samples from containment/vault	= 5 samples
total wipe samples	= 50

50 wipe sample locations x $125/wipe = **$6,250**

B. Rinse Samples (for RCRA confirmation)

1 rinse sample per tank	= 4 samples
3 rinse samples from containment	= 3 samples
total rinse samples	= 7

7 sample locations x $468/sample = **$3,276**

C. Concrete Core Samples (for PCB Confirmation)

20 samples per wall	= 80 core samples
20 samples from various floor surfaces	= 20 core samples
total core samples	= 100

100 core sample locations x $125/sample = **$12,500**

D. Total Sampling Cost

$6,250 wipe samples + $3,276 rinse samples + $12,500 core samples = **$22,026**

11. Transportation

Note 1:

Bulk solids wastes will be bulked into 20 cu yd roll-off boxes, and transported by rail to Deer Park, TX for disposal. A transportation cost of $1,705 per box is used as per transportation work-up in Section IV of this document.

A. Transportation of Bulk Waste in Storage

252,760 gallons permitted capacity
252,760 gallons/7.48 gal per cu.ft. = 33,792 cu. ft. waste
33,792 cu. ft. waste/27 cu.ft. per cu.yd. = 1,252 cu.yd.
1,252 cu.yd/20 cu. yd. per roll-off box = 63 roll-off boxes
63 roll-off boxes x $1,705 per load to transport by rail to Deer Park, TX = **$107,415**

12. Treatment and Disposal

Note 1:

Rinsate generation is expected to be approximately 30,000 gallons. This rate is based on generation rates of decon fluid from the Clive facility, and from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

Note 2:

Disposal of bulk solids removed from inventory is calculated at $0.408/lb ($816/ton) based on gate rates at the CH - Deer Park incineration facility.

Note 3:

Walls and ceiling will be rinsed to remove visible dust, and contaminants. Tank liners (metal) will be decontaminated using ultra high pressure water blasting, or other suitable methods. All visible waste residues will be removed.

Note 4:

Frac tanks will be used to temporarily store the liquids generated during decontamination efforts. These tanks are commonly available, and typically contain 20,000 gallons per tank. These tanks are available at a non-discounted rate of $874 per month. Tanks will be placed in suitable containment during use.

Note 5:

Bulk liquid transportation and disposal rate of $1.89/gallon based on bulk transport to Deer Park, TX by rail in a 20,000 gallon tank car. For details of transportation rates, see Section IV of this document.

A. Treatment and Disposal of Waste in Storage
252,760 gallons/7.48 gal/cu ft/27 cu.ft/cu.yd. = 1,252 cu.yd.
1,252 cu.yd x 1.318 ton per cu.yd. = 1,651 tons for disposal
1,651 tons x $816/ton disposal cost = **$1,347,216**

B. Transportation and Disposal of Decontamination Fluid
Estimated volume of decontamination fluid generated - 30,000 gallons
30,000 gal x $1.89/gal disposal cost (incl. Transportation) = **$56,700**

C. Tank Rental
two 20,000 gallon frac tanks required for one months
2 tanks x $874/month x 1 month = **$1,748**

D. Cost to Pump Fluid to Frac Tanks
Labor - 30 hrs x $31/hr = $930
Equipment - lump sum $130
Total Cost to Pump Fluid $930 + $130 = **$1,060**

E. Total Cost of Treatment and Disposal (including decontamination fluid T&D)
$1,347,216 + $56,700 + $1,748 + $1,060 = **$1,406,724**

13. Subtotal of Closure Costs

$6,498 + $118,121 + $22,026 + $107,415 + $1,406,724 = **$1,660,784**

14. Engineering Expense

A. Engineering Expense equal to 5% of Subtotal = **$83,039**

15. Certification of Closure

A. Engineering Certification - Professional Engineer
60 hours x $156/hr = **$9,360**

B. Engineering Certification - Direct Costs = **$1,124**

C. Total Engineering Certification
$9,360 + $1,124 = **$10,484**

16. Subtotal of Closure Costs

$1,660,784 +$83,039 + $10,484 = **$1,754,307**

17. Contingency Allowance

A. Contingency allowance equal to 10% of Subtotal = **$175,431**

Total Area Closure Cost = $1,929,738

Sludge Tanks - General Summary Sheet

SUMMARY TABLE		
Activity Number	**Activity**	**Activity Cost**
1	Removal of Waste	$9,326
2	Tank System Purging	$0
3	Flushing Tank and Piping	$0
4	Excavation, Disassembly, and Loading	$0
5	Demolition and Removal of Containment System	$0
6	Removal of Soil	$0
7	Backfill	$0
8	Decontamination	$60,455
9	Sampling and Analysis	$5,622
10	Monitoring Well Installation	$0
11	Transportation	$14,606
12	Treatment and Disposal	$220,405
13	SUBTOTAL OF CLOSURE COSTS	$310,414
14	Engineering Expenses	$15,521
15	Certification of Closure	$4,543
16	SUBTOTAL OF CLOSURE COSTS	$330,478
17	Contingency Allowance	$33,048
18	Landfill Closure	$0

	TOTALS	**$363,526**

Sludge Tanks

Activity Number

1. Inventory Removal

Note 1:

Volumes of waste in inventory based on permitted sludge tank system capacity of 38,570 gallons. The tanks have 2,903 sq.ft. of surface area.

A. Remove 38,570 gallons of waste from bulk sludge tanks - 30 mandays
30 mandays x $31/hr x 8 hrs/day = $7,440
Equipment - lump sum = $1,886
Labor plus equipment total = **$9,326**

8. Decontamination

Note 1:

Decontamination costs are detailed in Section V of this document. After waste is removed from storage and process areas, units will be decontaminated using appropriate equipment, such as ultra-high pressure water blaster, or other suitable means.

Note 2:

Rinsate generation is expected to be approximately 16,000 gallons. This rate is primarily based on generation rates of decon fluid from the Clive facility, and from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

A. Decontamination
Costs detailed in Section V. Decontamination Cost by Area and Task **$60,455**
This cost is calculated by multiplying the overall total decontamination cost in Section V by the ratio of mandays for this task to the total mandays required overall.

9. Sampling

Note 1:

To be consistent with the analytical requirements for the Clive Incineration Facility, PCB wipes will be used to verify PCB decontamination. No RCRA analysis will be performed on wipe samples. Rinsewater samples will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI of this document) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in the quotation reference section. Sample quantities by location are indicated below.

Note 2:

Rinsewater samples will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in Section IV of this document. Sample locations are indicated below.

Note 3:

The Sludge Tank Area is comprised of two tanks and one containment vault. The tanks and vault will be wipe sampled individually, with ancillary equipment sampled as necessary. Rinsate samples will be taken from the tanks, and vault. Quantities of samples by unit location are indicated below.

A. Wipe Samples (for PCB Confirmation)

5 wipe samples on tanks	= 5 samples
20 wipes on containment vault	= 20 samples
5 samples on ancillary equipment	= 5 samples
Total wipe samples	30

30 wipe sample locations x $125/wipe = **$3,750**

B. Rinse Samples (for RCRA confirmation)

2 rinse samples from tank system	= 2 samples
2 samples from vault area	= 2 samples
total samples	4

4 sample locations x $468/sample = **$1,872**

C. Total Sampling Cost

$3,750 wipe samples + $1,872 rinse samples = **$5,622**

11. Transportation

Note 1:

Sludge will be bulked into 20,000 gallon rail cars, and transported by rail to Deer Park, TX for disposal. A transportation cost of $7,303 per tanker is used as per the transportation work-up in Section IV of this document.

A. Transportation of Bulk Waste in Storage

38,570 gallons permitted capacity
38,570 gallons/20,000 gallons per rail tanker load = 2 rail tanker loads
2 rail tanker loads x $7,303 per load to Deer Park Texas = **$14,606**

12. <u>Treatment and Disposal</u>

Note 1:

Volumes of waste in inventory based on permitted sludge tank system capacity and truck unloading direct burn station capacity of 38,570 gallons. The tanks and piping have a surface area of 2903 sq ft with the containment vault having 1,173 sq ft of surface area.

Note 2:

Rinsate generation is expected to be approximately 16,000 gallons. It is estimated that 1,500 gallons of rinsate will be generated from cleaning vault surfaces, and 14,500 gallons will be generated from cleaning the tank interior due to high solids build-up. This rate is based primarily on generation rates of decon fluid from the Clive facility, and from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

Note 3:

Disposal of bulk sludge removed from inventory is calculated at $0.49/lb ($980/ton) based on gate rates at the CH Deer Park incineration facility.

Note 4:

Frac tanks will be used to temporarily store the liquids generated during decontamination efforts. These tanks are commonly available, and typically contain 20,000 gallons per tank. These tanks are available at a non-discounted rate of $874 per month. Tanks will be placed in suitable containment during use.

Note 5:

Bulk liquid transportation and disposal rate of $1.89/gallon based on bulk transport to Deer Park, TX by rail in a 20,000 gallon tank car. For details of transportation, and disposal rates, see Section IV of this document.

A. Treatment and Disposal of Waste in Storage

38,570 gallons permitted capacity/7.48 cu.ft./gal/27 cu.ft./cu.yd. = 191 cu.yd.
191 cu.yd x 1.0135 ton per cu.yd. = 193.6 tons for disposal
193.6 tons x $980/ton disposal cost = **$189,728**

B. Transportation and Disposal of Decontamination Fluid
Estimated volume of decontamination fluid generated - 16,000 gallons
16,000 gal x $1.89/gal disposal cost (incl. Transportation) = **$30,240**

C. Tank Rental
one 20,000 gallon frac tanks required for one-half month
1 tank x $874/month x 0.5 months = **$437**

D. Total Cost of Treatment and Disposal (including decontamination fluid T&D)
$189,728 + $30,240 + $437 = **$220,405**

13. Subtotal of Closure Costs

$9,326 + $60,455 + $5,622 + $14,606 + $220,405 = **$310,414**

14. Engineering Expenses

A. Engineering Expense equal to 5% of Subtotal = **$15,521**

15. Certification of Closure

A. Engineering Certification - Professional Engineer
24 hours x $156/hr = **$3,744**

B. Engineering Certification - Direct Costs = **$799**

C. Total Engineering Certification
$3,744 + $799 = **$4,543**

16. Subtotal of Closure Costs

$310,414 + $15,521 + $4,543 = **$330,478**

17. Contingency Allowance

A. Contingency allowance equal to 10% of Subtotal = $**33,048**

Total Area Closure Cost $363,526

Kiln - General Summary Sheet

SUMMARY TABLE		
Activity Number	**Activity**	**Activity Cost**
1	**Removal of Waste Residue**	**$~~975,511~~980,696**
2	**Decontamination of the Unit**	**Incl in decon**
3	**Disassembly of Ancillary Piping**	**Incl in decon**
4	**Demolition and Removal**	**$0**
5	**Removal of Soil**	**$0**
6	**Backfill**	**$0**
7	**Decontamination**	**$~~296,247~~387,747**
8	**Sampling and Analysis**	**$~~119,520~~129,828**
9	**Monitoring Well Installation**	**$0**
10	**Transportation**	**$~~31,790~~31,977**
11	**Treatment and Disposal**	**$~~164,918~~172,949**
12	**SUBTOTAL OF CLOSURE COSTS**	**$~~1,587,986~~1,703,197**
13	**Engineering Expenses**	**$~~79,399~~85,160**
14	**Certification of Closure**	**$18,174**
15	**SUBTOTAL OF CLOSURE COSTS**	**$~~1,685,559~~1,806,531**
16	**Contingency Allowance**	**$~~168,556~~180,653**
17	**Landfill Closure**	**$0**
	TOTALS	**$~~1,854,115~~1,987,184**

Kiln System

Activity Number

1. Inventory Removal

A. Remove and dispose of liquid from scrubber
Scrubber liquid volume made up of:

4 tanks at 14,000 each	= 56,000 gal
1 WESP tank	= 1,000 gal
Total scrubber liquid volume	**57,000 gal**

Labor - 30 mandays x \$31/hr x 8 hrs/day = **\$7,440**
Equipment - lump sum = **\$1,608**
Disposal of Liquid - 57,000 gal x \$1.89/gal (T&D) = **\$107,730**

B. Remove 4,7~~00~~20 cu.yd. of non-liquid waste residues
Non-liquid waste residue volume made up of :

112 boxes slag at 30 yd^3 each (normal operations inventory)	= 3,360 yd^3
18 boxes brick at 30 yd^3 each (from turn-around records)	= 540 yd^3
31 boxes of ash at 20 yd^3 each (normal operations inventory)	= 620 yd^3
9 boxes at 20 yd^3 each from baghouse, spray drier cleanout	= 180 yd^3
1 box at 20 yd^3 from shred tower cleanout	= 20 yd^3
Total volume of non-liquid waste residues (17~~0~~1 boxes)	**4,7~~00~~20 yd^3**

Labor - 30~~0~~2 mandays x \$31/hr x 8 hrs/day = **\$74,~~400~~896**
Equipment - lump sum **\$~~32,332~~33,940**

C. Dispose of 4,7~~00~~20 cu.yd of non-liquid waste (volume estimated above)
4,7~~00~~20 cu.yd x 0.675 tons per cu.yd = 3,1~~73~~86 tons.
3,1~~73~~86 tons x \$237/ton disposal cost = **\$~~752,001~~755,082**

D. Total Inventory Removal and Treatment Cost
\$7,440 + \$1,608 + \$107,730 + \$74,~~400~~896 + \$~~32,332~~33,940 + \$~~752,001~~755,082 = **\$~~975,511~~980,696**

7. Decontamination

Note 1:

Decontamination costs are detailed in Section V of this document. After waste is removed from process areas, units will be decontaminated using appropriate equipment, such as ultra-high pressure water blaster, or other suitable means.

A. Decontamination

Costs detailed in Section V. Decontamination Cost by Area and Task **$~~296,247~~387,747** This cost is calculated by multiplying the overall total decontamination cost in Section V by the ratio of mandays for this task to the total mandays required overall. For this task however, the labor and equipment charges for the scrubber liquid and non-liquid residue removal are already included in Activities 1.A. and 1.B. above and should deducted from the calculation using the numbers in Section V in order to avoid duplicating the cost, i.e., ~~443~~ 545 mandays/~~1154~~1262 mandays x $~~1,073,316~~1,170,838 = $~~412,027~~505,631; $~~412,027~~505,631 - $7,440 - $1,608 - $74,~~400~~896 - $~~32,332~~33,940 = ~~296,247~~387,747.

8. Sampling and Analysis

Note 1:

To be consistent with the analytical requirements for the Clive Incineration Facility, PCB wipes will be used to verify PCB decontamination. No RCRA analysis will be performed on wipe samples. Rinsewater sample will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI of this document) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in the quotation reference section. Sample quantities by location are indicated below.

Note 2:

Rinsewater samples will be taken to verify RCRA decontamination, and Clive Closure Table I-1.3 (see Section VI) parameters will be assumed. The cost for analysis has been based on quotations from STL, copies of which are enclosed in Section IV of this document. Sample locations are indicated below.

Note 3:

Due to the large surface area of the units comprising the Kiln Area, several units, and corresponding containment areas will be wipe sampled. Sample quantities by area location are indicated below.

A. Wipe Samples (for PCB Confirmation)

25 each for kiln and afterburner feed skids, slag discharge, "A" damper	= 100
10 each for the 8 kiln area units	= 80

10 for each of 6 kiln area containment area = 60
30 for direct burn area = 30
30 for random structural wipes in Kiln area = 30
30 for random structural wipes in Shred Tower area = 30
10 each for the two Komar Shredders = 20
Total number of wipe samples from Kiln area **3~~00~~50**

3~~00~~50 wipe sample locations x $125/wipe = **$~~37,500~~43,750**

B. Rinse Samples (for RCRA confirmation)

1 rinse sample from each of the 6 containment berms in kiln area = 6
1 rinse sample from each of the 8 kiln area units = 8
1 rinse from the direct burn area containment = 1
1 rinse sample from each of the 2 Komar Shredders = 2
1 rinse sample from Shred Tower Airlock = 1
1 rinse sample from Shred Tower area containment = 1
1 rinse sample from the Shred Tower Conveyor = 1
1 rinse sample from Shred feed auger = 1
Total number of aqueous samples from kiln area **~~15~~21**

~~15~~ 21 sample locations x $468/sample = **$~~7,020~~9,828**

C. Non-aqueous Samples (concrete cores, brick samples)

200 brick samples from kiln, "a" damper = 200
150 brick samples from SCC = 150
20 samples from deslagger = 20
20 samples from each of 5 pant leg sections = 100
80 samples from spray drier = 80
20 samples from accumulation areas = 20
20 from parking area = 20
10 random samples from kiln area = 10
10 random samples from the Shred Tower area = 10
Total non-aqueous samples **6~~00~~10**

6~~00~~10 samples x $125/sample = **$~~75,000~~76,250**

D. Total Sampling Cost

$~~37,500~~43,750 wipe samples + $~~7,020~~9,828 rinse samples + $~~75,000~~76,250 non-aqueous samples = **$~~119,520~~129,828**

10. Transportation

A. Transportation of Bulk Liquids (scrubber water)
included in Task 1 - Inventory Removal

B. Transportation of Bulk Waste Residue (ash, brick, Shred Tower residue)
17~~0~~1 debris boxes (from inventory) x $187/ box to Grassy Mtn, UT =
$~~31,790~~31,977

C. Total Cost of Transportation of Waste
$~~31,790~~31,977

11. Treatment and Disposal

Note 1:
Brick removal labor is included in the costs for inventory removal. These costs are detailed in Section V of this document.

Note 2:
An area of ~~82,899~~87,148 sq ft requires decontamination. Rinsate generation is expected to be approximately 1.0 gallon per square foot of unit surface area which came in contact with waste. This rate is based on generation rates from similar decontamination efforts at other CH/SK facilities, including Clive. See table in Section IV of this document for rinsate generation summary table.

Note 3:
Frac tanks will be used to temporarily store the liquids generated during decontamination efforts. These tanks are commonly available, and typically contain 20,000 gallons per tank. These tanks are available at a non-discounted rate of $874 per month. Tanks will be placed in suitable containment during use.

Note 4:
Bulk liquid transportation and disposal rate of $1.89/gallon based on bulk transport to Deer Park, TX by rail in a 20,000 gallon tank car. For details of transportation, and disposal rates, see Section IV of this document.

A. Treatment and Disposal of Waste in Storage
included in Task 1 - Inventory Removal

B. Transportation and Disposal of Decontamination Fluid
Estimated volume of decontamination fluid generated - 82,899 gallons

~~82,899~~ 87,148 gal x $1.89/gal disposal cost (incl. Transportation) = **$~~156,679~~164,710**

C. Tank Rental
four 20,000 gallon frac tanks required for two months
4 tanks x $874/month x 2 months = **$6,992**

D. Cost to Pump Liquid to Frac Tank
labor- 4 mandays x $31/hr x 8 hrs/day = **$992**
equipment - lump sum **$255**

E. Total Cost of Treatment and Disposal (including decontamination fluid T&D)
$~~156,679~~164,710 + $6,992 + $992 + $255 = **$~~164,918~~172,949**

12. Subtotal of Closure Costs

$~~975,511~~980,696 + $~~296,247~~387,747 + $~~119,520~~129,828 + $~~31,790~~31,977 + $~~164,918~~172,949 = **$~~1,587,986~~1,703,197**

13. Engineering Expenses

A. Engineering Expense equal to 5% of Subtotal = **$~~79,399~~85,160**

14. Certification of Closure

A. Engineering Certification - Professional Engineer
96 hours x $156/hr = **$14,976**

B. Engineering Certification - Direct Costs = **$3,198**

C. Total Engineering Certification
$14,976 + $3,198 = **$18,174**

15. Subtotal of Closure Costs

$~~1,587,986~~1,703197 + $~~79,399~~85,160 + $18,174 = **$~~1,685,559~~1,806,531**

16. Contingency Allowance

A. Contingency allowance equal to 10% of Subtotal = **$~~168,556~~180,653**

Total Area Closure Cost = $~~1,854,115~~1,987,184

SECTION IV

QUOTES/COST BACKUP

2001 Transportation and Disposal Rates

1. Bulk Liquid Waste by Rail Tanker Car to Deer Park, Texas

Cost to transload from Aragonite to Clive 4 tankers, $300/load:	$1,200
Cost to move by rail tanker, Clive UT to Deer Park, TX:	$4,584
Tank car rental cost $400/month (1 month round trip):	$400
Total cost for one load:	**$5,847**

20,000 gallon capacity tankers/$5,847	
Cost per gallon for rail transport	$0.29/gal
Cost per gallon for water disposal ($0.147/lb x 8.3 lb/gal)	$1.22/gal
Total Transportation and Disposal Cost - Aqueous Waste	**$1.51/gal**

2. Roll-Off Boxes by Rail Car to Deer Park, Texas

Cost to Transload from Aragonite to Clive (per box)	$150/box
Cost to Load onto rail car	$ 75/box
Cost to Transport by rail from Clive, UT to Deer Park, TX	$1,065/box
Cost to Unload box at Deer Park plant	$ 75/box
Total Transportation Cost by Rail for Solids in Roll-offs	**$1,365/box**

3. Roll-Off Boxes by Truck to Grassy Mountain

Truck Cost of $600/day, 4 loads per day	**$150/box**

Average Incineration Prices utilized in Estimates:

Bulk Water:	$0.147/lb
Bulk Organics:	$0.110/lb
Bulk Solids:	$0.327/lb
Bulk Debris:	$0.378/lb
Sludge:	$0.397/lb
Drums:	
Using a weighted average of the various waste types	$0.44/lb

Average landfill disposal prices utilized in estimates: $190/ton

Over the road transportation cost: $3.00/loaded mile
Road mileage to Deer Park, Texas: 1,750 miles

SEVERN
TRENT
SERVICES

Price Quotation for Analytical Services

Americon Inc. / Safety-Kleen Ltd.

Matrix	Parameter	Method	Unit Price
Wipe	PCBs	8082	$72.00
Solid (Pulverized Concrete)	PCBs	8082	72.00
Solid (Soil)	PCBs	8082	57.00
Water	PCBs	8082	57.00
Water	Total Metals	6010B/7470A	60.00
Wate	Metals Digestion Fee		3.00
Water	Total Organic Halogens (TOX)	9020B	45.00
Water	Total Organic Carbons (TOC)	9060	23.00
Water	Total Cyanide	9012A	17.00
Water	Phenolics	9066	11.00
Water	Oil & Grease	1664A HEM	52.00

STL Denver Notes:

- This quotation is based upon delivering STL Denver's standard hardcopy report (narrative, sample results, standard batch QC) and electronic deliverable 21 calendar days after Sample Delivery Acceptance.
- Upon request, STL Denver will provide an Expanded Report (narrative, sample results, standard batch QC, associated raw data, chromatograms, run logs, etc). A 3% surcharge of the total analytical cost will be applied should this type of package be provided.
- Standard sample containers with preservatives, labels, chain of custody seals and shipping coolers will be provided at no additional charge given one week's notice. Rush shipping charges of $50 per cooler will apply if less notice is provided.
- Sample disposal is provided at no charge. All samples with reportable levels of PCB, dioxin or mixed waste, or which are incompatible with our facility waste disposal profiles, will be returned to you for disposal.
- Standard batch QC includes method blank, Laboratory Control Sample (LCS), and matrix spikes (MS)/spike duplicates (MSD) for applicable methods. Please note that project specific QC samples (MS/MSD/duplicates) will be charged for at the quoted analytical unit price.
- See Attachment A for Analyte Lists and PQLs.

SEVERN TRENT SERVICES

ATTACHMENT A

Analyte Lists / STL Denver Practical Quantitation Limits (PQLs)

Matrix	Parameter	Method	PQL	Units
Wipe	PCBs	8082		
	Aroclor 1016		1.0	ug/wipe
	Aroclor 1221		1.0	ug/wipe
	Aroclor 1232		1.0	ug/wipe
	Aroclor 1242		1.0	ug/wipe
	Aroclor 1248		1.0	ug/wipe
	Aroclor 1254		1.0	ug/wipe
	Aroclor 1260		1.0	ug/wipe
Solid	PCBs	8082		
	Aroclor 1016		33	ug/kg
	Aroclor 1221		33	ug/kg
	Aroclor 1232		33	ug/kg
	Aroclor 1242		33	ug/kg
	Aroclor 1248		33	ug/kg
	Aroclor 1254		33	ug/kg
	Aroclor 1260		33	ug/kg
Water	PCBs	8082		
	Aroclor 1016		1.0	ug/L
	Aroclor 1221		1.0	ug/L
	Aroclor 1232		1.0	ug/L
	Aroclor 1242		1.0	ug/L
	Aroclor 1248		1.0	ug/L
	Aroclor 1254		1.0	ug/L
	Aroclor 1260		1.0	ug/L
Water	Total Metals			
	Arsenic	6010B	0.01	mg/L
	Barium	6010B	0.01	mg/L
	Cadmium	6010B	0.005	mg/L
	Copper	6010B	0.01	mg/L
	Lead	6010B	0.003	mg/L
	Mercury	7470A	0.0002	mg/L
	Selenium	6010B	0.005	mg/L
	Silver	6010B	0.01	mg/L
Water	Phenolics	9066	0.020	mg/L
Water	Total Cyanide	9012A	0.010	mg/L
Water	Oil & Grease	1664A HEM	5.0	mg/L
Water	Total Organic Carbons	9060	1.0	mg/L
Water	Total Organic Halogens	9020B	0.01	mg/L

Analyte Fraction	Method	STL UNIT COST	STL UNIT COST WASTE	MSAI	McCampbell Analytical, Inc.	Lionville Analytical, Inc.	Sequoia Analytical	Ave % more of the 3 closest Labs	STL adjusted for competition
VOLATILE ORGANICS	8260	$97.00	$121.25	$182.00	$125.00	$145.00	$175.00		$134.29
SEMIVOLATILE COMPOUNDS	8270	$200.00	$250.00	$346.50	$250.00	$290.30	$350.00		$276.88
OCP	8081	$103.00	$128.75	$189.00	$75.00	$120.00	$125.00		$142.59
PCBs	8082	$57.00	$71.25	$80.50	$50.00	$80.00	Included in OCPs		$78.91
HERBICIDES	8151	$109.00	$136.25	$189.00	$150.00	$150.00	$135.00		$150.90
OPP	8141	$103.00	$128.75	$140.00	$95.00	$145.00	$125.00		$142.59
TOTAL METALS	6010	$112.00	$140.00	$168.00	$125.00	$170.00	$135.00		$155.05
SULFIDE	376.1	$8.00	$10.00	$14.00	$40.00	$40.00	$25.00		$11.08
MERCURY	7470	$11.00	$13.75	$31.50	$25.00	Included in Total Metals	Included in Total Metals		$15.23
TOC	9060 / 415.1	$23.00	$28.75	$49.00	$40.00	$40.00	$40.00		$31.84
PH	150.1	$6.00	$7.50	$5.60	$10.00	$10.00	$10.00		$8.31
TDS	160.1	$8.00	$10.00	$10.50	$20.00	$15.00	$15.00		$11.08
TSS	160.2	$8.00	$10.00	$10.50	$20.00	$15.00	$15.00		$11.08
BICARB ALK.	310.1	$8.00	$10.00	$11.90	$20.00	$15.00	$10.00		$11.08
ANIONS	300.0	$26.00	$32.50	$42.00	$140.00	$45.00	$105.00		$35.99
Subtotal		$879.00	$1,098.75	$1,470.00	$1,185.00	$1,260.00	$1,265.00		$1,216.89
Data Package		$43.95		$147.00	$0.00	$0.00	$103.20		$60.84
Total		$922.95		$1,617.00	$1,185.00	$1,260.00	$1,368.20		$1,277.73
% more than STL		0.00%		75.20%	28.39%	36.69%	48.24%	38.44%	38.44%
Cyanide, Total	9010A	$17.00	$21.25	$38.50	$70.00	$40.00	$50.00		$23.53
Dioxins (Sub)		$458.00	$572.50	$1,650.00	$900.00	$500.00	$1,000.00		$634.06
		$475.00	$593.75	$1,688.50	$970.00	$540.00	$1,050.00		$657.59
% more than STL		0.00%		255.47%	104.21%	13.68%	121.05%	79.65%	38.44%

TO:	Kelly Clark FAX (801) 506-7617
FROM:	Jack Nelson UPRR phone 402-271-2350 fax 402-271-5104
DATE:	July 31, 2001 Jack

UNION PACIFIC RAILROAD

CONFIDENTIAL PRICE QUOTE

COMMODITY:	Haz solid	
STCC:	48105	
FROM:	Clive, UT	
SERVING RR:	UP	
TO:	Houston, TX (ramp)	
SERVING RR:	UP	
ROUTE:	UP	
THRU RATE:	$1,085	per loaded 20' private container on RR flatcar (minimum three)
	$598	per empty 20' private container on RR flatcar (minimum three)

Please call with any questions.

** TOTAL PAGE.003 **

TO: Kelly Clark
~~[illegible]~~

FROM: Jack Nelson
UPRR
phone 402-271-2350
fax 402-271-5104

Jack

DATE: July 31, 2001

UNION PACIFIC RAILROAD

CONFIDENTIAL PRICE QUOTE

COMMODITY:	Haz liquid
STCC:	49601
FROM:	Clive, UT
SERVING RR:	UP
TO:	Deer Park, TX
SERVING RR:	UP
ROUTE:	UP
THRU RATE:	$4,247
EQUIPMENT:	Private tankcars (zero mileage payout)

Please call with any questions.

SAFETY-KLEEN, INC. CLOSURE PROJECTS
CONTAINMENT AREA DECONTAMINATION

FACILITY NAME	NO.	EPA ID #	STATE	YEAR	CONTAINMENT AREA (S.F.)	DECON FLUIDS (GALS.)	RATE GALS./S.F.	CLOSURE STANDARD ACHIEVED
Safety-Kleen (Crowley), Inc. 1)	550	LAD 079 464 095	LA.	2000	35,440	26,173		YES
S-K Indianapolis, IN	694	IND 000815696	IN	1995	1231	1700		YES
S-K Portage, IN (1)	907	IND 000714428	IN	1994	3862	5242		YES
S-K South Bend, IN (1)	917	IND 000715474	IN	1995	6232	2775		YES
S-K Southaven, MS (1)	952	MSD 981030984	MS	1999	6995	7710		YES
S-K Edwardsville, KS (1)	918	KSD 980973515	KS	2001	3076	3685		YES
		Project Averages			56,836	49,285	0.9	

Notes: 1) Volume of decon fluids is total volume generated. Includes decon of equipment, tanks, walls, etc.

SECTION V

DECONTAMINATION COSTS BY AREA AND TASK

Section V Decontamination Costs by Area and Task

Note:

The costs detailed in this section represent Engineering Estimates for the tasks described. The tasks, and associated durations, equipment, and project management requirements were determined after a facility walk through with compliance personnel, an examination of relevant closure and permit documents, and follow-up discussions. Some assumptions were made with respect to decontamination of surfaces and equipment with which Americon has specific experience. Recent experience includes closure of the Clive Incineration Facility, which has very similar process units, storage areas, and infrastructure. This facility is also within the Utah Department of Environmental Quality's jurisdiction, so consistent closure standards were assumed (see Section VI).

Pricing is representative of that generally available in the industry, and would currently be available from Americon, Inc. for a project of similar scope, complexity and duration.

Clean Harbors Aragonite
Plant Decontamination Task Duration Summary

Area	Task Description	Mandays/Task	Mandays/Task	Total Mandays
1. Container Storage				
	Drum Storage Buildings (2) and Buildings 68 and 69-North/South			
	Dismantle drum storage racks	11		
	Wash ceilings (concrete)	31		
	Wash Walls (concrete)	41		
	Wash front loading bays (both buildings)	10		
	Wash interior storage cells/secondary containment	29		
	Sample	9		
			131	
	Container Processing Area			
	Remove area equipment	4		
	Wash ceiling	8		
	Wash walls	12		
	Wash floor	8		
	Dismantle, wash decant area	12		
	Sample	4		
			48	
	Dock/Breezeway			
	Remove elevator/rollers	10		
	Lower level hoist decontamination	8		
	Sump cleanout	2		
	Dock wash	8		
	Breezeway Wash	6		

	Electrical isolation of conveyors	1		
	Ceiling wash	6		
	Miscellaneous demolition	3		
	Sample	2		
			46	
	Shred Tower Storage Area			
	Dismantle drum storage racks	2		
	Containment bin cleanout	2		
	Wash concrete under storage rack location	1		
	Sample	1		
			6	
	Container Storage Subtotal			**2~~25~~31**
2. Tank Farm				
	Sample Station			
	Wash structure	3		
			3	
	Unload Building			
	Triple rinse pumps, piping	3		
	Isolate, pull pumps	4		
	Isolate, pull piping	6		
	Clean containment	4		
	Sample	2		
			19	
	Waste Tanks			
	Triple rinse tanks, piping	6		
	Isolate piping	3		
	Pull piping	2		

	Purge tanks	8		
	Muck out interior	40		
	Remove exterior structural	20		
	Remove tanks	8		
	Cut-up tanks for disposal	45		
	Clean containment	9		
			141	
	Pump Houses (2)			
	Triple rinse pumps, piping	4		
	Isolate, pull pumps	10		
	Isolate, pull piping	12		
	Clean containment	10		
	Sample	2		
			38	
	Blend Tanks			
	Triple rinse tanks, piping	3		
	Isolate, purge	5		
	Isolate, remove pumps	2		
	Remove piping	3		
	Muck out interior	8		
	Remove mixers (sectioned)	4		
	Top valves and piping	2		
	Remove exterior structural steel	6		
	Pull tanks	4		
	Cut-up tanks	10		
	Remove unload rack piping	2		
	Containment	3		
	Purge, pull O/H lines to incin feed rack	7		
			59	

	Carbon Adsorber			
	Remove packing for disposal	6		
	Remove tanks, piping, for disposal	8		
	Sample	2		
			16	
	Direct Burn Area			
	Purge piping, pull	4		
	Clean containment	4		
	Pull unloading pipes	2		
	Pull pumps	2		
	Wash bay	4		
	Sample	2		
			18	
	Tank Farm, Piping Subtotal			**294**
3. Bulk Solids				
	Bulk Solids Building			
	Rinse down ceiling, upper walls	10		
	Clean walls	28		
	Clean tanks	35		
	Sample	8		
			81	
	Shredder Area			
	Clean hopper, shelf	8		
	disassemble, clean shredder	8		
	sample	2		
			18	

	Drag Conveyor			
	Disassemble conveyor	6		
	Clean conveyor interior	6		
	Clean hopper, knife gates	6		
	Sample	2		
			20	
	Clean hpu mains	2		
	Pull small lines	2		
	Drain hpus, isolate	2		
	Isolate electrical	2		
			8	
	Bulk Solids Subtotal			**127**
4. Sludge Tanks				
	Sludge Tank – Small			
	Triple rinse	2		
	Muck out interior	6		
	Remove valves and piping	2		
	Wash tank exteriors	4		
	Pull tank	4		
	Cut-up tank	6		
	sample	2		
			26	
	Sludge Tank - Large			
	Triple rinse	3		
	Muck out interior	6		

	Wash interior	6		
	Remove valves and piping	4		
	Wash tank exteriors	4		
	Pull tank	4		
	Cut-up tank	10		
	Sample	2		
			39	
	Sludge Tanks Subtotal			**65**
5. Incineration Train				
	Deslagger			
	Pull out	2		
	Isolate, disconnect	4		
	Open housing, pull headgear	4		
	Pull head pulley	4		
	Pull belt, dispose	3		
	Cut-up shell for disposal	20		
	Gross area decontamination	4		
	Surrounding sump area decontamination	4		
	sample	2		
			47	
	Kiln Exterior			
	Clean exterior kiln drive	2		
	Clean ring gear	2		
	Clean from discharge to deslagger	2		
	Remove piping	16		
	Pull kiln face feed points	6		
			28	

	Kiln Interior			
	Remove brick, containerize	35		
	Clean interior	8		
	Sample	2		
			45	
	SCC			
	Clean area exterior	2		
	Remove feed piping	6		
	Remove burners	15		
	Remove SCC exterior sheathing	20		
	Push in SCC brick	35		
	Muck out brick into rolloffs	20		
	Clean structure	8		
	Sample	2		
			108	
	Kiln Feed Piping			
	Isolate, purge	2		
	Pull, cut piping	10		
			12	
	Ducting from SCC to Saturator			
	Cut refractory to release joints	8		
	Crane out ducts, including thermal vent	4		
	Remove duct refractory	20		
	Wash duct to scrap	4		
	Sample	4		
			40	

	Saturator			
	Pull packing, containerize	2		
	Pump solids, muck out bottom	4		
	Scaffold interior	4		
	Sample	2		
			12	
	Scrubber			
	Pull packing, muck out bottom	8		
	Scaffold interior	4		
	Clean interior	10		
	Sample	2		
			24	
	Spray Dryer			
	Remove residue	6		
	Isolate, remove piping	6		
	Remove, clean ducting	10		
	Clean discharge area	4		
	Sample	2		
			28	
	Baghouse			
	Clean inlet, outlet duct	6		
	Remove bags, cages	8		
	Clean/remove screw conveyors	12		
	Clean interior	10		
	Sample	2		
			38	
	Baghouse Residue Loadout Bldg			
	Clean conveyors	8		

	Clean loadout hoppers	4		
	Clean building structure	6		
	Clean containment	6		
	Sample	2		
			26	
	ESP			
	Isolate	1		
	Clean inlet, discharge ducting	4		
	Clean interior	6		
	Sample	2		
			13	
	ID Fans, Stack Inlet Ducting			
	Clean ID #1 fan inlet	2		
	Clean transition to ID fan # 2	2		
	Clean fan #2, outlet to sack	2		
	Clean bottom section of stack	2		
			8	
	Stack			
	Check condition of interior	1		
	De-erect	2		
	Clean interior	2		
	Sample	1		
			6	
	pH Adjustment Tanks			
	Isolate, drain	2		
	Clean, rinse	4		
	Remove piping, pumps	2		

			8	
	Shred Tower Area			
	Remove elevator towers	10		
	Hoist decontamination	8		
	Wash structure	3		
	Sump cleanout	2		
	Electrical isolation of conveyors	2		
	Sample	2		
	Clean concrete pad	8		
	Miscellaneous demolition	3		
	Purge piping and pull	4		
	Wash airlock structure	8		
	Disassemble, clean shredder, upper	8		
	Disassemble, clean shredder, lower	8		
	Disassemble conveyor	6		
	Clean isolation gates	6		
	Sample	4		
	Clean hpu mains	2		
	Pull small lines	2		
	Drain hpus, isolate	2		
	Isolate electrical	2		
	Dismantle, wash feed auger	12		
			102	
	Incineration System Subtotal			**~~443~~545**
	Area Totals	**~~1154~~1262**	**~~1154~~1262**	**~~1154~~1262**

Decontamination Equipment and Supplies

Unit	Unit Qty	Item Description	Item Qty	Rate	Extension
		General Equipment			
Week	~~19~~21	Pressure Washers w/Trailers	4	$475	$~~36,100~~39,900
Week	~~9~~21	Sand Blasting	2	$525	$~~9,450~~22,050
Week	~~19~~21	High Reach Fork Lift	1	$1,149	$~~21,831~~24,129
Week	~~19~~21	Fork Lifts (5,000 lbs)	2	$275	$~~10,450~~11,550
Week	~~19~~21	Shooting Boom Lift	1	$1,343	$~~25,517~~28,203
Month	3	Vactor Truck (up to 176 hrs/mo)	1	$9,993	$29,979
Week	12	Vacuum Boxes	2	$468	$11,232
Hour	~~200~~220	50-Ton Crane w/operator	1	$75	$~~15,000~~16,500
Hour	~~200~~220	100-Ton Crane w/operator	1	$112	$~~22,400~~24,640
Week	~~18~~20	Welding/Cutting and Supplies	2	$219	$~~7,884~~8,760
Week	~~19~~20	Trailers for Transporting Equipment on-site	1	$75	$~~1,425~~1,500
Week	~~19~~21	Storage Trailers for Equipment on-site	2	$69	$~~2,622~~2,898
Month	~~3~~4	Hydroblaster, 30,000 psi	1	$12,491	$~~37,473~~49,964
LS	1	Mob, Demob, Permits and Misc Expenses	1	$2,498	$2,498
Week	~~19~~21	Air Compressors	2	$381	$~~14,478~~16,002
Week	~~19~~21	Trucks	2	$344	$~~13,072~~14,448
Week	12	Koppus Blowers	2	$75	$1,800
Week	~~19~~21	Scaffolding	1	$187	$~~3,553~~3,927
		Subtotal			$~~266,764~~309,980
		Supplies			
Manday	1	PPE	~~1,400~~1,540	$25	$~~35,000~~38,500
Drums	~~20~~25	Drums of Detergents	1	$625	$~~12,500~~15,625
Week	~~18~~20	Small Tools	1	$250	$~~4,500~~5,000
Week	~~19~~21	Sampling Supplies	1	$156	$~~2,964~~3,276
Bag	1	Bag Grit for Sand Blasting	~~700~~710	$10	$~~7,000~~7,100
Roll	1	Absorbent Mats	~~40~~45	$137	$~~5,480~~6,165
Roll	1	Plastic	~~200~~220	$75	$~~15,000~~16,500
Case	1	Duct Tape	~~20~~25	$156	$~~3,120~~3,900
Each	1	Drums	~~250~~275	$37	$~~9,250~~10,175
Roll	1	Drum Liner	~~50~~55	$87	$~~4,350~~4,785
		Subtotal			$~~99,164~~111,026

		Total			$~~365,928~~421,006

Decontamination Project Administration

Unit	Unit Quantity	Item Description	Item Quantity	Rate	Extension
		Project Management Personnel			
Hourly	700	Project Manager	1	$81	$56,700
Hourly	900	Field Supervisor	1	$40	$36,000
Hourly	900	Quality Assurance Officer	1	$37	$33,300
Hourly	500	Clerical	1	$19	$9,500
		Subtotal			$135,500
		Administrative Equipment/Supplies			
Month	6	Project Office	1	$999	$5,994
Month	6	Fax, Copier	1	$312	$1,872
Month	6	Phone	1	$250	$1,500
Week	18	Postage	1	$37	$666
Month	6	Utilities	2	$125	$1,500
Month	6	Supplies	1	$312	$1,872
Month	6	Cleaning and Disposal	1	$312	$1,872
Day	80	PPE for Administrative Personnel	2	$25	$4,000
Week	18	Administrative Truck	1	$281	$5,058
		Subtotal			$24,334
		Incidental Costs			
Each	1	Travel	20	$625	$12,500
Day	80	Subsistence	4	$94	$30,080
		Subtotal			$42,580

		Total			**$202,414**

Decontamination Cost Summary

Unit	Unit Quantity	Item Description	Item Quantity	Rate	Extension	Totals
		Direct Costs				
Mandays	1	Labor				
		Direct Labor Cost	~~1154~~1262	$350	$~~403,900~~441,700	
						$~~403,900~~441,700
		Equipment				
		Direct Equipment			$~~266,764~~309,980	
		Supplies			$~~99,164~~111,026	
						$~~365,928~~421,006
		Project Overhead				
		Project Management Personnel			$135,500	
		Admin Equipment/Supplies			$24,334	
		Incidental Costs			$42,580	
						$202,414
LS	1	Mobilization	1	$37,473	$37,473	
LS	1	Demobilization	1	$12,491	$12,491	
						$49,964
Subtotal						$~~1,022,206~~1,115,084
LS	5%	Contingency	1	$~~1,022,206~~	$~~51,110~~55	

				1,115,084	,754	
Subtotal						$~~51,110~~55,754
		Total				**$~~1,073,316~~ 1,170,838**

SECTION VI

DECONTAMINATION STANDARDS/ANALYTICAL PARAMETERS

Table I-1.3
Decontamination Rinse Water Analysis

Parameters (T=Total Metals)	Maximum Concentration Increase* (mg/l)
Oil and Grease	15.0
Phenols	0.2
Arsenic - T	0.1
Barium - T	5.0
Cadmium - T	0.03
Copper - T	1.0
Lead - T	0.1
Mercury- T	0.005
Selenium - T	0.05
Silver - T	0.1
Total Organic Halides	0.5
Total Organic Carbon	40.0
Cyanides	0.2

* The values given are the maximum allowable increase in a parameter, over the level that exists in the final rinse water prior to use. This "prior existing level" shall be established as the average of at least three (3) analyses of the rinsewater, plus three (3) standard deviations. These analyses will be made at the time of closure, when a water source is known.

Table I-1.3 (Continued)
Decontamination Rinse Water Analysis

NOTE:

1. Many different waste codes will be handled through-out the Clive facility. Over its operating lifetime, it is likely that each unit will eventually handle practically all waste codes actually received, either directly or through the "mixture" and "derived from" rules. From a regulatory viewpoint, then, the potential variety of contamination at all units will be identical. Therefore, only one list of parameters will be considered. This list will be used for all waste management units throughout the facility.

   The parameters listed in Table I-1.3 are intended to represent the contaminants likely to be present in the highest levels, and to give an indication of potentially toxic constituents. It must be noted that many of the constituents of concern - the organics, especially the chlorinated organics - are volatile and will likely vaporize for the most part during the cleaning process itself. The loss of these relatively small amounts of materials is considered as unavoidable and non-threatening to the environment or the general public. Any remaining heavy, residual organics will be included by the analyses for Oil and Grease, TOC, and/or TOX. All of these parameters will detect general contamination to relatively small values.

   It must also be remembered that the decontamination procedures listed in the application apply only to surfaces which are relatively impermeable (designated as "hard surfaces"). They will be used only for metallic items, such as tanks, and concrete. Any porous material, such as soils are intended for landfilling or other EPA/State approved treatment technologies. For most of the items to be decontaminated, a visual inspection will be as useful as actual analysis of the wash; however, to provide a quantitative, objective measure of contamination (or the absence thereof), and a historical record, these analyses will be conducted as described previously for “hard surfaces.”

   Wide ranging analyses for specific organic chemicals, such as that achieved by GC/MS work, will not provide significantly more useful information. In addition, these analyses take considerable periods of time, during which site conditions would have changed markedly (due to continuing exposure to the elements).

   The parameters chosen will adequately sample for all constituents of real concern, or for indicators of those constituents.

ATTACHMENT 8

WASTE STORAGE, PROCESSING, AND TRACKING

Attachment 8
Waste Storage, Processing, and Tracking

Table of Contents

1.0 Introduction

This Attachment outlines specific requirements for the management of wastes prior to incineration at the Clean Harbors Aragonite facility. It discusses available management options and specifies requirements for storing, managing, processing, and tracking wastes in containers and in bulk.

This Attachment addresses the management of wastes accepted at the facility. However, there are two situations where wastes that have not been accepted are managed at the facility. These are transfer operations and rejected wastes. Management of these wastes is discussed in Sections 1.1 and 1.2 below. The management of site-generated waste is discussed in Section 3.4.

1.1 Transfer Operations

After off-loading, Clean Harbors Aragonite may temporarily (ten days or less) hold wastes manifested to another facility similarly to what is allowed in Utah Administrative Code (UAC) R315-263-12. This will be referred to as transfer operations. These containers will not be subject to the requirements for barcodes/green acceptance labels or marks, but they will be clearly marked/labeled as transfer wastes. They may only be held in E-1, E-5, or in bays 1-6. If transfer wastes are held in one or more bays, accepted and transfer wastes will not be placed in the same row and wastes will be segregated according to compatibility. The date that they are placed into the holding area will be clearly documented in the operating record.

1.2 Rejected Wastes

Occasionally, a generator will ship waste to Aragonite for treatment that for a variety of reasons will not be accepted. These are referred to as "rejected wastes." The procedures below will be used to ensure that these wastes will be managed properly while on site and shipped off site expeditiously.

There are three scenarios that may occur where rejected waste may need to remain on site for a short period of time. The first scenario is where waste arrives that Aragonite cannot or does not want to manage. The second scenario is for scheduled containers that initially appear to match the manifest. However, based on fingerprint analyses, LDR form inspection, etc., Aragonite may discover that it cannot or does not want to manage some of the waste that is received. The third scenario is when containers arrive that are not identified on the manifest. These will be considered to be rejected waste while the discrepancy is investigated. These containers may be held at the facility for a short time before resolving the issue and accepting them or shipping them off site.

Under all of these scenarios, the container would receive a barcode during the receiving process. The barcode would appear similar to other Aragonite barcodes. In the waste tracking system, the processing waste class code will be set to “RTAF”, “RTG”, or “RTGI” and the date the reject determination was made shall be noted in the comments section of the waste tracking system. Containers in reject status will be identified on the *Drum Reject Report*.

The location of all rejected waste will be tracked in the computerized waste tracking system similar to all other wastes while on site. The waste tracking system will clearly show that the material is rejected waste and when this determination was made. All containers of rejected waste will be barcoded to facilitate tracking and will also be clearly labeled as rejected near the barcode on the container.

Rejected containers, except gas cylinders, may be temporarily placed in the "K" or "M" rows of building E-1 or in any of the bays to await shipment off-site. Arrangements will be made to ship the material to another TSD or to return it to the generator. Rejected wastes will not remain on-site for longer than 60 days, unless an extension has been granted by the Director. When a rejected container is shipped off site, the tracking activity code will be updated to “RTAF”, “RTG”, or “RTGI” and the actual date will be set to the date the container leaves the facility. Containers that have been rejected and shipped off-site will also be identified on the *Drum Reject Report*.

If Aragonite decides to accept a container of waste that was initially rejected (e.g., an extra drum that arrived on a load) that determination will be made within 60 days of receipt of the container (PREC date). These containers will also be identified in the waste tracking system such that they are captured by the *Drum Reject Report*. The final date code will be the date they were accepted. The date that they were initially rejected will be preserved in the comments section in waste tracking.

Rejected compressed gas cylinders may be temporarily placed in the cylinder storage area to await shipment off site.

2.0 Waste Receipt and Acceptance

2.1 Pre-transport Requirements

All generators must prepare all shipments in accordance with R315-262-20 through 23, R315-262-30 through 33, and the Clean Harbors Aragonite guidelines for waste acceptance and receiving. All containers must meet HM-181, Department of Transportation Performance Oriented Packaging (DOT acceptable containers).

2.2 Vehicle Check-in and Routing

All trucks arriving at the Clean Harbors Aragonite, facility must stop and their drivers check in at the front desk. Drivers present the manifest(s) to the guard, who performs a visual inspection of the manifest and vehicle. For bulk shipments, the driver is directed to the scale and the incoming weight is recorded on the weigh ticket. Material shipping in vans or flat beds will be weighed by the container, not the load. The truck is then directed to the proper unloading/sampling area or drop area. Trucks with frozen waste may also be placed in the thaw shed to thaw.

2.3 Acceptance and Sampling

Waste is received from Clean Harbors Aragonite approved transporters in vans, flat-bed trailers, bulk solid trucks (end-dumps, dump trucks, and roll-offs), and bulk liquid tankers.

2.3.1 Vans and Flat Beds

Vans proceed to one of the container building unloading docks and unloading begins. Clean Harbors Aragonite personnel remove the containers from the vehicle to the scale station and record the weight on each container. Alternately, if a load of containers comes from a Clean Harbors facility where the containers were weighed previously (e.g., a hub or transfer facility), the Permittee may use Procedure #REC1003 instead of weighing each container at the facility. The appropriate containers will be moved to the sampling area. Containers are only opened for visual inspection and sampling in the receiving and holding floor areas of buildings E-1 and E-5 and in bays 1 through 6 when in receiving mode. Compressed gas cylinders will be placed on racks for transport and storage in the cylinder storage area. If the van cannot be unloaded immediately, it may be directed to one of the drop areas (east of the container storage buildings or along the fence east of the container storage buildings -- another location south of main street may be used on a temporary basis only after receiving oral approval from D~~SHW~~WMRC) until an unloading dock is available.

Flat-bed trailers and vans are used for transporting large items such as transformers, and frequently carry smaller DOT acceptable containers intermixed with the load. These containers are off-loaded and checked through the same system as described above. However, very heavy or very tall items such as large transformers and flow bins containing catalyst may require unloading in an area not restricted by the height of the doorway or the size of forklift that is being used, such as the bulk solids pad.

The receivers verify container count and also verify the integrity of the containers. Manifest discrepancies (count) are reported to the appropriate personnel. Sampling is done per the Waste Analysis Plan. Sampling and analysis results are used to determine the appropriate management process(es) for the material. Aragonite barcodes are placed on the containers during this receiving process. Once it has been determined that the waste will be accepted, a green acceptance label or mark will be placed on the Aragonite barcode. After the waste has been accepted, the containers may be moved from the receiving and holding areas to the storage or processing areas. Compressed gas cylinders may be moved to the compressed gas storage area prior to acceptance. They will not remain in the receiving building for more than 24 hours. All discrepancies will be resolved with the generator prior to accepting the containers. Written documentation of these discussions and resolutions will be clearly noted in the document packet for each manifest.

2.3.2 Bulk Solids, Sludges, Liquids

Bulk solids containers (end-dumps, dump trucks, and roll-offs) must be covered. Tarps or lids are acceptable container covers if the tarps or lids are visually free of cracks, holes, gaps, or other open spaces. Tarps or lids may be removed for sampling or removing waste but must be closed upon completion of the activity or leaving the vicinity of the container. Any bulk solids container that will not be off-loaded within 24 hours of receipt must be visually inspected for visible cracks, holes in tarps, gaps, or other open space into the interior of the container. Efforts must be made to repair any defect found within 24 hours after detection. The repair must be complete within five days after detection or the waste must be removed from the container. The container cannot be used to manage waste until the repair is complete.

The opening device or dome on tankers may be opened for sampling, visual inspection of the contents, or washout, but must be closed upon completion of the activity or leaving the vicinity of the container. Any tanker that cannot be off-loaded within 24 hours of receipt must be visually inspected for proper closure of all hatches and valves.

Trucks containing bulk wastes proceed to one of the unloading areas (bermed area east of the bulk solids building and the small sludge tank, T-406 (which includes the bulk solids/sludge pad) for bulk solids and sludges, the bulk liquids unloading building for bulk liquids, the drive through direct burn station, the sludge pad direct burn station (which is part of the bulk solids/sludge pad), the drive through corrosive direct burn station, or the truck unloading direct burn station for tankers to be fed directly to the kiln/afterburner), or the sampling platform between the control room and the utility building where sampling is done per the Waste Analysis Plan. During inclement weather sampling may be done in the bulk liquids unloading building (E-14) or the thaw shed. If the truck cannot be unloaded immediately, it may be directed to the drop area (along the fence east of the bulk solids building for bulk solids and sludges, or northwest of the bulk liquids unloading building for bulk liquids -- another location south of main street may be used on a temporary basis only after receiving oral approval from D~~SHW~~WMRC) until an unloading area is available. No unloading can commence until the necessary laboratory analyses are complete and the necessary waste tracking requirements are met.

Sampling and analysis results are used to determine the appropriate management process(es) for the material. Once it has been determined that the waste will be accepted, the waste is accepted by:

- off-loading it to a receiving/storage tank,
- by placing the tanker in the drive through direct burn station (if not already located there) and transferring the material to tank T-411 in the waste tracking system,
- by placing the tanker in the drive through corrosive direct burn station (if not already located there) and transferring the material to tank T-415 in the waste tracking system,
- by placing the tanker in the truck unloading direct burn station (if not already located there) and transferring the material to tank T-413 or T-414 in the waste tracking system,
- by placing the tanker in the sludge pad direct burn station (if not already located there) and transferring the material to tank T-412 in the waste tracking system, or
- by placing (if not already located there), the tanker or bulk container on the bulk solids/sludge pad or E-1, E-5, or E-4 receiving docks and by placing a green label or mark on the barcode indicating that the waste has been accepted.

Prior to and during the unloading of bulk liquids, personnel visually check to ensure all valves are in the appropriate position, transfer lines are secured and the drip pans or absorbent pads are under the connections. A check is made to ensure that compatibility and other waste acceptance analyses are complete prior to commencing the transfer. Clean Harbors Aragonite personnel remain on-the-job while waste is removed from the transport vehicle and until all transfer lines have been disconnected.

In order to reduce demurrage costs, Clean Harbors Aragonite may transfer direct burn bulk waste from a customer tanker to a site tanker. The tanker-to-tanker transfer is performed in the truck unloading building, E-14, much like a tanker to tank transfer. The receiving tanker is DOT certified for integrity and roadworthiness annually and is subject to all permit requirements for direct burn feeding.

The appropriate Clean Harbors Aragonite personnel visually inspect bulk solid waste material during the off-loading to a bulk solids tank. Should the employee see any abnormal or non-conforming material, off-loading stops until the situation is rectified.

Each document packet will contain records indicating that each waste has been accepted or rejected, initialed and dated by the appropriate waste acceptance personnel.

2.4 Check-out Procedure

Once the transport vehicle is empty, it is directed to the scales for weigh-out. The transporter receives a copy of the weigh ticket and the signed manifest. Clean Harbors Aragonite personnel will note if the actual weight deviates by more than 10% of the manifested weight, constituting a manifest discrepancy (bulk loads only). If this occurs, the appropriate personnel will be informed and will commence discussions with the generator. Written documentation of these discussions and resolutions will be clearly noted in the document packet for each manifest.

3.0 Waste Storage

3.1 Containers

This section details the processes that will be used to store waste in containers at the facility.

The east storage building contains a receiving area (building E-5 floor area), three bays for receiving or waste storage depending on the operating mode (bays 1, 2, and 6), and two special waste storage areas (building E-6 and E-7), which are for liquids that are classified as "ignitable" or have a flash point of less than 140 °F. The west storage building has a receiving area (building E-1 floor area), three bays for receiving/waste storage or staging for outbound shipping depending on the operating mode (bays 3, 4, and 5), and two general storage areas (buildings E-2 and E-3). Three workstations are located in building E-2 which are used for processing containers of waste and building E-3 has two safes for storage of DEA materials. Buildings 68 and 69-North/South, located east of container storage building E-2, are separate storage areas exclusively for incompatibles. The container processing area (building E-4) contains the decant room and the repack area. The decant inventory area in the E-4 building may also be used for sampling in conjunction with compatibility testing for liquids. Building E-4 and the breezeway (covered, bermed area between building E-4 and the kiln front wall) are used for staging containers for feed to the kiln, repack area, decant area, bulk solids tanks, small sludge tank, and/or the shredder(s). The shred tower storage area will be used to stage materials to be fed to the shred tower. ~~The direct burn pad is used to hold a direct burn vessel while its contents are being fed to the kiln.~~ The drive through direct burn station, the drive through corrosive direct burn station, the truck unloading direct burn station, and the sludge pad direct burn station are used to hold tankers while their contents are being fed to the kiln/afterburner. The drive through corrosive direct burn station may also be used to hold bulk liquid totes while their contents are being fed to the afterburner. The truck unloading direct burn station may also be used to store smaller containers on pallets. The bulk solids/sludge pad may be used to store tankers, bulk containers, and smaller containers on pallets. The drive through direct burn station is also used to hold containers of waste while their contents are being decanted to a tanker. The drum pumping storage area is used to stage containers for processing through the drum pumping station, with the drum pumping station being the area where containers are held while their contents are fed to the kiln. The E-1, E-5, and E-4 receiving docks may be used to store bulk containers, containers on pallets and containers in refrigerated trailers. These areas are shown on drawings D-800-M-402 and D-800-M-403 in Attachment 10. Containers of waste may also be stored in the lab cooler. Compressed gas cylinders are stored in the cylinder storage area west of Center Street and north of 2nd South Street as indicated on Drawings D-034-M-002 and D-034-M-401 and at the cylinder feed station indicated on D-034-M-002. Containers, except compressed gas cylinders, may also be processed through the shred tower. The discharge from the shred tower is directly into the kiln.

The current operating mode (receiving or storage) of bays 1 through 6 will be maintained in the operating record and prominently displayed in buildings E-1 and E-5 at all times.

Material waste profiles, sample results, and ultimate destinations provide the basis for determining where each container is stored and what is done to prepare the material for incineration or transfer.

The waste types commonly stored in the general storage area consist of liquids, dirt and debris from spills, capacitors awaiting shredding, transformers awaiting draining and flushing, solids awaiting incineration or transfer to off-site facilities, and empty containers that will be either incinerated, reused, crushed and disposed off site, or recycled.

Dioxin-contaminated wastes will be stored similarly to all RCRA wastes. Handling instructions will be based on the characteristics, special instructions provided on waste profile sheets, and lab results for compatibility.

Clean Harbors Aragonite may accept infectious wastes provided the generator packages them in appropriate containers meeting DOT packaging requirements. These containers are packaged so as to prevent leakage or rupture during transport to the site. If possible, scheduling of any infectious waste will coincide with immediate feed to the kiln. The containers will be fed via the elevator and ram feeder. In the event these wastes cannot be incinerated within seven days of receipt at the facility, they will be shipped off site or will be stored in a permitted storage area that will be maintained at or below 40 °F and fed as soon as possible so that storage will be minimized.

Containers stored at the facility will be DOT acceptable containers with the following exceptions:

- containers of waste generated on-site need not be DOT acceptable but must be in good condition and must be covered or must have a drum liner which is kept closed. They must also be made of appropriate materials of construction and be sturdy enough to be safely transported inside the buildings and throughout the facility.

- in the event that a generator does not use DOT acceptable containers to ship its wastes, the containers can only be stored if they are in good condition, covered or sealed, and sturdy enough to be safely transported inside the buildings and throughout the facility.

Roll-off bins, used for bulk solids, will not be stored in the building but will be placed into other permitted storage, emptied into a bulk solids tank or transferred to an EPA approved hazardous waste landfill. "Super Sack" type bags or boxes or other similar DOT bulk containers may be used to store contaminated soil or other dry debris in the container management areas.

All containers, regardless of size, must be visually inspected within 24 hours of receipt and every 12 months thereafter. Visual inspection includes checking the container and its cover and closure devices for cracks, holes, gaps, or other open spaces into the interior of the container. Any defects must be corrected within 24 hours of detection.

Any container that is larger than 119 gallons and is not a DOT acceptable container must be tested in accordance with EPA Method 21 and R315-265-1, which incorporates 40 CFR §265.1084(d) by reference, for organic emissions if it contains hazardous waste in light material service. If the monitoring shows the emissions to be greater than 500 ppm, the container must be repacked or processed within five days. Containers that have been demonstrated, within the preceding 12 months, to be vapor-tight, as specified by R315-264-1086(h), are exempt from these requirements.

Containers are inspected for leaks prior to pallet pickup. Should any container, except cylinders, leak, the contents are transferred to a new container or the container is placed into an overpack. Should transfer of the waste to another container be necessary because of poor condition of the container, it is normally conducted in the decant room or repack room in building E-4 or one of the workstations in building E-2.   However, if moving it may cause it to leak or otherwise deteriorate, it may be transferred at its current location. If a leaking container is to be overpacked, any leakage is corrected by overpacking the container before it is moved. Compressed gas cylinders that are determined to be leaking will be transferred to the glove box at the cylinder feed station and the cylinder contents vented to the incinerator. If the incinerator is down when a cylinder is leaking, the cylinder will be transferred to a remote area of the facility and allowed to leak until empty.

If the spilled material flows into a sump, Clean Harbors Aragonite employees will follow the spill containment procedures and immobilize the spilled material using absorbents and neutralizing chemicals (if recommended). Sumps are kept clean and free of chemical spillage in order to minimize the danger of an incompatible reaction occurring in the sump.

If the spilled material splashes against containers of an incompatible waste material, the containers will be moved into a safe area and cleaned of all chemical residue. The floor/pad area will be decontaminated in accordance with emergency spill containment procedures.

All containers are marked and labeled with the appropriate RCRA/TSCA hazardous waste labels prior to storage in the container storage area.

Containers are transported from the dock to the assigned row and space. Forklifts are used to move the palletized containers within the container management areas.

Compressed gas cylinders are transferred into racks in the receiving buildings upon receipt and transferred to the cylinder storage area for storage. Only compatible cylinders are stored in a given rack and racks holding incompatible cylinders are stored in separated areas of the cylinder storage area. Determination of compatibility and storage separation distances are in accordance with the International Fire Code.

3.2 Bulk Solids, Sludges, and Liquids

Bulk wastes accepted at the facility are either liquids, solids, or sludges. This section outlines the management of bulk wastes at the facility.

The blend liquid tanks and the aqueous liquids tanks are to be operated in accordance with the process flow diagrams D-034-PF-301 sheets 1 and 2. Bulk liquids are off-loaded at the bulk liquids unloading building, E-14. After assuring that the material is compatible with the material already in the tank, it is pumped to a liquids tank (T-301 through T-312 or T-321 through T-324). Blended liquids may be pumped from tanks T-301 through T-306, T-309, T-310, and T-321 through T-324 for feed to the incinerator burners. Material from different tanks may be commingled to obtain a more uniform blend and to obtain the desired feed chemistries and characteristics. The source of blend feed to the burners may come from up to two sources (i.e., two tanks) at one time. The aqueous waste feed comes from tanks T-307, T-308, T-311, or T-

312. There are occasions when material must be removed from the tanks, and it is not moved to another tank in the tank farm or fed to the incinerator (e.g., tank cleanouts for inspections or maintenance, removal of material that may be plugging the tanks, etc.). In these instances, the material may be placed into containers or into a tanker. The containers will be barcoded and placed into permitted storage. The tanker will be placed in the drive through direct burn station, the drive through corrosive direct burn station, the truck unloading direct burn station, the sludge pad direct burn station, the bulk solids/sludge pad, E-1, E-5 or E-4 receiving docks, or will be off-loaded within 24 hours by pumping the material into a liquids tank or to the sludge tank system. Any residues in the tanker may be flushed into drums or the bulk solids tanks system.

There may be times where, due to safety or compliance concerns, or for other reasons, bulk liquids will not or cannot be stored in a tank. In these situations, the tanker truck may be placed in the drive through direct burn station, the truck unloading direct burn station, or the sludge pad direct burn station and the material fed directly to the direct burn lance, A-101. Alternately, a tanker or bulk liquid tote may be placed in the drive through corrosive direct burn station and the material fed directly to the afterburner through lance A-106B-5.

Fuel oil trucks are unloaded adjacent to the fuel oil storage tank using a truck pump or from truck unloading. Tank T-305 may be used as a fuel tank after it has been decontaminated from hazardous waste/PCB use. The tank is equipped with separate inlets for waste and fuel and outlets to the waste feed header and fuel oil header. If the tank system is used for waste, connections to the fuel oil system are blanked off and waste connections are blanked off when the tank is utilized for fuel.

Liquid material that is too viscous or otherwise unsuitable for management in the liquid tank farm is put in the sludge system. Normally it is off-loaded to the small sludge tank (T-406) from a tanker parked in the bermed area directly east of the tank. However, sludge can also be off-loaded directly to the large sludge tank (T-401). Sludge that is received in drums can also be poured from the drums into the small sludge tank. Sludge may be transferred between either of the two sludge tanks. A recirculation line to near the front wall provides a source of sludge feed to the incinerator. Part of the recirculating sludge is drawn off through a mass flow meter to the kiln front wall sludge lance (A-103). Similar to bulk liquids, there may be times where, due to safety or compliance concerns, or for other reasons, sludges will not or cannot be stored in a tank. In these situations, the tanker truck may be placed in the drive through direct burn station, the truck unloading direct burn station, or the sludge pad direct burn station and the material fed directly to the sludge lance, A-103.

Bulk solids material is off-loaded into permitted container storage on the bulk solids/sludge pad, E-1, E-5, or E-4 receiving docks, or emptied into either the small bulk solids tank or the large bulk solids tanks. Material from small containers or the entire container with its contents may also be placed in the tanks. These may be dumped through one of the large roll up doors on the east side of the building. Material may be processed from any of these tanks through the bulk solids shredder to make a more manageable, uniform, and homogenous feed. ~~Drums from the~~

~~breezeway may also be fed directly to the shredder.~~ The discharge of the bulk solids shredder is into tank T-404B-West. Material from the tanks is moved to the other tanks, to the bulk solids shredder, or to the apron feeder feed hopper by means of a clamshell.

3.3 Empty Containers

Empty containers are managed by incineration, recycling, off-site disposal and reuse.

Empty containers requiring incineration are staged in the container processing room for possible shredding and subsequent incineration.

Acceptable containers that are in good condition and empty as defined in UAC R315-261-7 are set aside. They are staged and may be sent off site to a recycler.

Empty containers may be managed by shipping them off site for disposal at an approved facility.

The facility may select empty containers for reuse by Clean Harbors Aragonite for purposes such as repacking. The technician inspects these containers and ensures that they are empty. Empty containers are placed in the container processing, general storage, and receiving areas.

Empty compressed gas cylinders are returned to the customer or de-valved and shipped off site to a landfill or recycler.

3.4 Site-generated Wastes

Clean Harbors Aragonite is a generator of incineration waste residue (slag, spray dryer and baghouse catch) that will be reburned or manifested off site to an EPA-approved disposal facility. The residue holding areas exist to handle the incinerator residue prior to reburning or off-site shipment. These areas are located east and west of the liquid tank farm, and south of the incineration system. Clean Harbors Aragonite is also a generator of other site-generated waste (e.g. spill cleanups, PPE, etc.). These wastes will be processed on-site or shipped off site similar to other wastes at the facility. All waste that has been accepted by Clean Harbors Aragonite or generated on-site and that must be shipped off site is manifested off site with Clean Harbors Aragonite as the generator. An addendum will accompany each shipment identifying waste codes, waste quantities, and land disposal restrictions.

Roll-offs or other DOT acceptable containers will be used to accumulate incinerator slag and baghouse/spray dryer residue. These containers are suitable for transportation to an approved disposal facility. The slag and residue containers are designed to be reusable. For these and other site-generated wastes, the requirements of UAC R315-262 shall apply.

3.5 Off-site Shipments

Clean Harbors Aragonite is a storage facility for waste that cannot be incinerated. Materials shipped to other facilities include wastes that have been accepted for storage only, rejected wastes, and wastes handled as part of the transfer operations. The latter two scenarios are discussed in Sections 1.1 and 1.2 of this Attachment. Material that has been accepted for storage only and is not amenable for incineration is shipped to other off-site facilities. Clean Harbors Aragonite only accepts for storage, materials for shipment to off-site facilities that are acceptable by those other facilities. Determination of the appropriate available technologies for the waste is utilized to determine the final disposition of the waste. The waste profile and laboratory results are reviewed by the appropriate Clean Harbors Aragonite personnel to determine the proper destination. Clean Harbors Aragonite places storage-only material into appropriate storage areas. Clean Harbors Aragonite is deemed the generator for all off-site shipments of waste that have been accepted. An addendum accompanies each shipment identifying quantities of material from individual generators.

3.6 Containment Systems

Containers are stored in the container management building, which has floors sloped to separate and independent sumps of sufficient size to contain 25 percent of the total volume stored. The containment base is sloped to promote internal drainage and ultimate collection in sumps.

The concrete containment base (floor) is elevated approximately 4 feet from grade. The base is a solid, reinforced concrete slab free of cracks and gaps. The floor and curbing is constructed of a continuous, monolithic poured concrete floor. A minimum of 6 inch curbs are in the building. The concrete is epoxy coated with Tnemic or equivalent and is thus sufficiently impervious to contain leaks and spills. The foundation thickness is considered good engineering design practice for foundations.

The entire container management building is roofed and has four complete sides. The roof of the building is sloped to promote external drainage of any rainfall. In addition, the edges of the roof are extended outward to prevent any rainfall water leakage into the building.

The corridor for transportation in the container management building is separated by a slope from the storage areas.

Buildings 68 and 69-North/South have a chemical resistant epoxy-coated sump underneath the entire length and width of each building for secondary containment. Building 68 also has an underground tank that is connected to the building sump providing the additional containment required due to the building’s fire suppression sprinkler system. All three buildings are roofed and enclosed on all sides.

The containment system for the breezeway is similar to that for the container management buildings except that it does not have walls. It does have a roof so that precipitation into the area is minimized.

The containment system for the shred tower storage area is roofed to minimize precipitation and has three complete sides. Each rack segment has its own containment tub directly underneath it.

The cylinder storage area and the cylinder feed station do not provide secondary containment as it is not required. The cylinder storage area and cylinder feed station are protected by Jersey barricades or other physical means to protect the cylinders from vehicular damage. Four different areas are identified within the cylinder storage area in order to accommodate incompatible compressed gasses. The cylinders are stored on racks to prevent contact with the ground and to provide support from tipping over.

There are four tank containment areas for the liquid tank farm. The tanks are grouped so that four tanks are located within each tank containment area. Each containment area is maintained to provide a minimum containment volume equivalent to the volume of one of the tanks. The concrete of the floor and curbing is epoxy coated with Tnemic or equivalent and is thus sufficiently impervious to contain leaks and spills. Any cracks or joints are sealed. The floors are sloped toward a sump in each containment area.

The large sludge tank is located within a concrete secondary containment system. It is a bermed area with a sump and pump for the collection and removal of accumulated material. The small sludge tank is located within a vault (sludge pit). The concrete in these containment systems is epoxy coated with Tnemic or equivalent and is thus sufficiently impervious to contain leaks and spills. Any cracks or joints are sealed. The floors are sloped toward a sump in each containment area.

The bulk solids tanks are placed on a concrete containment system and are constructed so that the bottoms of the tanks can be visually inspected for leaks. This is done from the concrete lined tunnel underneath the tanks. Normally, liquids are not placed in the bulk solids tanks. However, some liquids inevitably enter the tanks. Should a leak occur from one of the bulk solids tanks, it would drain toward the tunnel and be contained within the tunnel or, for a very large leak, within the sludge pit.

The shred tower equipment is contained within containment system(s). Underneath the conveyor system (except the elevator) are containment pans. The floors are concrete and are sloped to provide drainage of precipitation and any other leaks and spills toward sumps where it is collected. Liquids collected in the sump are collected and pumped to the tank farm and then fed to the incinerator or are otherwise managed as a hazardous waste.

The incinerator and air pollution control equipment is also contained within secondary containment systems. The floors are concrete and are sloped to provide drainage of precipitation and any other leaks and spills toward sumps where it is collected. Berms are also provided to segregate containment areas and to further contain wastes or other materials. Liquids collected in the sumps in the neutralization area are returned to the neutralization tanks for reuse in the process. Liquids collected in the other sumps are pumped to the tank farm and then fed to the incinerator or are otherwise managed as a hazardous waste. Liquid that spills out of the deslagger may be placed directly back into the deslagger provided no treatment occurs prior to its reintroduction into the deslagger.

The bulk solids/sludge pad is located on concrete pads that are sloped to sumps to provide drainage and containment of precipitation and any other leaks and spills. The drum pumping storage area is located on a concrete pad with secondary containment provided by portable containment units. Any material collected from these secondary containment units/areas will be pumped out or otherwise removed and managed as a hazardous waste. When containers of waste are in the bulk solids/sludge pad or drum pumping storage area, the area will be protected by Jersey barricades or other physical means to protect the containers from vehicular damage.

Secondary containment for the drum pumping station is provided by a built-in containment system that is part of the glove box.

Secondary containment for the E-1, E-5 and E-4 receiving docks is provided by concrete sloped to a sump to provide drainage and containment of precipitation and any leaks or spills. Any material collected in these secondary containment areas will be removed and managed as a hazardous waste.

Secondary containment for waste stored in the laboratory cooler is provided by portable containment units. Any material collected in these containment units will be removed and managed as a hazardous waste.

~~There is a small containment berm around the direct burn pad. Any spills in this area will be directed to the sump near the "A" damper (SP-624). The piping from the sump will allow the contents of the sump to be pumped to another container such as a tanker or direct burn vessel as well as to the tank farm. This will keep incompatible direct burn spill material out of the tank farm tanks.~~

The drive-through direct burn station is the eastern half of a divided, recessed drive-through area just south of the slag pad. It serves as secondary containment for a direct burn tanker. Precipitation, spills or other liquids accumulated on the station will drain to sump SP-623B. The piping from the sump will allow the contents of the sump to be pumped to another container, such as a tanker ~~or direct burn vessel,~~ as well as to the tank farm. This will keep incompatible or undesirable spill material out of the tank farm tanks.

The corrosive direct burn station is the western half of the divided, recessed drive-through area just south of the slag pad. It serves as secondary containment for a direct burn tanker or bulk liquid tote. Precipitation, spills or other liquids accumulating in the station will drain to sump SP-623A. The piping from the sump will allow the contents of the sump to be pumped to another container such as a tanker ~~or direct burn vessel~~ as well as to the tank farm. This will keep incompatible or undesirable spill material out of the tank farm tanks.

The truck unloading direct burn station is located in the east and center bays of the truck unloading building, which serve as secondary containment for the direct burn tanker and other containers that may be stored there. A slot has been cut in the wall between the east bay and the middle bay to allow additional containment in the event there is discharged fire water in addition to a spill from the tanker or other containers. Spills or other liquids accumulated in the station will drain to sump SP-309. The piping from the sump will allow the contents of the sump to be pumped to another container such as a tanker~~ or direct burn vessel ~~as well as to the tank farm. This will keep incompatible or undesirable spill material out of the tank farm tanks.

The sumps at the facility are identified on drawing D-034-M-002-SP in Attachment 10. All sumps will be inspected and emptied as described in the inspection plan (Attachment 3).

4.0 Waste Processing

~~Should~~ Waste transfer or treatment may be necessary prior to feeding wastes ~~the container, except for compressed gas cylinders,~~ to the incinerator (e.g., to improve the burn characteristics of the charge)~~, it will be conducted in the decant room (decanting only), the repack room in building E-4, one of the workstations in building E-2, or in the drive through direct burn station (decanting only).~~ Liquids removed from the containers will be transferred to a permitted storage tank, a truck tanker in the drive through direct burn station, ~~a direct burn vessel,~~ or be repacked, solidified, or both. Containers of solids or sludge may also be transferred to the bulk solids tanks or small sludge tank. Any container, except a compressed gas cylinder, that cannot be emptied (per RCRA definition) may be shredded, if necessary, and incinerated. All open containers must be closed upon completion of the waste processing activity or when leaving the immediate vicinity of the container.

The following sections describe the waste processing operations that are conducted at the facility ~~are decanting, repack operations, shredding, and direct burn, as described below~~.

4.1 Decanting

Clean Harbors Aragonite will accept containers with free liquids; however, liquids may be decanted prior to being incinerated. The liquid is decanted from the containers to one of the tanks in the tank farm~~, to a direct burn vessel,~~ or to a truck tanker. The Chemical Operations Manager or designee(s) determine where decanting will occur and to which destination the decanted material will be transferred. Decanting takes place only in the decant room of the container processing building (building E-4) or in the drive through direct burn containment area. Waste decanted to a~~ direct burn vessel or~~ truck tanker may be fed to the kiln through the direct burn line, fed to the afterburner from the drive-through corrosive direct burn station, or transferred to the tank farm using the equipment in the truck unloading building.

Clean Harbors Aragonite, whenever possible, decants liquids (both ignitables and non-ignitables) prior to release for incineration. If the decanting operation is not able to process all containers as received, the receivers store containers holding liquid in a manner that allows easy access.

All material delivered to the Clean Harbors Aragonite facility that requires decanting is transferred to the container processing building (building E-4) or to the drive-through direct burn tanker station. Whenever possible, direct burn material is taken directly to a decant station for transfer to a ~~direct burn vessel, a~~ bulk liquids storage tank~~,~~ or a direct burn tanker.

Decanting operations require use of PPE and, when performed inside buildings, point source ventilation hoods for vapors to avoid adverse health impacts to the operators. The operators must wear PPE as designated by the profile sheet.

Facility Technicians utilize non-sparking tools during decant operations. Grounding/purging is used on tanks, lines, and containers.

4.2 Repack Operations

Repack operations may occur in three locations. These are the three workstations (WS1 through WS3) in building E-2, the Tipper and Decanter for sharps in building E-2, and the repack area in building E-4. Workstations WS1 and WS2 in building E-2 are open areas, primarily used in repacking and other container processing operations where the waste is not exposed to the atmosphere. Workstation WS3 is located within an enclosure in building E-2, similar to the repack area in building E-4, and is typically used for repacking and other container processing operations where open containers are involved.

4.2.1 Description of Processing Activities

The processing activities that may occur are: 1) lab pack inspection, 2) lab pack repacking, 3) lab pack solidification, 4) liquid bulk-up, 5) compatibility testing and LEL screen, 6) container repacking, 7) debris processing, and 8) infectious waste repackaging. These are described below.

1) Lab pack Inspection

Lab pack inspection involves removing the contents of a lab pack to verify the inventory sheet and then replacing the contents back into the lab pack.

2) Lab pack Repacking

Some or all of the content of a lab pack are removed and then selected contents are placed back into containers with the contents of other lab packs. The purpose of repacking is to increase/decrease the charge size to the incinerator. The inner containers of the lab packs are not opened but are redistributed to other lab packs. Excess absorbent and containers may be reused in making new lab packs.

3) Lab pack Solidification

This operation involves opening inner containers of lab packs and adding absorbent to the liquid. The purpose is to prepare a charge to the incinerator, which will have more uniform burning characteristics and produce less of a shock to the system when fed (e.g., minimizing CO excursions, thermal shock to the refractory, etc.). Absorbents used include, soil, vermiculite, cellulose, sawdust, floor dry, etc. The compatibility of the absorbent with the liquid in the containers will be evaluated and any incompatibilities noted on the lab pack instruction sheet. Also, if generators send too large an inner container, solidification may be used (or the material may be transferred to smaller containers). If the solidification operation involves an ignitable liquid, the operation may only occur in the E-4 repack area. The addition of solidification agent(s) to containers must not involve the active mixing of waste and agent.

4) Liquid Bulk-up

Some liquid is transferred to a larger container for the purpose of bulking up for eventual decanting. Solvents and other material are candidates for this process. If the liquid bulk-up operation involves an ignitable liquid, the operation may only occur in the E-4 repack area.

5) Compatibility Testing and LEL Testing

Any commingling of waste streams requires compatibility testing using the Clean Harbors Aragonite methods in the Waste Analysis Plan. Also, LEL testing on inner containers of lab packs may be necessary as required by the Waste Analysis Plan. These tests may be conducted in the repack or decant area of building E-4. Testing in building E-2 is limited to inner containers of lab packs. If information exists that indicates it is likely that the material is ignitable (i.e., flash less than 140 °F), Clean Harbors Aragonite will assume the material is ignitable and may only conduct these tests on that material in building E-4.

6) Container Repacking

Some or all of the waste is removed from its original container and is placed into other containers. Water, absorbent, or both may be added to improve the burning characteristics of the material (similar to the operation of lab pack solidification described above). Also, some repacking (splitting) is necessary to comply with the feed rate limits in the permit (e.g., metals). The purpose of repacking is to produce a container that meets the permit requirements and minimizes any upset conditions. If the container repacking operation involves an ignitable liquid, the operation may only occur in the E-4 repack area. The addition of solidification agent(s) to containers must not involve the active mixing of waste and agent.

In the case of repacking waste from a flow bin, the flow bin, containing a catalyst waste, is positioned on top of a custom platform. The container into which the waste will be transferred is placed under the flow bin and raised to the level necessary to form a seal between the flow bin and the container. An air-actuated slide gate controls the flow of material from the flow bin to the container. As the container is filled, the air displaced from the container is vented through a sock to filter any particulate matter. Flow bin repacking is limited to the E-4 repack area.

7) Debris Processing

Two types of debris may be treated in these areas. The first is waste debris that is treated to meet the requirements of R315-268-45 prior to landfilling. This only includes debris that is generated at the site (not waste that has been received from off-site). The second type is equipment that may require being cleaned for the purpose of commencing maintenance activities (e.g., shredder teeth). The types of debris treatment that may be used are: abrasive blasting (E-4 only) and water washing and spraying. Sufficient containment devices must be in place to collect any residue from these operations. When this operation is ongoing, no other process may occur in that workstation or E-4 repack area.

8) Infectious Waste Repackaging

Infectious waste that arrives in recyclable or reusable primary containers, with sealed inner containers, may be repackaged into containers destined for incineration via drum dump or direct feed to the kiln. A reusable container of infectious waste is repackaged using a hydraulic lift to empty the contents onto a four hole metal sorting table/tray. Using tools, operators push, guide, and direct the infectious waste to the holes and the empty containers beneath the metal tray. After being emptied, recyclable infectious waste containers are washed and decontaminated in a container washing machine located in building E-2. Wash/rinse solution from the container washing machine will be collected/contained and managed as a site-generated waste.

Infectious waste sharps in recyclable or reusable containers may be repackaged into containers destined for incineration via the Tipper and Decanter located in building E2. These machines remotely remove the lid of the container holding the sharps and tip the contents into a drum for incineration. After being emptied, the reusable infectious waste sharps containers are washed and decontaminated using the container washing machine located in building E-2. The Tipper and Decanter will also be decontaminated after each use in accordance with standard operating procedures. Wash/rinse solution from the container washing machine and materials used to decontaminate the Tipper and Decanter will be collected/contained and managed as site-generated waste

Training is provided to all facility personnel involved in infectious waste repackaging. This training will be outlined in the facility Training Program Description and will include at a minimum, training on the Medical Waste Repack Procedure, Bio-Hazard Infectious Substances and Blood Borne Pathogens, response to infectious spills/releases, and operation of the container washing machine. Records of personnel receiving this training will be documented and maintained in the facility personnel training records.

Infectious waste repackaging is limited to WS3 and the area delineated as the “bin washing system” on drawing D-800-M-402.

4.2.2 General Operating Procedures

The storage requirements for rows A through G in building E-2 are unaffected by the operations in the workstations. All containers in any of the E-2 workstations or in the E-4 repack area will be staged into the proper location while in a workstation or repack area. Each workstation will be clearly marked off using lines painted on the floor. The number of containers being filled at each workstation or E-4 repack area will be limited by the space within that workstation or E-4 repack area. Sufficient space will be left within the workstations or E-4 repack area to allow unobstructed movement of personnel and necessary equipment.

All containers will be closed when repacking is not in operation. Not in operation is defined as no activity for thirty minutes at a workstation or E-4 repack area.

No material from an incompatible DOT hazard class may be located in any of the workstations in E-2 at any time. No material from an incompatible DOT hazard class may be located in the E-4 repack area at any time.

At the end of each shift each day, no more than the permitted capacity (four 55-gallon containers or 220 gallons per workstation or E-4 repack area) may remain in each workstation or in the E-4 repack area. All other containers must be removed and placed into permitted storage.

The proper Personnel Protective Equipment (PPE) shall be worn while conducting these operations. The required PPE will be specified on the profile sheet or site PPE matrix for non-profiled material (e.g., shredder teeth).

Workbenches, tables, and containers shall be grounded as necessary.

Repack operations will be conducted in a manner such that airborne dust is not visible in the building.

4.3 Bulk Solids Building Shredding

Containers can be fed to the bulk solids shredder either by using the elevator or by bulking (placing the entire container and its contents into a bulk solids tank) and then using the clamshell to feed the containers to the shredder. The container and contents are shredded into the bulk solids tank. Containerized waste can also be bulked by emptying the contents into the bulk solids tanks. The material may then be fed to the shredder by the clamshell. Similarly, bulk solids may be shredded by lifting the material with the clamshell and placing it in the shredder feed hopper.

Prevention of explosion danger in the shredder is accomplished by prohibiting potentially ignitable materials from being shredded.

The interlocks will allow operating the shredder in one of two modes:

1) Non-dusting and non-ignitable: The shredder will run continuously with the top flop gates remaining open to allow continuous feeding from the clamshell. Air flows through the open 20 inch damper to the combustion air system.

2) Dusting and non-ignitable: The shredder stops before the flop gate or barrel dump gate opens and restarts after the gate closes. Air flows through the open 20 inch damper to the combustion air system.

The procedure for determining the shredder operating mode is as follows:

1) Non-dusting and non-ignitable: The material has an LEL of less than 10% and is wet or otherwise incapable of dusting.

2) Dusting and non-ignitable: The material has an LEL of less than 10% and is dry or otherwise capable of dusting.

Determination of operating mode will be shown on the daily production plan originated by the Production Planning Manager or designee.

Clean Harbors Aragonite shall comply with the following conditions during both modes of operation described above:

1. The shredder area shall be equipped with a sprinkler system in accordance with Industrial Risk Insurer's pipe guidelines.

2. The shredding system shall be inspected in accordance with Attachment 3.

3. The shredder may be operated when the incinerator is not operating by venting it through the backup carbon adsorption system.

4. If containers of waste are bulked by placing the containers and their contents into a bulk solids tank, they will be restricted to processing through the shredder one profile at a time (with the exception of capacitors).

4.4 Shred Tower System

Containers are fed to the shred tower system by a conveyor and elevator system. The container(s) and contents are shredded and conveyed directly into the kiln.

Solids, sludges, and other compatible containers identified for the shred tower process are first subject to compatibility testing review as described in Attachment 1.

Containers designated for the shred tower are grouped together on pallets or slip-sheets. These are referred to as “feed drops”. The feed drops are automatically conveyed to a nitrogen purged air lock. When the oxygen concentrations in the airlock and shred chambers are below a level that would support combustion, the material in the airlock is automatically conveyed into the first stage shredder. The contents from the first stage shredder are discharged into a second stage shredder to reduce particle size. The properly sized contents from the second stage shredder are then dual screw conveyed to a feeder auger. The feeder auger serves two purposes. The first is to generate a nitrogen flow isolation plug between the kiln and the shred system and secondly to convey the material into the kiln.

Prevention of explosion danger in the shred system is achieved by nitrogen purging the airlock and shred chambers to less than 5% oxygen.

Automated interlocks will stop the process as follows:

1) If the oxygen concentration in any shred chamber is greater than 5%, the shredders are stopped, the isolation valve between the kiln and shred system is closed, and the airlock exit door will remain closed until the oxygen concentration drops below 4.5%.

2) If the airlock oxygen concentration is greater than 5%, the airlock exit door will remain closed, not allowing the next drop to occur. Once the oxygen concentration is less than 4.5%, the exit door will be allowed to open to feed the next drop of container(s).

3) If the external LEL monitor(s) indicate greater than 10% of the LEL, the shred process will be shut down. The LEL must clear at less than 5.0% of the LEL before the shred system is allowed to restart.

4) If a fire is detected inside the shred system, all the shred systems are shutdown. This interlock requires manual reset. An automatic CO_2 fire suppression system is released into the airlock and shred chambers. In addition, if required, the operator may trip a manual water deluge to the shred chambers.

5) If the heat detector over the hydraulic system is tripped, the shred system hydraulics are shut down.

6) To facilitate the nitrogen purge in the airlock and shred chamber, the excess gases are vented via a pressure blower, through a flame arrestor, and discharged directly into the afterburner. For safe operation, if the afterburner temperature drops below 1400°F, the shred tower systems are shut down (except for the external conveyor systems).

7) The shred feed system will shut down and the isolation valve will close on all the applicable MACT EEE AWFCO parameters for the air pollution control systems, continuous emission monitoring system, and afterburner/kiln combustion control parameters.

8) The shred tower operator has PLC and local access to e-stops that shutdown the systems.

Attachment 10 has the following drawings for the shred tower system: D-034-PI-701, D-034-PI-702, D-034-PI-703, D-034-PI-704, and D-034-PI-705.

~~4.4~~4.5 Bulk Waste Mixing and Blending

In order to achieve a more uniform feed to the incinerator, it may be desirable to blend bulk liquids and mix bulk solids.

The bulk liquid and sludge tanks are agitated by either a propeller-type mixer or by recirculation. The bulk solids may be mixed in the bulk solids tanks using a backhoe. The doors to the bulk solids tanks may not remain open for any mixing operations for more than 90 minutes during each 24 hour period.

~~4.4.1~~4.5.1 Isocyanate Waste Bulking

Containerized liquid isocyanate wastes may be consolidated into bulk solids tanks T-403, T-404A and T-404B-East. When bulking isocyanate wastes, the contents of containers will be slowly poured onto the dirt or other waste in a bulk solids tank and mixed with a backhoe. The isocyanates are expected to react in various ways to form foams, polyurethanes, or other hardened or rubberized resins, which may then be fed to the incinerator as part of the bulk solids feed. All other applicable permit requirements, e.g., waste acceptance, waste tracking, compatibility testing, and time limits for doors to be open when mixing in the bulk tanks, etc., must be satisfied for isocyanate waste bulking operations.

4.6 Barrel Feed Elevator Processing

Containers, except compressed gas cylinders, that are ready to be fed to the incinerator are staged on the conveyor in a sequence directed by the Chemical Operations Manager or designee. These containers will typically be 55-gallon drums but may be smaller or could be as large as a 110-gallon salvage drum. The container is moved via the conveyor to the feed elevator. The elevator raises the container to the kiln slide-gate located in the feed chute. The ram feed mechanism then pushes the container into the kiln via the feed chute.

Alternatively, the contents of a container may be emptied into the kiln using the container dumping system. With the dumping system activated, the elevator lifts a container into position where the container is grabbed by the jaws of the dumping apparatus, the kiln slide gate opens, and the container is emptied into the kiln. A video camera directly above the dumping apparatus allows the operation to be viewed from both the control board and barrel feed station. After the contents of a container are dumped, the barrel feed operator has three choices: 1) the empty container is brought back down the elevator and returned for reuse to building E-4. This is the course of action under normal circumstances; 2) if the barrel feed operator observes that not all of the material has been emptied from the container, the slide gate can be reopened and the contents of the container dumped a second time. This process can be repeated as many times as necessary until the container is emptied; 3) if the barrel feed operator observes a fire or other situation that warrants it, the slide gate can be opened and the entire container and contents can be released into the kiln. Additionally, a water spray nozzle located directly above the container dumping system is available in the case of a fire. This nozzle is activated by the barrel feed operator.

~~4.5~~4.7 Direct Burn

Some liquid wastes are not compatible with the tanks in the tank farm or the materials stored in them. Additionally, some sludges are not appropriate for management in the sludge tanks. These wastes are ideally fed directly to the incinerator from ~~direct burn vessels,~~ direct burn tankers or directly from the container. ~~Direct burn vessels are used only for in-plant decant/direct burn operations.~~ Direct burn tankers are used for bulk shipments from the generator and for in-plant decant/direct burn operations. Direct burn from a container is used for materials that may be incompatible with tank ~~or direct burn vessel~~ construction materials or other wastes. In addition, direct feeding from a container reduces the need for repacking.

~~4.5.1 Direct Burn Vessels~~

~~Liquid wastes or sludges are decanted to a moveable direct burn vessel from the decant room in building E-4. Prior to decanting into a direct burn vessel, the vessel is purged with nitrogen, if necessary, to ensure that there is an inert atmosphere within the vessel. During the decanting operations, the direct burn vessel is located just west of the decant room, within the secondary containment system of building E-4. Should it be necessary to store the filled direct burn vessel prior to feeding it to the incinerator, it will be stored in an appropriate permitted area of the container management building or other permitted container storage area.~~

~~After the direct burn vessels are filled, they are moved by forklift to the direct burn pad near the south side of the kiln front wall. A compressed air hose is connected to the agitator motor on the direct burn vessel to agitate the waste and keep solids in suspension. Nitrogen is connected to the top of the direct burn vessel and the discharge is connected through a flow metering system to the direct burn lance (A-101) on the kiln front wall. Alternatively, it could be piped through the sludge flow metering system and sludge lance (A-103).~~

~~The nitrogen pressure is manually adjusted to that pressure necessary to force the waste liquid through the pipeline. The pressure required will depend on the viscosity of the waste but can never exceed the 120 psig setting of the pressure relief valve on the direct burn vessel.~~

~~A fail-closed valve is installed on the outlet line from the direct burn vessel. The instrument air line that operates the valve is made of plastic so it will melt if there is a fire. The melted line will relieve the air pressure on the valve actuator causing the valve to fail in the closed position, thereby stopping waste flow.~~

~~4.5.2~~4.7.1 ~~Direct Burn Tankers (Drive Through/Truck Unloading)~~ Truck Unloading Direct Burn

After a direct burn tanker is moved to the truck unloading direct burn station and accepted, nitrogen is connected to the tanker to force the waste through the discharge hose to a strainer and a pump. The waste is then pumped through the flow metering system to the direct burn lance (A-101) in the kiln front wall. Alternatively, it could be piped through the sludge flow metering system and sludge lance (A-103).

4.7.2 Drive Through Direct Burn

After a direct burn tanker is moved to the drive through direct burn station and accepted, nitrogen is connected to the tanker to force the waste through the discharge hose to a strainer and a pump. The waste is then pumped through the flow metering system to the direct burn lance (A-101) in the kiln front wall. Alternatively, it could be piped through the sludge flow metering system and sludge lance (A-103).

Containerized liquid wastes or sludges may also be decanted to tankers. During decant operations, a direct burn tanker is located in the drive through direct burn station. Containers are moved to the direct burn station (platform over the drive through area) and transferred into the tanker using a vacuum pump. Waste transferred to the tanker is fed to the kiln through the direct burn feed line.

~~4.5.7~~4.7.3 ~~Direct Burn Corrosive Feed System~~ Corrosive Direct Burn

The western half of the drive through area south of the slag pad is used for corrosive waste tankers or bulk liquid totes. A berm has been placed in the drive through to divide the eastern half (drive through direct burn station) from the western half (drive through corrosive direct burn station) and prevent incompatible spills from mixing.

A tanker truck or bulk liquid tote is placed in the drive through corrosive direct burn station. A Teflon (TFE) hose is used to connect the tanker/tote to the pump. A diaphragm pump is used to transfer waste through feed piping and into the south side of the afterburner. It will be fed to the afterburner through a fuel oil lance location (designated as A-106B-5 and located at the nine o’clock (west side) position on the burner can) that is no longer used for fuel oil. Fuel oil, blend liquid, or both will always be fed to the south afterburner burner whenever there is feed from the drive through corrosive direct burn system to ensure a stable flame in the burner.

The pump’s wetted parts, piping and valves will be conductive Teflon lined. Conductive gaskets will be used to connect pipe and hose. A dampener will be used to achieve the required turndown and smooth out pulsation caused by the pump. A pipe tee and valving in the main line will allow the pump to be bypassed and waste feed to occur by pressurizing the tanker/tote should that be desired.

When waste is fed to the afterburner, a flow meter records the amount of liquid fed. When the tanker or tote is empty, air or nitrogen passing through the meter will record an abnormally high value, indicating that there is no longer any material being fed. The recordkeeping program will stop recording and the block valves will close. When liquid is present, the flow meter will record the amount of waste being fed.

The tanker/tote and the waste transfer/feed line will be flushed with an appropriate liquid after all waste has been fed from the tanker or tote. The Production Engineer responsible for the job will select the flushing fluid based upon the waste. Water and diesel fuel are available at the corrosive direct feed station. Nitrogen will also be available for drying piping.

~~4.5.8~~4.7.4 ~~Direct Burn Tanker (Sludge Pad Direct Burn System)~~ Sludge Pad Direct Burn

After a direct burn tanker is moved to the sludge pad direct burn station and accepted, nitrogen is connected to the tanker to maintain a nitrogen blanket in the tanker as its contents are being fed to the incinerator. The waste is then pumped through the flow metering system to the direct burn lance (A-101) in the kiln front wall. Alternatively, it could be piped through the sludge flow metering system and sludge lance (A-103).

~~4.5.6~~4.7.5 ~~Direct Burn from a Container~~ Container Direct Burn (Drum Educt)

The glove box at the drum pumping station will hold up to four 55-gallon containers of compatible liquid. A pallet of containers, one pallet at a time, will be transferred from the drum pump storage area, or another permitted storage area, to the glove box at the drum pump station. The door on the glove box, gasketed to prevent leakage, will be closed with air cylinders, the bung on a container opened and a lance placed in the opening. Tubes supplying nitrogen will also be placed in the opening of the container, if the container contains flammable liquid. During processing, an eductor draws 90 scfm from the glove box to the afterburner and a vacuum breaker in the side of the glove box will bleed air into the box in order to maintain a vacuum of 1" water column. Waste is pumped through the lance to a diaphragm pump and valves to the sludge port in the front wall of the kiln. The wetted parts of the pump are conductive Teflon and the piping and valves are Teflon-lined to assure compatibility with the wastes being processed. The lance is made of Hastelloy. A dampener is integrated into the pump to achieve the required turndown and smooth out pulsation.

When waste is pumped from the container to the front wall of the kiln, a flow meter records the amount of liquid being fed. When the container is empty, air, or when processing flammable liquids, nitrogen, passing through the meter will record a high value and the record keeping programming will stop recording. The empty container will then be tilted and flushed with an appropriate liquid.

Before pumping waste that is not compatible with the last waste pumped, the system will be flushed with an appropriate flushing liquid. The production engineer responsible for the job will choose the flushing liquid based upon the waste. Water and fuel oil are available at the drum pump station. Nitrogen is also available for drying the piping if necessary.

There is an LEL monitor inside the glove box that will alarm locally and at the control board when an LEL above 20% is sensed. The glove box is equipped with a CO_2 fire protection system and explosion relief panels with a detonation flame arrestor located in the vent piping just before the eductor. The pressure relief device in the piping will vent back to the glove box.

The system will handle materials that the International Fire Code classifies as flammable liquids, corrosive, toxic and highly toxic materials, and oxidizers.

~~4.5.3~~4.7.6 Direct Burn Liquid Feed System ~~from a Tanker or Direct Burn Vessel~~

Flow to the direct burn lance from ~~either a direct burn vessel or~~ a direct burn tanker (either the drive through direct burn tanker, the truck unloading direct burn tanker, or the sludge pad direct burn tanker) is controlled and measured by a control valve and flow meter similar to the sludge system. ~~Since the same flow metering and feed system is used for both the direct burn vessel and the direct burn tankers, only one of these may be in use at any given time.~~

The direct burn lance is similar to the sludge lance, in that it is a pipe within a pipe. Liquid waste is in the inner pipe and compressed air is in the outer pipe. The pressure from the ~~direct burn vessel or from the~~ pump on the direct burn tanker pushes the liquid into the kiln and the compressed air in the outer pipe aids in pushing the liquid into the kiln, causes atomization, and aids in burning.

Following off-loading of the ~~direct burn vessel or~~ direct burn tanker to the incinerator, the feed lines are blown clear with nitrogen to ensure incompatible materials do not mix and react.

~~4.5.4~~4.7.7 Direct Burn Sludge Feed System

The direct burn sludge feed system uses the same feed monitoring and control system as the sludge feed system from the tanks. However, when feeding from one of the direct burn stations (either the ~~direct burn vessel, the~~ drive through direct burn tanker, the truck unloading direct burn tanker, or the sludge pad direct burn tanker), the lines are isolated from the sludge recirculation line so that material from ~~the direct burn vessel or~~ the direct burn tankers will not enter the sludge tanks. Since the same flow metering and feed system is used for ~~the direct burn vessel,~~ the direct burn tankers~~,~~ and the sludge feed from the tanks, only one of these may be in use at any given time.

Following off-loading of the ~~direct burn vessel or~~ direct burn tanker to the incinerator, the feed lines are flushed with an appropriate solvent to ensure incompatible materials do not mix and react and to ensure that ignitable materials do not enter the sludge recirculation line and the sludge storage tanks.

~~4.5.5~~4.8 ~~Direct Burn~~ Compressed Gas Cylinder Feed System

The contents of compressed gas cylinders are fed to the incinerator from an enclosure located on the west end of the slag pad. This enclosure is open on the south side and has openings at the top and bottom of the east and west sides to facilitate natural ventilation. One rack of cylinders (20 cylinders) will be brought to this cylinder feed station at a time. One cylinder at a time is removed from its rack and placed upon a tipping mechanism mounted on a scale (lecture bottles will be secured in a vice on a separate smaller scale). If the cylinder contains a liquid, the cylinder will be tilted. The contents of the cylinder flow from the cylinder through a valve that stops flow should an automatic waste feed cutoff occur, through a control valve, and then to an eductor at the afterburner burner station. The eductor is powered by nitrogen and pushes the gas or liquid into the south afterburner burner port. The valving and tubing are sized to contain cylinder pressure.

When the cylinder is empty, as determined by the system vacuum reaching the dead head vacuum for the eductor operating at the set nitrogen pressure, nitrogen will be used to flush the cylinder and equipment. To flush an empty cylinder, the cylinder will be pressurized with plant nitrogen by closing the automatic valves, hooking up nitrogen before the valves and letting nitrogen enter until line pressure is reached. The nitrogen is then disconnected and the automatic valves opened, letting the eductor draw the flush nitrogen out of the cylinder until dead head vacuum is reached. This process is repeated at least three times. Water is also available for flushing empty cylinders. After flushing, the cylinder will be returned to the customer or the valve will be removed and the cylinder landfilled or recycled. Documentation will be maintained to show that each cylinder was appropriately flushed. This documentation will include the cylinder number (i.e., document and item number) the date and time the flushing was completed and the pressures/vacuum attained during flushing. The operator performing the flush will sign the documentation indicating that proper procedures were followed. Cylinders that have leaked until they are empty, either in the glove box or at a remote location on site, will also be flushed in similar fashion.

At the cylinder feed station, a glove box has been installed that will be used to manage leaking cylinders. The leaking cylinder or cylinders (if more than one, all cylinders must be compatible) are placed in the glove box and with the doors closed, an eductor will draw a vacuum of 1-2" W.C. on the glove box and exhaust it into the afterburner. Air or nitrogen (for flammable materials) will bleed into the box as needed to keep the vacuum setpoint. In the event of a waste feed cut-off while a leaking cylinder is in the glove box, nitrogen to the glove box eductor will continue to flow and the glove box will continue to be exhausted to the afterburner. The cylinder will remain in the glove box until it is empty and its contents are exhausted to the afterburner. The glove box will only be used in emergencies to manage leaking cylinders and will not be used routinely to empty cylinders.

5.0 Waste Tracking

5.1 Introduction

Waste will be tracked while on site so that its location is known at any time. Containers, with the exception of direct burn tankers that are accepted into the direct burn stations, will be tracked by a barcode label placed on each container and tracked in the plant wide database. The location of bulk wastes will be tracked in the plant wide database. All wastes managed on-site will be tracked in this system (hazardous as well as non-hazardous).

The current location of all waste will be maintained in the plant wide database. If there is a temporary problem with this computer system that does not allow the input of waste tracking data, wastes may still be moved and processed on-site provided the following occurs: The tracking of waste is accomplished through a manual tracking system designed to record the same information as the plant wide database, and the plant wide database is updated with the information accumulated on this manual tracking system as soon as the database is again functioning. The maximum time that this manual tracking system can be used as a substitute for the plant wide database is 24 hours for containers and 72 hours for bulk wastes and residues.

5.2 Container Tracking (Excluding Cylinders and Direct Burn Tankers)

The barcode is a label that is affixed to each container. It contains a number that is unique to that container from which information regarding the container can be found. Clean Harbors barcodes may already be on incoming containers if they have come from other Clean Harbors facilities. During the receiving process at the facility, a Clean Harbors Aragonite barcode label (designated with "AG") will be placed on all of the containers that have been manifested to the facility. Containers manifested to another facility that are stopping at the Aragonite facility for transfer operations will not receive an Aragonite barcode. Containers that have been accepted at the facility will have a green label or mark on the Aragonite barcode label. All containers in permitted storage except the receiving areas (floor areas of buildings E-1 and E-5, bays 1 through 6 when in receiving mode, bulk solids/sludge pad and E-1, E-5, E-4 receiving docks) and transfer wastes in bays 1-6 will have the Aragonite barcode label and a green acceptance label or mark on the barcode label except as provided in section 5.2.1.

The green acceptance label or mark is placed on the barcode of each container only after the contents have been sampled and it has been determined that the waste will be accepted. Once the green acceptance label or mark is placed on the barcode label on the container, it is considered to have been accepted by Clean Harbors Aragonite. Each container is identified by a unique number, which is on the barcode affixed to the container. Container inventory is tracked by row, level, and space in building E-7, level three. Container inventory is tracked by row and space in buildings E-2 (except for row G), E-3, E-6, and E-7 (first two levels), building 68 (space only), buildings 69-North/South and in the truck unloading direct burn station. Container inventory is tracked by row in the E-1 and E-5 floor areas, bays 1 through 6, building E-2, row G, bulk solids/sludge pad, E-1, E-5, and E-4 receiving docks and in building E-4. The container buildings and other container storage areas are marked with each row having an assigned letter. Each location within a row where tracking to a space occurs is given a space number. Every container in the container management areas will use the barcode system. The plant wide database will be updated each time a container is moved to another location. When a row of containers is moved and scanned to another storage location, shipment off site, or further processing, Clean Harbors will confirm that waste tracking shows all of the containers that were moved in the new location(s) and that the row is empty before moving any new containers into that row.

The tracking number will be used to track the container in real time. The following is a description of the information fields required on the Clean Harbors Aragonite barcode label. Additional information (e.g., weight, acceptance date, profile information, generator, final destination, etc.) can be found by the tracking number in the waste tracking system.

Tracking Number:	Unique number used to identify each individual item.
Common Name:	Brief description of the material.
Profile:	Waste profile number assigned by Aragonite.
Processing Waste Class:	Waste processing class code assigned upon acceptance by Aragonite.
Hazard:	Hazards posed by the material in the container.
Constituents:	Hazardous constituents, based on either the profile or shipping papers that are assigned by the person centrally receiving the container into the Clean Harbors system, present in the waste.
Manifest:	Manifest number and line number on the manifest.

Repacked and consolidated containers will be given a new barcode containing the information listed above. These containers will be identified in waste tracking. The histories of these drums as well as cross references to previous item numbers can be found from the item number in the waste tracking system.

The ability exists in the waste tracking system to "untrack" (UNTK) wastes. This removes tracking history from that container, and that history cannot be recovered. The ability also exists in the waste tracking system to "void" wastes. This removes the waste from the system so that the waste appears to have never existed. Prior to performing either of these actions, the tracking history and any other information that will be deleted will be copied and filed in the operating record, along with a memo explaining and justifying why the change was made. Containers that have inventory locations of "DWB" (i.e., they have been lost for some period of time) shall not be untracked to remove this history.

5.2.1 Barcode/Green Acceptance Label or Mark Exemption

The need can exist to unload a truck even though the receiving area is not cleared from a previous load. To accommodate this situation, Row A in E-2, E-3, E-6 and E-7 (see drawing D-800-M-402) is designated as a temporary (10 days or less) extension of the receiving area.

To identify the containers in temporary storage and subject to this exemption, each container in temporary storage (A rows) will be marked with the tracking number. All containers in a space (all three levels of a numbered area as indicated on drawing D-800-M-402) will have the same temporary storage date. A board near each A aisle will indicate the temporary storage date (the date first placed into temporary storage) for each space within that A row. If there is no date indicated for a particular space, the containers in that space will have an Aragonite barcode with a green acceptance label or mark on the barcode.

Containers in temporary storage will be kept closed and will be inspected at the same frequency as accepted containers. No container can remain in temporary storage longer than 10 days.

5.2.2 Lost Containers (DWB)

There may be times when a container is not in the location indicated by the waste tracking system. There are several different scenarios under which this may happen.

In some cases, a container that physically exists (or existed) cannot be located at the facility. In other cases, containers may be physically present at the facility, but the waste tracking system shows them as having already been processed (which could indicate that another container was processed incorrectly in its place). These discrepancies may be due to factors such as:

- Containers not properly scanned into their current locations,
- Containers processed (repacked, decanted, shredded, bulked, etc.) without proper documentation,
- Information from the processing logs was not entered, or was entered incorrectly, into the waste tracking system,
- Hardware or software malfunctions,
- Shipping the incorrect containers off site,
- Incorrect labeling, double barcodes, etc.

There are also cases where a container has been created in waste tracking that does not physically exist, and therefore cannot be located. Examples of this include:

- Several containers are created in waste tracking for a repack or consolidate job and not all of the containers are physically created, but the extras are not removed from the waste tracking system,
- Containers are manifested to Aragonite from another Clean Harbors facility (so they are already in the waste tracking system) but are not actually shipped.

Within one business day of discovery of a missing container, Clean Harbors Aragonite will update the waste tracking system by moving the container record to the "DWB" virtual location and begin efforts to locate the container or resolve the discrepancy. Different efforts may be used depending on the circumstances of how the container was lost, but may include:

- Visually inspecting the previously scanned location(s),
- Checking processing logs and forms (e.g., repack logs, feed logs, decant logs, etc.),
- Conducting additional plant-wide or area-wide scans,
- Contacting other Clean Harbors facilities or generators,
- Reviewing video records, etc.

Within one business day of discovery of a container that is physically present at the facility, but the waste tracking system shows it as having already been processed, Clean Harbors Aragonite will move the container to a designated location and scan the “Zero Weight Drum” to that location and begin efforts to resolve the discrepancy. Different efforts may be used depending on the circumstances, but may include:

- Visually inspecting the previously scanned location(s),
- Checking processing logs and forms (e.g., repack logs, feed logs, decant logs, etc.),
- Conducting additional plant-wide or area-wide scans,
- Contacting other Clean Harbors facilities or generators,
- Reviewing video records, etc.

A file for each container or group of containers that are placed in the DWB location or identified as Zero Weight Drums will be maintained. All efforts to locate the missing containers or resolve the discrepancies will be thoroughly documented and the documentation maintained in this file.

If it can be determined and documented what happened to the container(s), the waste tracking system will be updated with the correct information and the resolution explained and placed in the appropriate file. Sufficient explanation and documentation will be provided as to what happened to the container and why the changes to waste tracking were made.

There may be times when it cannot be determined what happened to the container(s) at issue. When Clean Harbors Aragonite has exhausted all methods for resolving these discrepant containers, waste tracking may be updated to show the most likely disposition for these containers. The file will include a description of what research was done and why the decision was made to discontinue looking. Within 30 days of making this determination and updating the waste tracking system, Clean Harbors will notify the Director in writing, noting the tracking numbers of the containers and what actions were taken.

In order to discover these discrepancies and correct them in a timely manner, the entire container inventory will be scanned at least once per month.

When the tracking history is changed or corrected, it may involve removing erroneous processing or inventory records. This is referred to as “untracking.” Other operations in waste tracking that may erase tracking history include “voiding” containers or “resetting” manifests. Prior to untracking any container or doing any of these other operations that permanently delete tracking history in the waste tracking system, the history will be recorded and preserved. “DWB” inventory locations will not be removed from the tracking histories.

5.3 Decant Tracking

When a container is decanted, the original weight of the container will already be recorded in the database. When the container is moved to the decant staging area (building E-4) the location will be updated in the database. The container will be weighed again after the decanting operation. The weight of the decanted liquid and its new location (e.g., T-305) will be entered into the database. If all of the material from the container is not transferred, the material remaining will continue to be tracked with the container.

5.4 Repack Tracking

The original container to be repackaged will already be in the database. When a container is moved into a workstation or the E-4 repack area, the location in the database is updated. It will show the repack workstation to where the container is moved (e.g., WS1, etc.). Unique repack barcode labels for the containers to which the material is repackaged are generated by the computer tracking system. The numbering system is generated by the computer tracking system and cross-references to the original container. When these new repack containers are created in the database, the system automatically assigns them the same location as the original container (e.g., WS1, etc.). The location of these containers is then updated when they are moved from the workstation to storage or other locations.

As repacking occurs, items from the original containers are transferred to the repack containers in the database so that there is an accurate accounting of the contents and weight in each repack container. The contents of the containers are also updated in the database to account for absorbents or other materials that are added to the containers.

5.5 Shredding Tracking

5.5.1 Bulk Solids Shredder Tracking

Any containers to be shredded will have already been moved to one of the bulk solids tanks in waste tracking. ~~When the container to be shredded is moved to the shredding area, the location in the database is updated. Then, a~~After shredding, the database is updated to show the material in the new location (i.e., T-404B-West). Clean Harbors Aragonite personnel will manually log all transfers from the shredder to the bulk solids tank. This manual log is given to a support clerk by the end of the day. The material is then transferred to the appropriate bulk tank ~~(i.e., T-404B-West)~~ in the computerized waste tracking database.

5.5.2 Shred Tower Shredder Tracking

Materials are processed in the shred tower in "feed drops". Each feed drop consists of one or a group of individual containers. Each individual feed drop to the tower is scanned at the conveyor and checked against the shred tower job. If any container scanned is not on the job, the shred tower conveyors will not advance the drop, and container(s) must be removed and the drop corrected. If the drop passes the job scan, the conveyors will allow the load to advance to the process.

When a feed drop is processed through the shred tower, all of the containers in that feed drop are incinerated in waste tracking. The containers will be tracked in the database as incinerated as they enter the upper shred chamber (i.e., after they exit the airlock).

5.6 Direct Burn Tracking

~~The direct burn vessels are not currently in use at the facility. Before putting the direct burn vessels back into use at the facility, Aragonite will provide information for the tracking of these containers and waste and that information will be used to update this section of the permit.~~

When a direct burn tanker is used, the location of the waste is identified as T-411 (for the drive through direct burn station) and T-413 or T-414 (for the truck unloading direct burn station) in the waste tracking system and the waste will be moved to the tank similar to incoming loads of bulk liquid that are off-loaded to the tank farm. The waste tracking location for the drive through corrosive direct burn station is identified as T-415. The waste tracking location for the sludge pad direct burn station is identified as T-412. The tracking of waste fed to the incinerator from a direct burn tanker is similar to wastes fed from the tank farm.

When a determination is made to decant to a direct burn tanker, containers to be decanted are transferred from their location in the storage buildings to a designated area within the secondary containment at the drive through direct burn tanker station. The waste tracking system is updated to show that the containers have been moved to the drive through direct burn tanker station (i.e., "T-411D1, T-411D2, or T-411D3"). When a direct burn tanker is filled, the waste is transferred from the original container to the direct burn tanker (T-411) in the waste tracking system similar to a container that is decanted to the tank farm.

5.7 Container Bulk-up Tracking

When containers of waste are bulked-up (i.e., placed into a bulk solids tank or the contents emptied into a bulk solids tank or the small sludge tank) a tracking system similar to that for shredding is employed. Clean Harbors Aragonite personnel will manually log all of these transfers. This manual log is given to a support clerk by the end of the day. The material is then transferred to the appropriate bulk tank (i.e., T-403) in the computerized waste tracking database.

5.8 Bulk Solids, Liquids, and Sludge Tracking

When bulk materials are accepted and unloaded, they are entered into the database by no later than the following business day. The location indicated would be the tank into which the material is unloaded. Each time a transfer is made (e.g., from one tank to another, from a tank to the incinerator, etc.) the database will be updated within the following two business days. The bulk liquid tanks and the sludge tanks use a "first in, first out" tracking system. The bulk solids tanks use a "last in, first out" tracking system. These systems are not applicable for tracking waste codes; these procedures are discussed in the Waste Analysis Plan.

On occasion, material from a tank is placed into containers or it may be held temporarily in a tanker before transferring it to another tank (e.g., from tank cleanouts, feed rate verification tests, etc.). The containers will be barcoded and placed into permitted storage or the tanker will be placed in the drive through direct burn station, the truck unloading direct burn station, the drive through corrosive direct burn station, the bulk solids/sludge pad~~/~~, the sludge pad direct burn station, the E-1, E-5 or E-4 receiving docks, or will be off-loaded into a different tank within 24 hours. The waste tracking system will be updated to show the new location of the waste. Also, if waste is transferred from one tanker to another, documentation will be maintained to show that transfer. The receiving tanker will be placed in the drive through direct burn station, the drive through corrosive direct burn station, the truck unloading direct burn station or another permitted bulk container storage area or will be off-loaded into a different tank within 24 hours.

5.9 Compressed Gas Cylinder Tracking

After cylinders have been off-loaded, they will be placed in racks with each rack having a capacity of twenty 9" diameter by 52" high cylinders. Each rack will contain cylinders with compatible materials.

The tracking number will be used to track the cylinder in real time and cylinder barcodes will contain the same information as those described in section 5.2. The Aragonite barcode label is placed on the cylinder during the receiving process. A green acceptance label or mark is placed on the barcode only after it has been determined that the waste will be accepted. Once the Aragonite barcode label is placed on the cylinder and a green acceptance label or mark is placed on the barcode, it is considered to have been accepted by Aragonite. The barcode label will be placed so that it can be seen without removing the cylinder from the rack. If any cylinders are moved to the cylinder storage area prior to acceptance, each cylinder will be marked with the tracking number and the rack will be clearly identified as having cylinders that are not yet accepted. Racks of cylinders will not be moved to the cylinder feed station until all cylinders on that rack have been accepted. Each cylinder is identified by a unique number that has been affixed to the cylinder. The cylinder storage area is divided into four quadrants based upon compatibility. Cylinder inventory is tracked by the quadrant and row and space where the rack of cylinders is located. Additionally, the cylinders will be tracked in other locations (i.e., in the cylinder feed station or one of the receiving buildings). The glove box and an isolated location onsite where leaking containers are managed are also identified as locations in the waste tracking system. Each time a rack of cylinders is moved or fed to the incinerator and individual cylinders moved to manage leaks, the waste tracking system is updated.

An operator will remove one rack at a time from the cylinder storage area and transport the rack to the cylinder feed station. Each rack will be fed as a job with the incineration chemistry being the same for all cylinders in a rack (using the worst-case chemistries from any cylinder on the rack). Before the first cylinder in a rack is fed, the job for that rack will be started by the control board operator. When the last cylinder in a rack has been fed, the job is stopped.

The procedures and requirements for lost containers described in Section 5.2.2 above shall also apply to compressed gas cylinders.

5.10 Drum Pumping Station

Containers that are fed directly to the incinerator through the drum pumping station will be moved by forklift from storage to the pumping station on the ~~slag pad~~ breezeway. They may also be staged or stored on the drum pumping storage pad prior to moving them to the drum pumping station. The drum pumping station and drum pumping storage locations are tracked in the waste tracking system as DRUMPUMP and DBSTO01 through DBSTO06.

Containers will be assembled into jobs with the incineration chemistry being the same for all of the containers on the job, using the worst-case chemistries from any container on the job. Before the first container on a job is fed, the control board operator will start the job for that container. This is done by selecting a virtual tank (SP01) where the chemistries for the job are stored as the source for the feed to that lance. When the last container on the job has been fed, the control board operator will stop the job.

After pumping, each container will be weighed. The weight of the container and its new location will be entered into the database. If all of the material was not pumped to the kiln, the material remaining will continue to be tracked with the container.

6.0 Emissions of Organic Vapors from Equipment Leaks

This section outlines the requirements for complying with the air emission standards for equipment leaks as established in 40 CFR 264 Subpart BB. The requirements include tagging and marking of affected equipment, inspecting and monitoring the equipment, repairing and reporting equipment leaks, and record keeping.

The regulated equipment includes any valve, pump, flange, grooved pipe connection, pressure relief device, or open ended valve that is in contact with gas, liquid, or sludge hazardous waste.

In order to eliminate the difficulty and expense of characterizing the organic content of the many waste streams processed at the facility, it will be assumed that all of the gas, liquid, and sludge waste have greater than ten percent organic content and all equipment is considered to be in light liquid service. Thus all equipment that is used for processing gas, liquid, or sludge waste is subject to these requirements. The physical state of all pumpable hazardous waste is considered to be liquid.

6.1 Equipment Tagging and Marking

All equipment subject to these requirements (described above) will be marked with a tag containing a unique equipment identification number. For most of these items the tag will be a weatherproof bar coded tag. These tags will also have the identification number in human readable form. Flanges that are covered by insulation must also be marked, either by bar coded tags, or by permanently marking the outside of the flange cover. These markings must be plainly visible. New or replaced equipment will also be marked as described above.

A weatherproof repair tag will be attached to any piece of equipment for which there is evidence of a leak (defined below). Each repair tag will be marked with the following information: the date the evidence of a leak was found (date suspected), the date that the leak was actually detected by monitoring (date detected), and the equipment Subpart BB identification number.

The repair tag must be left in place before, during, and after repairs. It may be removed from any equipment item, except for valves, after the equipment repairs have been inspected. Repair tags for valves must remain on the valves until each valve has been monitored for two successive months without detecting any leaks.

6.2 Inspecting and Monitoring the Equipment

Monitoring in this section means testing with a VOC analyzer in accordance with EPA Method 21. Inspection shall mean a visual inspection for leaks. Leaks shall be defined as (1) hydrocarbon vapor monitor (HVM) instrument readings greater than 10,000 ppm, (2) visual indications of liquids dripping from a pump seal, or (3) physical evidence of leaking (visual, auditory, olfactory, or otherwise).

The pumps at the facility must be visually inspected weekly and monitored monthly. There are no alternative schedules for pump monitoring. Pumps must always be monitored each month regardless of how infrequently leaks are found.

Valves will be monitored on a monthly or quarterly basis. Initially, all valves shall be monitored monthly. For each valve that is not found to be leaking for two consecutive months, the monitoring frequency can be reduced to quarterly monitoring. An alternate frequency may be implemented upon notification of the Director as outlined below.

(1) If fewer than two percent of all the valves within a hazardous waste management unit have detectable leaks for at least two consecutive quarters, all of the valves in that hazardous waste management unit may be monitored on a semi-annual basis.

(2) If fewer than two percent of all the valves within a hazardous waste management unit have detectable leaks for at least five consecutive quarters, all of the valves in that hazardous waste management unit may be monitored on an annual basis.

If the percentage of valves for any hazardous waste management unit exceeds two percent after achieving any of these monitoring frequencies, then the monitoring frequency will revert back to monthly. If after reverting to monthly monitoring, the requirements are again met for the alternate frequencies, then Aragonite may again notify the Director of the facility's intent to comply with the alternate frequency.

There are conservation vents and rupture disks located on each tank farm tank and the large sludge tank. The conservation vents are vented through a closed vent system to a control device (afterburner or carbon canister system) as described in Attachment 14. The flanges around the rupture disks are marked. In the event that a rupture disk releases pressure, the disk will be replaced, and it will be monitored and achieve a standard of no detectable emissions (<500 ppm) within five calendar days of the pressure release.

There are currently no sampling connections in place at the facility. There are also no compressors at the facility that are in use with hazardous waste streams.

An open ended valve is any valve, except pressure relief valves, having one side of the valve seat in contact with the process fluid and one side open to the atmosphere, either directly or through an open pipe. All open ended valves that are connected to gas, liquid, or sludge hazardous waste piping must be fitted with a threaded cap or plug, which can be finger tight. The caps or plugs must be in place at all times except when necessary to open the valves during normal use of the equipment. As an alternative, a second valve may be installed in series. If a second valve is used, the first (inner) valve must be closed first and any hazardous waste allowed to drain or vent before the second (outer) valve is closed so that no process fluid is behind the second valve.

Scheduled monitoring of gasketed flanges, blind flanges, and grooved connectors is not required. If there is physical evidence of a leak, the flange or connector must be monitored within five days of such evidence being noted.

6.3 Repairing and Reporting Equipment Leaks

When leaks are found, the first attempt at repair (tightening packing nuts, etc.) must be initiated within five calendar days from the date the leak was found. The repairs must be completed within fifteen days of the discovery of the leak.

Repairs to leaking equipment can be delayed, provided that any of the following conditions are met:

(1) The repair is technically infeasible without shutting down the hazardous waste management unit. Repairs delayed for this reason must be completed before the end of the next scheduled hazardous waste management unit shutdown.

(2) The equipment is valved out and any hazardous waste is removed.

(3) For valves, the emissions resulting from the repair would be greater than the emissions resulting from delaying the repair. The purged material resulting from the repair must be collected and destroyed or captured in a control device.

(4) For valves, repairs beyond the next hazardous waste management unit shutdown are allowed if the valve must be replaced and valve supplies have been depleted (the valve assembly supplies must have been sufficiently stocked before they were depleted). This delay of repair past the next shutdown will not be allowed unless the next shutdown occurs sooner than six months after the first shutdown.

(5) Delays in repairs for pumps are allowed if the repair requires the use of a dual mechanical seal system that includes a barrier system, and the repair is completed as soon as possible but not later than six months from when the leak was detected.

Reports shall be submitted to the Director every six months and shall contain the following information: (1) the name, address, and EPA ID number of the Aragonite facility, (2) for any equipment discovered to be leaking and which was not repaired within the fifteen day limit, provide the identification number, the hazardous waste management unit location, a description of the piece of equipment, and the reason(s) for not completing the repairs within the required time, and (3) dates of any hazardous waste management unit shutdowns. If all repairs were completed within the required time frames, no report will be required.

6.4 Record keeping

A database will be maintained that includes all of the required equipment. It will include the equipment identification number, the type of equipment, the hazardous waste management unit to which it is related, dates of inspection or monitoring, the name or ID number of the inspector, physical evidence of the leak (visual, sound, etc.), dates of leak detection, dates of first attempt at repair, and dates the repair was completed. Maintenance work orders will also be prepared and maintained to document the repairs made to the equipment. The identification numbers of all valves that are designated as either "difficult to monitor" or "unsafe to monitor" shall be entered into the database.

The approximate location of each piece of equipment will be shown on drawings to be maintained at the facility. These drawings and the database will be updated to reflect changes that are made to the equipment or piping. The equipment will be grouped into hazardous waste management units. These are defined by functional boundaries (i.e., kiln, front wall, south ABC, etc.)

The records shall include the dates of pressure release, repair dates, and monitoring results for rupture disks. For each pump, it will be specified which method of compliance will be used (either "monthly monitoring" or "equipped with dual mechanical seals"). If repairs to leaking equipment are delayed beyond fifteen days, the reason for the delay will be recorded as well as the expected date of repair. Documentation supporting the delay of repair of a valve beyond the next hazardous waste management shutdown shall be maintained. The statement and signature of the operator (or designee) who made the decision that a repair could not be made without a hazardous waste management shutdown shall also be maintained.

If either of the alternate frequencies for monitoring of valves has been chosen, all supporting documentation (e.g., letters to the Director, monitoring results, calculation of percentage leaking if there are any leaking, equipment lists by hazardous waste management unit, etc.) shall be maintained.

ATTACHMENT 10

DESIGN DRAWINGS

Attachment 10
Design Drawings

number	revision	title
D-034-PI-001	3	P&ID Legend Sheet 1 (unstamped)
D-034-PI-004*	23	Master Interlock System, Sheet 2
D-034-PI-005*	~~17~~18	Operating Interlock System, Sheet 1
D-034-PI-006*	11	Operating Interlock System, Sheet 2
D-034-PI-101	18	P&ID Slagging Rotary Kiln System
D-034-PI-102	~~18~~19	P&ID Kiln Feed System
D-034-PI-103	8	P&ID Kiln Miscellaneous Systems
D-034-PI-105	27	P&ID Front Wall Burner Controls, Sheet 1
D-034-PI-106	33	P&ID Front Wall Burner Controls, Sheet 2
D-034-PI-107	22	P&ID Afterburner Controls, Sheet 1
D-034-PI-108	24	P&ID Afterburner Controls, Sheet 2
D-034-PI-109	~~10~~11	P&ID Afterburner Controls, Sheet 3
D-034-PI-110	9	P&ID Deslagging System
D-034-PI-201	21	P&ID Spray Dryer Quench Tower
D-034-PI-202	14	P&ID Baghouse
D-034-PI-204	15	P&ID Saturator & Scrubber
D-034-PI-205	28	P&ID 1st Stage Neutralization System
D-034-PI-206	22	P&ID 2nd Stage Neutralization System
D-034-PI-207	8	P&ID Soda Ash Storage Handling System
D-034-PI-208	21	P&ID Spray Dryer Feed System
D-034-PI-209	8	P&ID Cooling Tower
D-034-PI-211	4	P&ID Wet Electrostatic Precipitator

number	revision	title
D-034-PI-212	4	P&ID I.D. Fan and Stack
D-034-PI-213	8	P&ID Emergency Air/Water
D-034-PI-214	5	P&ID Residue Handling Building
D-800-PI-215	4	Piping Diagram CEM System #1
D-800-PI-216	2	Piping Diagram CEM System #2
D-034-PI-220	2	Activated Carbon Silo
D-034-PI-221	3	PAC Dosing System Train 1
D-034-PI-222	3	PAC Dosing System Train 3
D-034-PI-300	7	P&ID Liquid Unloading Pumps
D-034-PI-301	12	P&ID Waste Liquid Transfer Pumps
D-034-PI-302-1	17	P&ID Direct Burn Waste Liquid Unloading
D-034-PI-302-2	5	P&ID Direct Burn Waste Liquid Unloading
D-034-PI-302-3	5	Sludge Pad Direct Burn Station
D-034-PI-303	3	P&ID Feed Tanks Sheet 1
D-034-PI-304	4	P&ID Feed Tanks Sheet 2
D-034-PI-305	4	P&ID Liquids Storage
D-034-PI-306	4	P&ID Liquids Storage
D-034-PI-307	7	P&ID Liquids Storage Tanks, PE Stamped 2/22/10
D-034-PI-308	6	P&ID Liquids Storage Tanks
D-034-PI-309	7	P&ID Liquids Storage Tanks, PE Stamped 2/22/10
D-034-PI-310	9	P&ID Liquids Storage Tanks
D-034-PI-313	4	P&ID Blend & Transfer Pumps
D-034-PI-314	5	P&ID Blended Liquid Feed & Transfer Pumps
D-034-PI-315	5	P&ID Aqueous Feed Pumps
D-800-PI-316	19A	P&ID Hydrocarbon Vent System

number	revision	title
D-800-PI-317	6	P&ID Vent System and Combustibles Analyzers
D-034-PI-318	1	P&ID Compressed Gas Waste
D-034-PI-401	4	P&ID Solids Handling
D-034-PI-402	18	P&ID Sludge Handling
D-800-PI-408	6	Bldg. E-4 Decant P&ID
D-800-PI-410	24	P&ID Combustibles Monitoring System
D-800-PI-411	4	P&ID Comb. Air Carbon Adsorption System
D-034-PI-601	8	P&ID Fuel Oil/Outside Storage Tanks/Pumps
D-034-PI-602	5	P&ID Area Sumps Sheet 1
D-034-PI-603	12	P&ID Area Sumps Sheet 2
D-034-PI-604	7	P&ID Air Compressor System
D-034-PI-605	~~13~~14	P&ID Nitrogen & Fuel Oil
D-034-PI-606	~~10~~12	P&ID Plant, Instrument Air & Propane
D-034-PI-607	4	P&ID Plant Water, Runoff Water, Fire Water
D-034-PI-608	~~8~~?	P&ID Potable Water
D-034-PI-609	14	P&ID Plant Water
D-034-PI-701	C	Komar Shredder Feed System
D-034-PI-702	F	Komar Airlock
D-034-PI-703	D	Komar Dual Shredder System
D-034-PI-704	E	Screw Conveyor to Auger Kiln Feed
D-034-PI-705	G	Komar Kiln Feed Auger System
D-034-PF-100	~~13~~14	Overall Flow Scheme
D-800-PF-275	1	Process Flow Diagram – Typical December 1997
D-800-PF-276	1	Process Flow Diagram – Typical December 1997
D-034-PF-301 Sheet 1 of 2	12	Liquids Handling (Tank Farm) - Flowsheet

number	revision	title
D-034-PF-301 Sheet 2 of 2	7	Liquids Handling (Tank Farm) - Flowsheet
D-034-PF-302	12	Direct Burn & Cylinder Material Handling - Flowsheet
D-034-PF-401	~~6~~8	Process Flow Diagram - Barrel Handling
D-034-PF-402	9	Sludge and Bulk Solids Handling - Flowsheet
D-034-PF-603	10	Closed Vent System Flowsheet
D-034-PF-604	9	Hydrocarbon Vent System Flow Diagram
D-034-M-001	3	Site Plan
D-034-M-002	~~23~~26	Plot Plan
D-034-M-002-SP	~~16~~17	Sump and Sump Pump Location
D-034-M-005	~~19~~20	Safety Equipment Plan
~~D-800-M-122~~	~~1~~	~~Direct Burn Vessel~~
D-034-M-401	0	Cylinder Storage Area Plot Plan
D-800-M-402	5	Container Storage Building Plan
D-800-M-403	~~1~~2	Material Handling Area Plan
D-034-M-500	0	Shred Tower Storage Area
SK-090-997-AR	3	Area Site Plan

* NOTE: These drawings include interlocks that are not required by this permit. They are required by other permits and are included in these drawings to avoid the confusion caused by two sets of interlock drawings.

1 2 3 4 5 6

UTILITY POWER FAILURE	GENERAL POWER FAILURE	FUNCTION PERFORMED DESCRIPTION	CONTROL TAG:	DWG. No.:
PF/O	PF/O	ABC SAFETY VENT	SV-1008	PI-101
EP	S	KILN DRIVE	PB-1003	PI-101
EP	S	COMBUSTION AIR FAN K-101	PB-1001	PI-101
EP	S	COOLING AIR FAN K-103	PB-1002	PI-101
EP	S	HEAT TRANSFER FLUID PUMP	PB-1054/55	PI-103
		P101 A OR B		
S	S	APRON FEEDER C-404	SV-1036	PI-102
S	S	PUMP C-404M		PI-102
C	C	DOUBLE FLOP GATE-UPPER	SV-1035	PI-102
C	C	DOUBLE FLOP GATE-LOWER	SV-1034	PI-102
C	C	DISCHARGE GATE (CLOSE)	SV-1033A	PI-102
		(WILL COMPLETE FEED CYCLE)		
C	C	KILN BLEND FEED BLOCK VALVE	HV-1120	PI-105
C	C	KILN BLEND FEED CONTROL VALVE	FV-1121	PI-105
C	C	KILN FUEL OIL BLOCK VALVE	SV-1130	PI-105
C	C	KILN FUEL OIL CONTROL VALVE	FV-1131	PI-105
A/I	C	KILN PILOT BLOCK VALVE	SV-1140	PI-105
A/I	O	KILN PILOT VENT VALVE	SV-1137	PI-105
A/I	C	KILN PILOT BLOCK VALVE	SV-1101	PI-105
A/I	O	KILN PRIMARY COMBUSTION	FV-1143	PI-105
		AIR DAMPER		
A/I	C	KILN PILOT SECONDARY	SV-1137/1142	PI-105
		BLOCK VALVES		
C	C	DIRECT BURN LIQUID FEED	HV-1170	PI-106
		BLOCK VALVE		
C	C	KILN AQUEOUS LIQUID FEED	HV-1150	PI-106
		BLOCK VALVE		
C	C	KILN AQUEOUS LIQUID FEED	FV-1151	PI-106
S	S	KILN SLUDGE FEED PUMP	P-103	PI-106
C	C	KILN SLUDGE	FV-4021	PI-106
		VALVE TO KILN		
C	C	KILN SLUDGE	HV-4022	PI-106
		VALVE TO KILN		

UTILITY POWER FAILURE	GENERAL POWER FAILURE	FUNCTION PERFORMED DESCRIPTION	CONTROL TAG:	DWG. No.:
S	S	KILN SLUDGE FEED	PB-4059	PI-402
		PUMP P-406		
S	S	KILN BLEND FEED	PB-1243/1250	PI-314
		PUMP P-306 A/B		
EP	S	KILN FUEL OIL FEED	PB-3358/9	PI-601
		PUMP P-305 A/B		
S	S	KILN AQUEOUS LIQUID FEED	PB-3334/5	PI-315
		PUMP P-304 A/B		
C	C	DRUM PUMPING STATION BLOCK VALVE	SV-3016	PI-302
C	C	AIR TO DRUM PUMP STA EDUCTOR VALVE	SV1208	PI-109
O	O	N2 TO DRUM PUMP STA EDUCTOR VALVE	SV1209	PI-109
C	C	ABC BLEND FEED BLOCK VALVE	HV-1183	PI-107
C	C	ABC BLEND FEED CONTROL VALVE	FV-1184	PI-107
EP	C	ABC FUEL OIL BLOCK VALVE	SV-1193	PI-107
EP	C	ABC FUEL OIL CONTROL VALVE	FV-1194	PI-107
A/I	C	ABC PILOT BLOCK VALVE	SV-1190	PI-107
A/I	O	ABC PILOT VENT VALVE	SV-1198	PI-107
A/I	O	ABC PRIMARY COMBUSTION	FV-1192	PI-107
		AIR DAMPER		
A/I	C	ABC PILOT SECONDARY BLOCK	SV-1179/1180	PI-107
		VALVES		
EP	S	ABC COMBUSTION AIR FAN	PB-1142/1851	PI-107
		K102 A/B		
C	C	ABC AQUEOUS LIQUID FEED	HV-1262	PI-109
		BLOCK VALVE		
C	C	ABC AQUEOUS LIQUID FEED	FV-1263	PI-109
		CONTROL VALVE		
C	C	ABC BLEND FEED BLOCK VALVE	HV-1220	PI-108
C	C	ABC BLEND FEED CONTROL VALVE	FV-1221	PI-108
EP	C	ABC FUEL OIL BLOCK VALVE	SV-1230	PI-108
EP	C	ABC FUEL OIL CONTROL VALVE	FV-1231	PI-108
A/I	C	ABC PILOT BLOCK VALVE	SV-1240	PI-108
A/I	O	ABC PILOT VENT VALVE	SV-1241	PI-108
A/I	C	ABC PILOT BLOCK VALVE	SV-1242	PI-108
A/I	O	ABC PRIMARY COMBUSTION	FV-1247	PI-108
		AIR DAMPER		
A/I	C	ABC PILOT SECONDARY	SV-1245/1248	PI-108
		BLOCK VALVE		
C	C	ABC AQUEOUS LIQUID FEED	HV-1262/52	PI-109
		BLOCK VALVE		

UTILITY POWER FAILURE	GENERAL POWER FAILURE	FUNCTION PERFORMED DESCRIPTION	CONTROL TAG:	DWG. No.:
C	C	ABC AQUEOUS LIQUID FEED	FV-1263/53	PI-109
		CONTROL VALVE		
A/I	PF-O	S.D. TOP HEADER EMERGENCY	SV-2046	PI-208
		WATER VALVE		
A/I	PF-O	S.D. MID POINT HEADER EMERGENCY	SV-2047	PI-208
		WATER VALVE		
A/I	O	BAGHOUSE EMERGENCY BYPASS	ZAL-2021	PI-202
A/I	PF-O	SATURATOR EMERGENCY	HV-2083	PI-204
		WATER SPRAY VALVES – 2"		
A/I	PF-O	SATURATOR DELUGE VALVE – 10"	HV-2084	PI-204
A/I	PF-O	SCRUBBER RUNDOWN EMERGENCY	HV-2090 &	PI-204
		DRAIN VALVE	HV-2091	
EP	S	WESP	PB-2181A/B	PI-211
EP	S	INDUCED DRAFT FAN	PB-2191	PI-212
A/I	PF-O	SATURATOR WATER VALVE – 4"	SV-2081	PI-204
C	C	SPRAY DRYER BRINE VALVE	HV-2118	PI-208
O	O	SPRAY DRYER WATER VALVE	HV-2119	PI-208
A/I	PF-O	SPRAY DRYER WATER TANK	SV-2061	PI-208
		N? VALVE		
EP	OFF	EMERGENCY LIGHTING		
EP		UPS		
S	S	HEAT TRACING		
EP	S	KILN GUIDANCE SYSTEM H-106M	PB-3012	PI-101
EP	S	KILN BRAKE H-104M	PB-1003	PI-101
EP	S	HYDRAULIC OIL PUMP MOTOR P-102	PB-1919	PI-102
		HEAT EXCHANGER		
S	S	COOLING WATER RECIRC.	PB-2156/7	PI-209
		PUMP P-204 A/B		
EP	S	AIR COMPRESSOR P-601 B/C/D	PB-6007	PI-604
* (EP)	S	PROCESS WATER PUMP P-605 A/B	PB-6126A/B	PI-607
EP	S	1st STAGE SCRUBBER CIRC.	PB-2206 &	PI-205
		PUMP P-205 A, B, OR C	PB-2214	
EP	S	SPRAY DRYER FEED PUMP	UA-2017	PI-208
		PUMP P-206 A, B, OR C	UA-2018	
EP	S	SATURATOR CIRCULATION	PB-2206	PI-205
		PUMP P-203 A OR B	PB-2214	

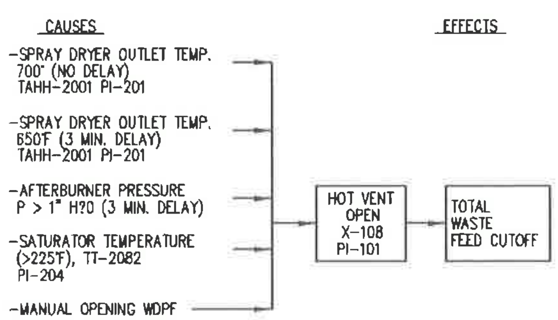
* NOT COMPLETED

UTILITY POWER FAILURE	GENERAL POWER FAILURE	FUNCTION PERFORMED DESCRIPTION	CONTROL TAG:	DWG. No.:
EP	S	2nd STAGE SCRUBBER CIRC.	PB-2152 &	PI-206
		PUMP P-202 A, B, OR C	PB-2160	
EP	S	WESP FOGGING PUMP	PB-2174A/B	PI-211
		P-201 A OR B		
EP	S	DESLAGGER	PB-1809	PI-110
		C-102		
S	S	COOLING TOWER FAN	PB-3138 &	PI-209
		K-202 A OR B	PB-3115	
EP	S	SODA ASH SOLUTION FEED	PB-2312 &	PI-207
		PUMP P-208 A OR B	PB-2320	

LEGEND

C = CLOSED
O = OPEN
S = STOPPED OR SHUTDOWN
EP = RESTARTS ON EMERGENCY POWER
A/I = STAYS AS IS
UPS = STAYS ON LINE WITH BATTERY POWER
PF = ACTUATED AS RESULT OF OTHER PROCESS FUNCTIONS AND INTERLOCKS

ABC HOT VENT OPENING



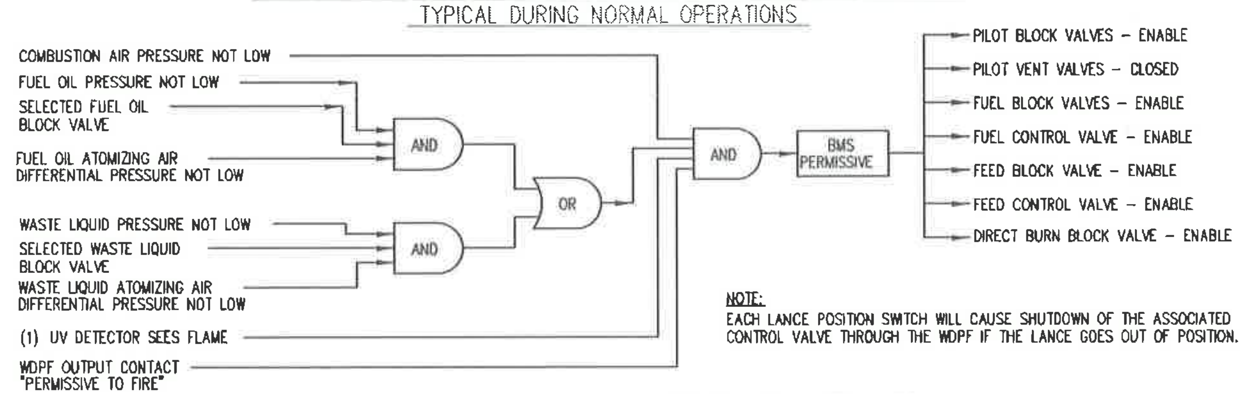
NOTE:
WHEN THE HOT VENT OPENS ITS POSITION SWITCH WILL TRIGGER A TOTAL WASTE FEED CUTOFF VIA THE WDPF.

AFTERBURNER CHAMBER – LOW OXYGEN

LOGIC DIAGRAM

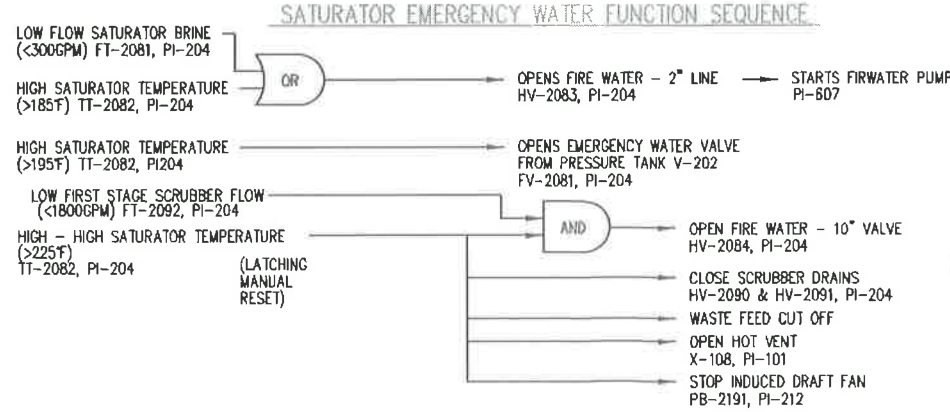
BURNER MANAGEMENT SYSTEM RUN TIME PERMISSIVE LOGIC DIAGRAM

TYPICAL DURING NORMAL OPERATIONS



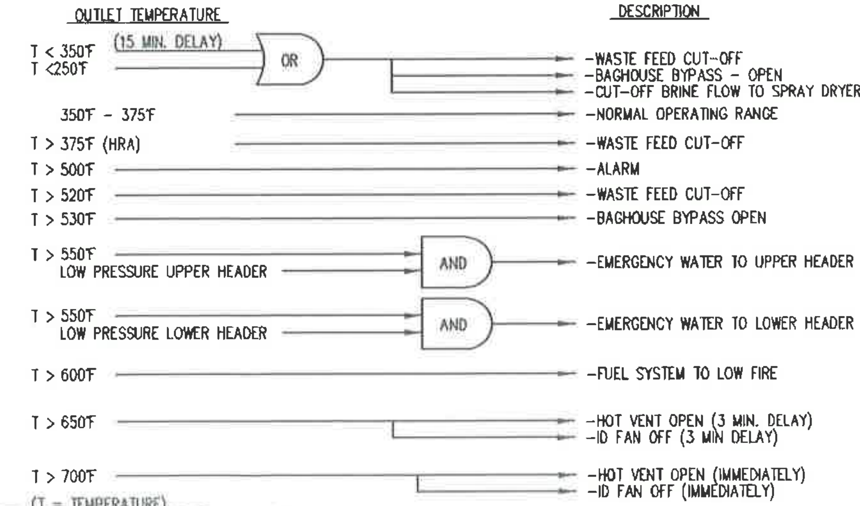
NOTE:
EACH LANCE POSITION SWITCH WILL CAUSE SHUTDOWN OF THE ASSOCIATED CONTROL VALVE THROUGH THE WDPF IF THE LANCE GOES OUT OF POSITION.

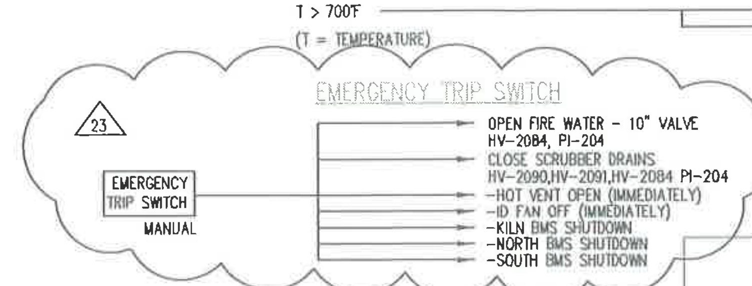
SATURATOR EMERGENCY WATER FUNCTION SEQUENCE



SPRAY DRYER OUTLET TEMPERATURE

LOGIC DIAGRAM





REGISTERED PROFESSIONAL ENGINEER No. 176286-2202 JOHN WILLIAM CALDWELL 01/31/20 STATE OF UTAH

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
15	REMOVED CONTROL VALVE FV1171	2-16-00	GVC			
16	ADDED T <250°F & 15 MIN. DELAY	09-18-00	GVC			
17	ADDED AQUEOUS TO KILN	01-17-01	GVC			
18	NEW PERMIT REQUIREMENTS AS OF DEC 27	1-15-02	KL			
19	NEW AIR PERMIT REQUIREMENTS	05-16-02	LC			

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	MECH	ENG MGR
20	ADDED SV-3016	11-3-03	KL			
21	ADDED SV1208, SV1209	11-13-03	KL			
22	CHANGED SPRAY DRYER TEMP LIMIT	02-15-05	LC			
23	ADDED EMERGENCY TRIP SWITCH	01-22-20	JWR	SJ	TH	JWR
14	CHANGED HV-4021 TO FV-4021	04-05-99	CRM			

APPROVALS

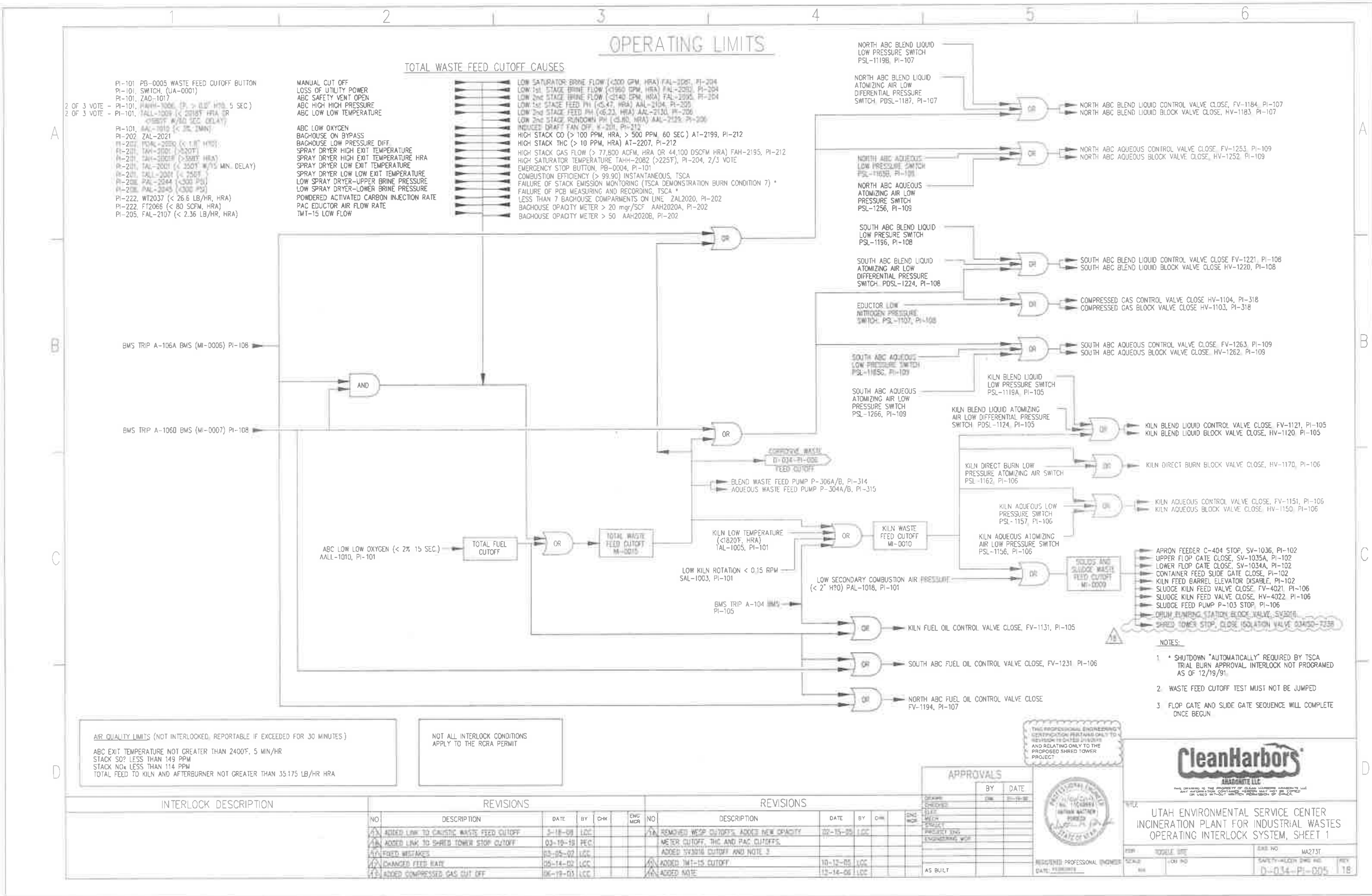
	BY	DATE
DRAWN	CRM	12-23-87
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER
DATE: ________

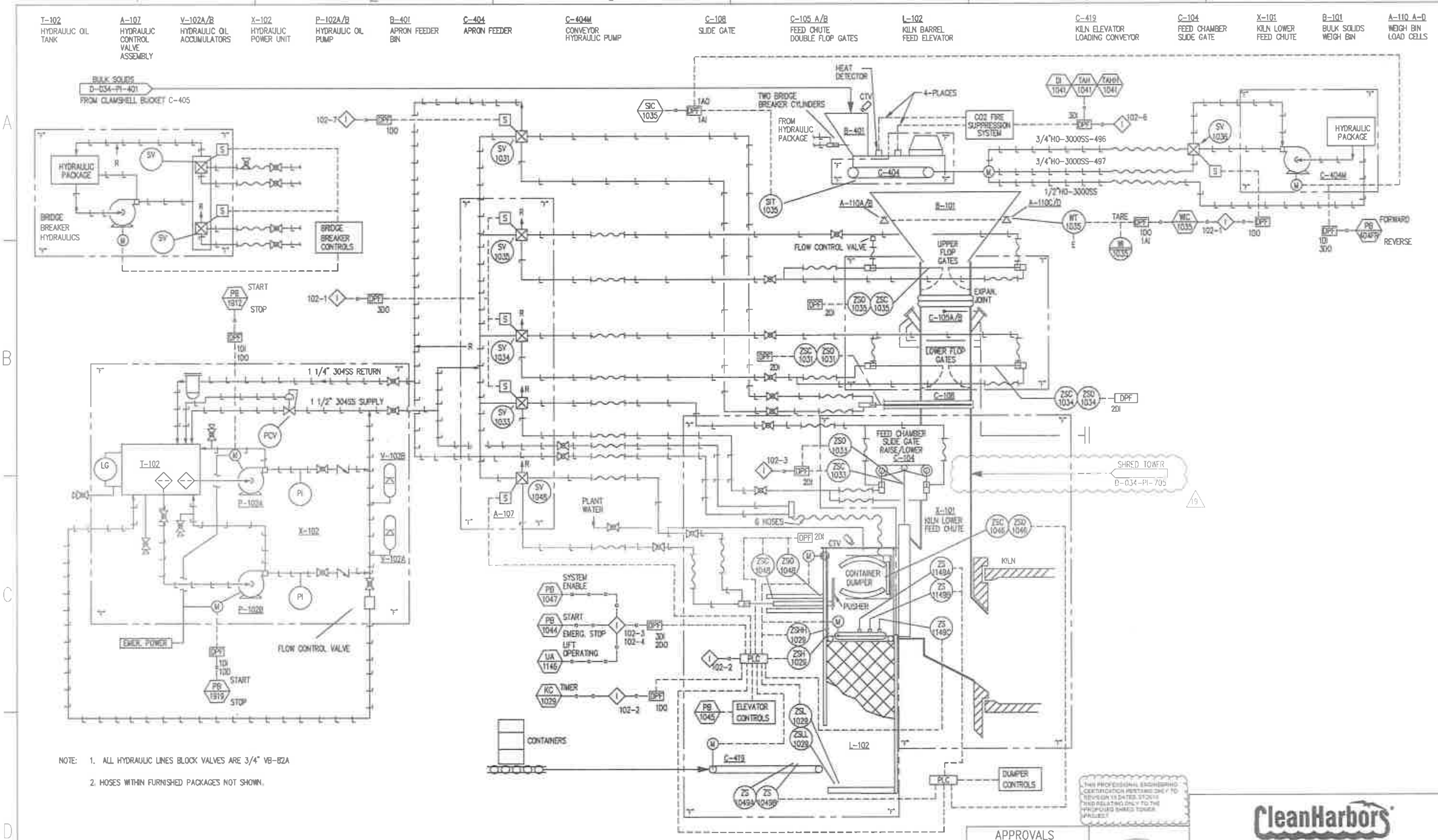
CleanHarbors
ARAGONITE LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
MASTER INTERLOCK SYSTEM, SHEET 2

FOR: TOOELE SITE
CAD NO. 142210
SCALE: NA
JOB NO
SAFETY-KLEEN DWG NO: D-034-PI-004
REV 23



OPERATING LIMITS
TOTAL WASTE FEED CUTOFF CAUSES
PI-101 PB-0005 WASTE FEED CUTOFF BUTTON
PI-101, SWITCH, (UA-0001)
PI-101, ZAO-1017
2 OF 3 VOTE - PI-101, 5 SEC)
2 OF 3 VOTE - PI-101,
PI-202 ZAL-2021
MIN. DELAY)
PI-222, WT2037 (< 26.6 LB/HR, HRA)
PI-222, FT2066 (< 80 SCFM, HRA)
PI-205, FAL-2107 (< 2.36 LB/HR, HRA)
MANUAL CUT OFF
LOSS OF UTILITY POWER
ABC SAFETY VENT OPEN
ABC HIGH HIGH PRESSURE
ABC LOW LOW TEMPERATURE
ABC LOW OXYGEN
BAGHOUSE ON BYPASS
BAGHOUSE LOW PRESSURE DIFF
SPRAY DRYER HIGH EXIT TEMPERATURE
SPRAY DRYER HIGH EXIT TEMPERATURE HRA
SPRAY DRYER LOW EXIT TEMPERATURE
SPRAY DRYER LOW LOW EXIT TEMPERATURE
LOW SPRAY DRYER-UPPER BRINE PRESSURE
LOW SPRAY DRYER-LOWER BRINE PRESSURE
POWDERED ACTIVATED CARBON INJECTION RATE
PAC EDUCTOR AIR FLOW RATE
TMT-15 LOW FLOW
HIGH STACK CO (> 100 PPM, HRA, > 500 PPM, 60 SEC) AT-2199, PI-212
HIGH STACK THC (> 10 PPM, HRA) AT-2207, PI-212
HIGH STACK GAS FLOW (> 77,800 ACFM, HRA OR 44,100 DSCFM HRA) FAH-2195, PI-212
HIGH SATURATOR TEMPERATURE TAHH-2082 (>225°F), PI-204, 2/3 VOTE
EMERGENCY STOP BUTTON, PB-0004, PI-101
COMBUSTION EFFICIENCY (> 99.90) INSTANTANEOUS, TSCA
FAILURE OF STACK EMISSION MONTORING (TSCA DEMONSTRATION BURN CONDITION 7) *
FAILURE OF PCB MEASURING AND RECORDING, TSCA *
LESS THAN 7 BAGHOUSE COMPARMENTS ON LINE ZAL2020, PI-202
BAGHOUSE OPACITY METER > 20 mgr/SCF AAH2020A, PI-202
BAGHOUSE OPACITY METER > 50 AAH2020B, PI-202
NORTH ABC BLEND LIQUID LOW PRESSURE SWITCH PSL-1119B, PI-107
NORTH ABC BLEND LIQUID ATOMIZING AIR LOW DIFFERENTIAL PRESSURE SWITCH, PDSL-1187, PI-107
OR
NORTH ABC BLEND LIQUID CONTROL VALVE CLOSE, FV-1184, PI-107
NORTH ABC BLEND LIQUID BLOCK VALVE CLOSE, HV-1183, PI-107
NORTH ABC AQUEOUS CONTROL VALVE CLOSE, FV-1253, PI-109
NORTH ABC AQUEOUS BLOCK VALVE CLOSE, HV-1252, PI-109
NORTH ABC AQUEOUS ATOMIZING AIR LOW PRESSURE SWITCH PSL-1256, PI-109
SOUTH ABC BLEND LIQUID LOW PRESURE SWITCH PSL-1196, PI-108
SOUTH ABC BLEND LIQUID ATOMIZING AIR LOW DIFFERENTIAL PRESSURE SWITCH, PDSL-1224, PI-108
SOUTH ABC BLEND LIQUID CONTROL VALVE CLOSE FV-1221, PI-108
SOUTH ABC BLEND LIQUID BLOCK VALVE CLOSE HV-1220, PI-108
COMPRESSED GAS CONTROL VALVE CLOSE HV-1104, PI-318
COMPRESSED GAS BLOCK VALVE CLOSE HV-1103, PI-318
SOUTH ABC AQUEOUS CONTROL VALVE CLOSE, FV-1263, PI-109
SOUTH ABC AQUEOUS BLOCK VALVE CLOSE, HV-1262, PI-109
SOUTH ABC AQUEOUS ATOMIZING AIR LOW PRESSURE SWITCH PSL-1266, PI-109
BMS TRIP A-106A BMS (MI-0006) PI-108
AND
BMS TRIP A-106B BMS (MI-0007) PI-108
KILN BLEND LIQUID LOW PRESSURE SWITCH PSL-1119A, PI-105
KILN BLEND LIQUID ATOMIZING AIR LOW DIFFERENTIAL PRESSURE SWITCH, PDSL-1124, PI-105
KILN BLEND LIQUID CONTROL VALVE CLOSE, FV-1121, PI-105
KILN BLEND LIQUID BLOCK VALVE CLOSE, HV-1120, PI-105
KILN DIRECT BURN LOW PRESSURE ATOMIZING AIR SWITCH PSL-1162, PI-106
KILN DIRECT BURN BLOCK VALVE CLOSE, HV-1170, PI-106
KILN AQUEOUS LOW PRESSURE SWITCH PSL-1157, PI-106
KILN AQUEOUS CONTROL VALVE CLOSE, FV-1151, PI-106
KILN AQUEOUS BLOCK VALVE CLOSE, HV-1150, PI-106
KILN AQUEOUS ATOMIZING AIR LOW PRESSURE SWITCH PSL-1156, PI-106
BLEND WASTE FEED PUMP P-306A/B, PI-314
AQUEOUS WASTE FEED PUMP P-304A/B, PI-315
KILN LOW TEMPERATURE (<1820°F, HRA) TAL-1005, PI-101
KILN WASTE FEED CUTOFF MI-0010
ABC LOW LOW OXYGEN (< 2% 15 SEC.) AALL-1010, PI-101
TOTAL FUEL CUTOFF
TOTAL WASTE FEED CUTOFF M-0015
LOW KILN ROTATION < 0.15 RPM SAL-1003, PI-101
LOW SECONDARY COMBUSTION AIR PRESSURE (< 2" H2O) PAL-1018, PI-101
BMS TRIP A-104 BMS PI-105
APRON FEEDER C-404 STOP, SV-1036, PI-102
UPPER FLOP GATE CLOSE, SV-1035A, PI-102
LOWER FLOP GATE CLOSE, SV-1034A, PI-102
CONTAINER FEED SLIDE GATE CLOSE, PI-102
KILN FEED BARREL ELEVATOR DISABLE, PI-102
SLUDGE KILN FEED VALVE CLOSE, FV-4021, PI-106
SLUDGE KILN FEED VALVE CLOSE, HV-4022, PI-106
SLUDGE FEED PUMP P-103 STOP, PI-106
KILN FUEL OIL CONTROL VALVE CLOSE, FV-1131, PI-105
SOUTH ABC FUEL OIL CONTROL VALVE CLOSE, FV-1231 PI-106
NORTH ABC FUEL OIL CONTROL VALVE CLOSE FV-1194, PI-107
NOTES:
1. * SHUTDOWN "AUTOMATICALLY" REQUIRED BY TSCA TRIAL BURN APPROVAL. INTERLOCK NOT PROGRAMED AS OF 12/19/91.
2. WASTE FEED CUTOFF TEST MUST NOT BE JUMPED
3. FLOP GATE AND SLIDE GATE SEQUENCE WILL COMPLETE ONCE BEGUN
AIR QUALITY LIMITS (NOT INTERLOCKED, REPORTABLE IF EXCEEDED FOR 30 MINUTES)
ABC EXIT TEMPERATURE NOT GREATER THAN 2400°F, 5 MIN/HR
STACK SO2 LESS THAN 149 PPM
STACK NOx LESS THAN 114 PPM
TOTAL FEED TO KILN AND AFTERBURNER NOT GREATER THAN 35,175 LB/HR HRA
NOT ALL INTERLOCK CONDITIONS APPLY TO THE RCRA PERMIT
INTERLOCK DESCRIPTION
REVISIONS
NO DESCRIPTION DATE BY CHK ENG MGR
ADDED LINK TO CAUSTIC WASTE FEED CUTOFF 3-18-08 LCC
ADDED LINK TO SHRED TOWER STOP CUTOFF 03-19-19 PEC
FIXED MISTAKES 03-05-02 LCC
CHANGED FEED RATE 05-14-02 LCC
ADDED COMPRESSED GAS CUT OFF 06-19-03 LCC
REVISIONS
NO DESCRIPTION DATE BY CHK ENG MGR
REMOVED WESP CUTOFFS, ADDED NEW OPACITY METER CUTOFF, THC AND PAC CUTOFFS. ADDED SV3016 CUTOFF AND NOTE 3 02-15-05 LCC
ADDED TMT-15 CUTOFF 10-12-05 LCC
ADDED NOTE 12-14-06 LCC
APPROVALS
BY DATE
AS BUILT
CleanHarbors
ARAGONITE LLC
REGISTERED PROFESSIONAL ENGINEER
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
OPERATING INTERLOCK SYSTEM, SHEET 1
MA273T
D-034-PI-005
18



NOTE: 1. ALL HYDRAULIC LINES BLOCK VALVES ARE 3/4" VB-82A

2. HOSES WITHIN FURNISHED PACKAGES NOT SHOWN.

THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 19 DATED 3/7/2019 AND RELATING ONLY TO THE PROPOSED SHRED TOWER PROJECT

INTERLOCK DESCRIPTION

102-1 APRON FEEDER AND FLOP GATE SEQUENCE
102-2 CONTAINER CONVEYOR AND ELEVATOR SEQUENCE
102-3 OPEN DISCHARGE GATE WHEN ELEVATOR IS IN POSITION
102-4 FLOP GATES AND ELEVATOR DISCHARGE GATE MUST NOT OPEN AT SAME TIME

102-6 APRON FEEDER TO BE SHUTDOWN & DAMPER CLOSED ON SECOND HIGH TEMP. DETECTION.
102-7 SLIDE GATE TO OPEN AFTER TOP FLOW GATE CLOSES AND CLOSE AFTER LOW FLOP GATE CLOSES. SV TO OPEN WHILE SLIDE GATE IS OPEN

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
14	ADDED FOGGING NOZZLES WITH CONTROLS	9-24-01	GVC			
15	ADDED NITROGEN PURGE	05-15-02	LCC			
16	ADDED BARREL DUMP	07-13-06	LCC			
17	UPDATED PER 2016 KILN PHA	12-12-16	MM	TL		
18	ADDED P-102B RETURN DRAIN VALVE	10-24-18	JWR	TL		JWR

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
19	ADDED SHRED TOWER INPUT	3-07-19	PEC			
11	AS BUILT HYDRAULIC PIPE	9/15/99	GVC			
12	ADDED SLIDE GATE	6-20-00	GVC			
13	REMOVED X-119, HIC4014, & REF. TO DRAWING D-800-PI-410	11-16-00	GVC			

APPROVALS

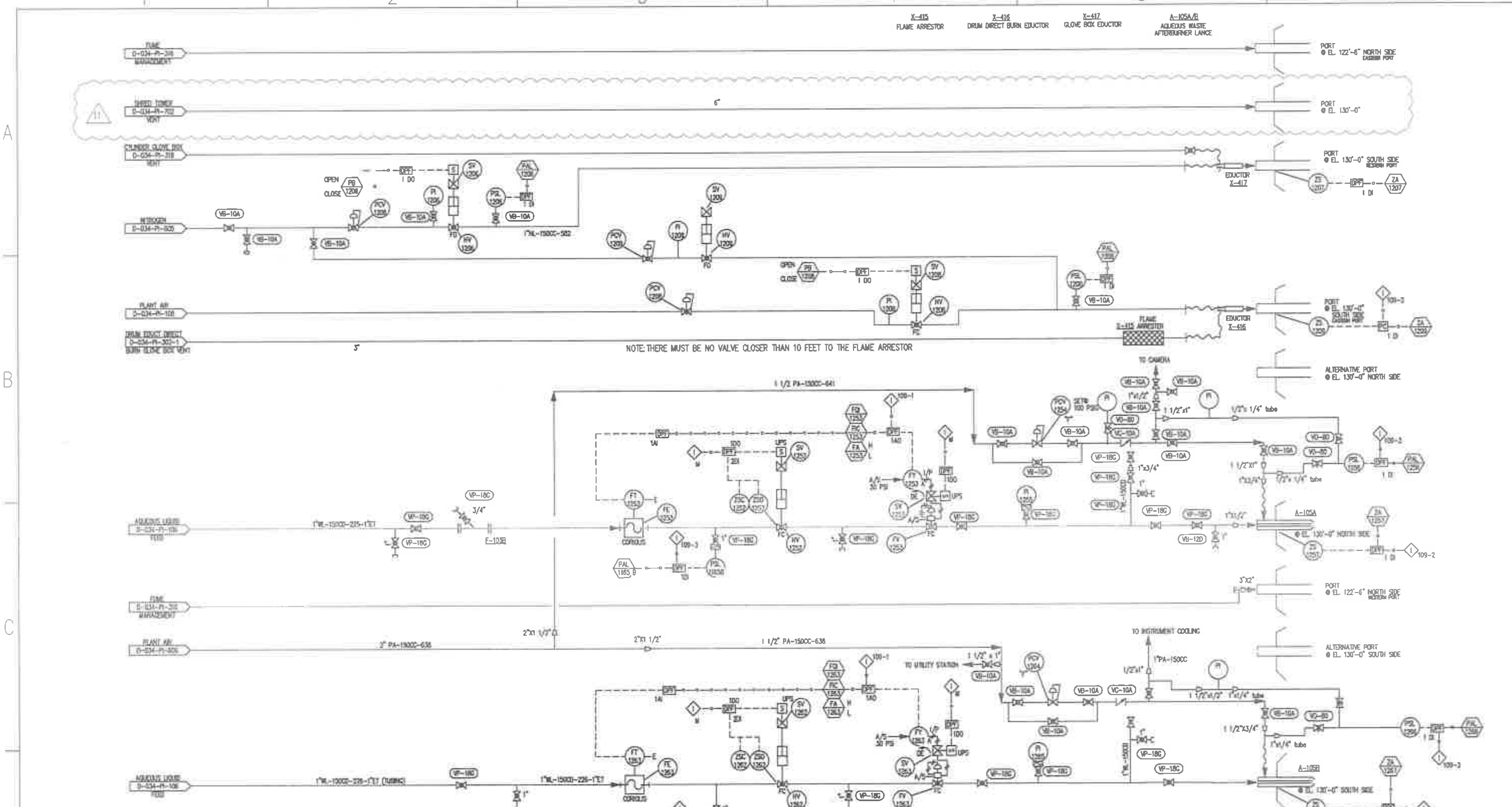
	BY	DATE
DRAWN	CRM	04-06-98
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER
DATE:

CleanHarbors
ARAGONITE LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
P&ID KILN FEED SYSTEM

FOR TOOELE SITE
CAD NO. IH779
SCALE
JOB NO
SAFETY-KLEEN DWG NO D-034-PI-102
REV 19



THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 11 DATED 3/19/2019 AND RELATING ONLY TO THE PROPOSED SHRED TOWER PROJECT

INTERLOCK DESCRIPTION

M MASTER INTERLOCK SYSTEM
109-1 VALVE CLOSED OR MIN FIRE BEFORE BLOCK VALVE CAN BE OPENED.
109-2 LANCE IN POSITION BEFORE VALVE CAN OPEN.
109-3 MINIMUM PRESSURE REQUIRED TO OPERATE FEED LINE

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
10	2016 KILN PHA, CORRECTIONS, ALTERED ROUTING	11-23-16	MM	TL		
11	ADDED SHRED TOWER VENT/PORT	03-19-19	PEC	PEC		
2	AS BUILT	06-27-91	DCP	JV		CHW
3	AS BUILT	10-15-91	DCP			CHW
4	AS BUILT	12-07-93	DCP			

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
5	TO CORRECT DRAFTING ERRORS & AS BUILT F.M.	04-21-95	CRM			
6	MODIFIED COMPRESSED GAS FEED AND MISC CORR	06-19-03	LCC			
7	ADDED DRUM DIRECT BURN GLOVE BOX	11-4-03	KL			
8	ADDED PORT ORIENTATION	11-13-03	KL			
9	REMOVED AQUEOUS STRAINERS, CORRECTIONS	6-14-06	KL			

APPROVALS

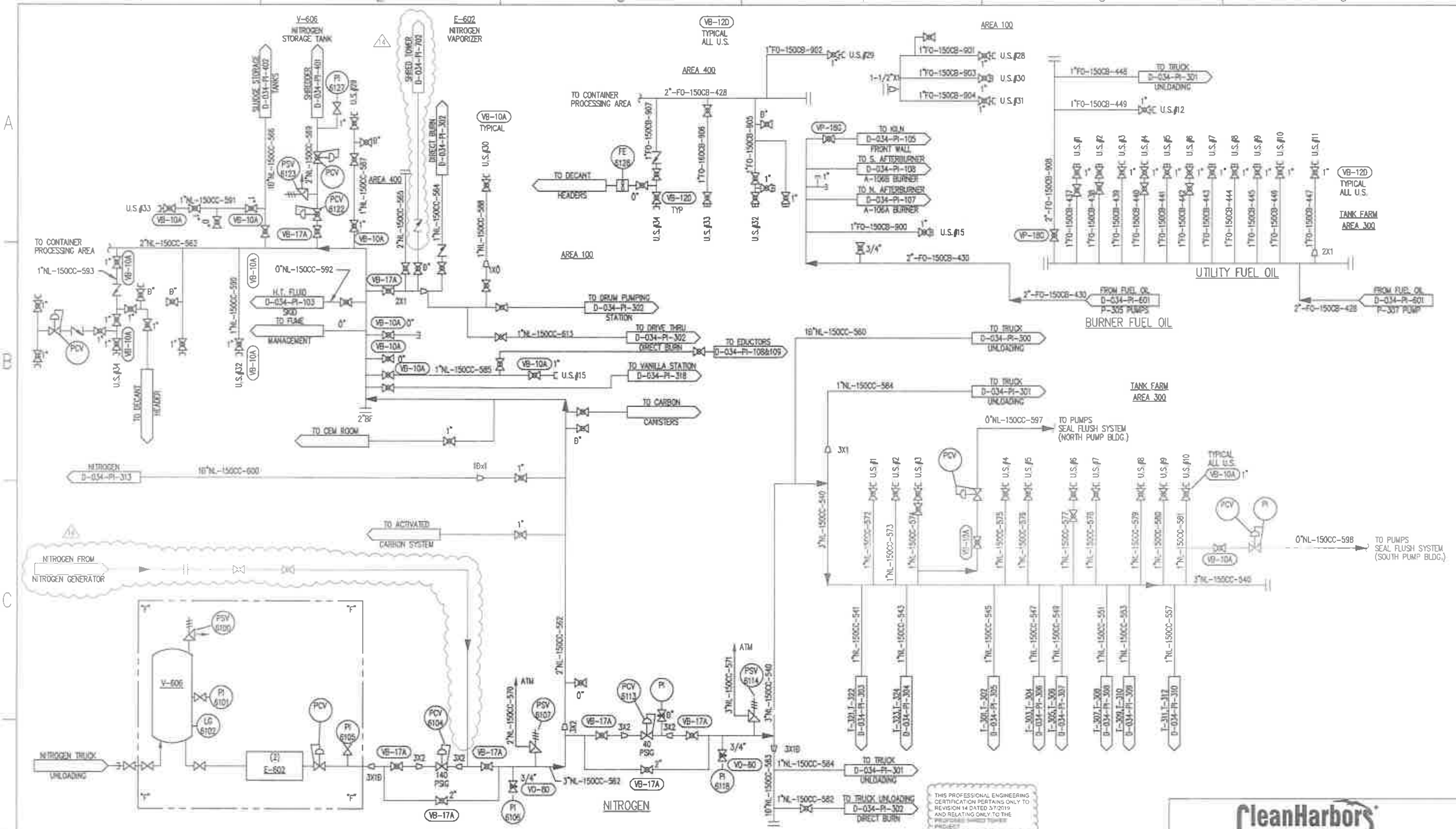
	BY	DATE
DRAWN	CRM	04-21-95
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER
DATE:

CleanHarbors
ARAGONITE LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
P&ID AFTERBURNER CONTROLS, SHEET 3

FOR TOOELE SITE
CAD NO. 8583
SCALE
JOB NO
APTUS DWG NO D-034-PI-109
REV 11



INTERLOCK
DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ELEC	MECH	STR	ENG MGR
10	ADDED NITROGEN PIPING TO	06-06-03	KL					
	EDUCTOR AND VANILLA STN. CORRECTIONS							
11	ADDED DRUM PUMPING N2 LINE	10-31-03	KL					
12	UTILITY MODIFIED FOR FUEL OIL BURNER							
	FEED, PER MOC-15-0018, UPDATED N2 LINE	07-06-16	MM	CP				
13	REMOVE N2 LINE	11-19-18	JWR	TL				JWR
14	ADDED N2 GEN. SHRED TOWER LINES	03-07-19	PEC					
9	SWITCHING POTS REMOVED	06-05-02	KL					

REFERENCE DRAWINGS

DRAWING NO	TITLE

REGISTERED PROFESSIONAL ENGINEER
DATE: 11/20/2019

APPROVALS

	BY	DATE
DRAWN	DCP	03-01-94
CHECKED		
LEAD ENG.		
ELEC CHECK		
MECH CHECK		
STRUCT CHECK		
PROJECT ENG		
PROJECT MGR		

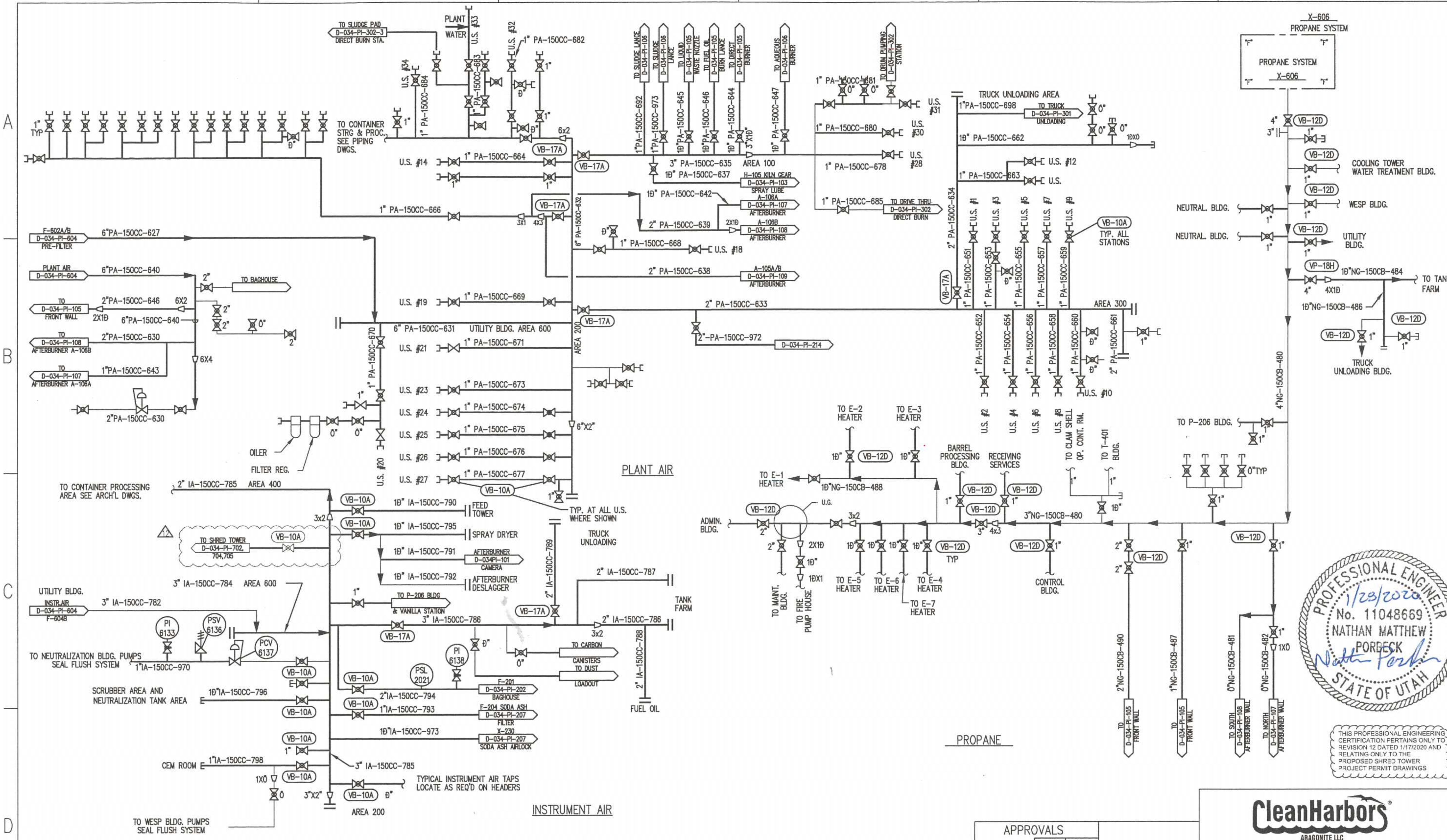
CURRENT DRAWING STATUS

	BY	DATE
PRELIMINARY OR PLANNING		
APPROVED FOR FINAL DESIGN		
APPROVED FOR QUOTE/PURCH		
APPROVED FOR CONSTRUCTION		
AS-BUILT		

CleanHarbors
ARAGONITE, LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
NITROGEN & FUEL OIL

FOR TOOELE SITE
CAD DISK FILE IH778
SCALE | JOB NO | ENG. DWG NO | CLEANHARBORS DWG NO D-034-PI-605 | REV 14



INTERLOCK DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
6	ADDED TANKER DIRECT BURN U.S.	1-10-01	GVC			
7	ADDED TRUCK UNLOADING DIRECT BURN	03-19-02	KL			
8	ADDED VANILLA STATION, CORRECTIONS	06-10-03	KL			
9	ADDED DRUM PUMPING AIR LINE	10-31-03	KL			

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
10	ADDED AIR CONN. TO SLUDGE PAD, FIXED PROPANE	11-19-15	MM	LB		
11	ADDED SHRED TOWER LINE	03-07-19	PEC			
12	GENERAL REVISIONS	01-17-20	PEC			
5	AS BUILT	10-9-00	GVC			

APPROVALS

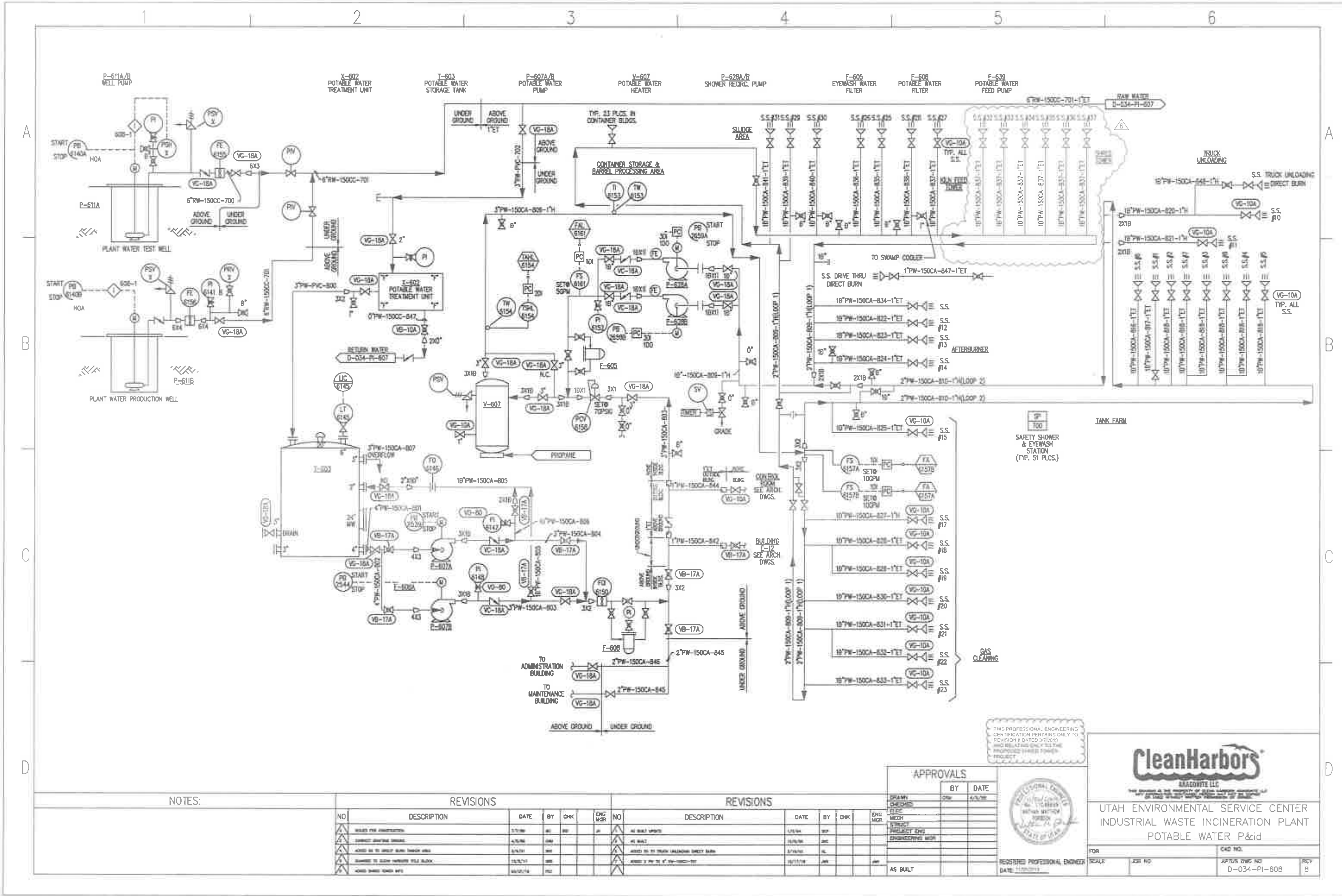
	BY	DATE
DRAWN	CRM	11-16-98
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

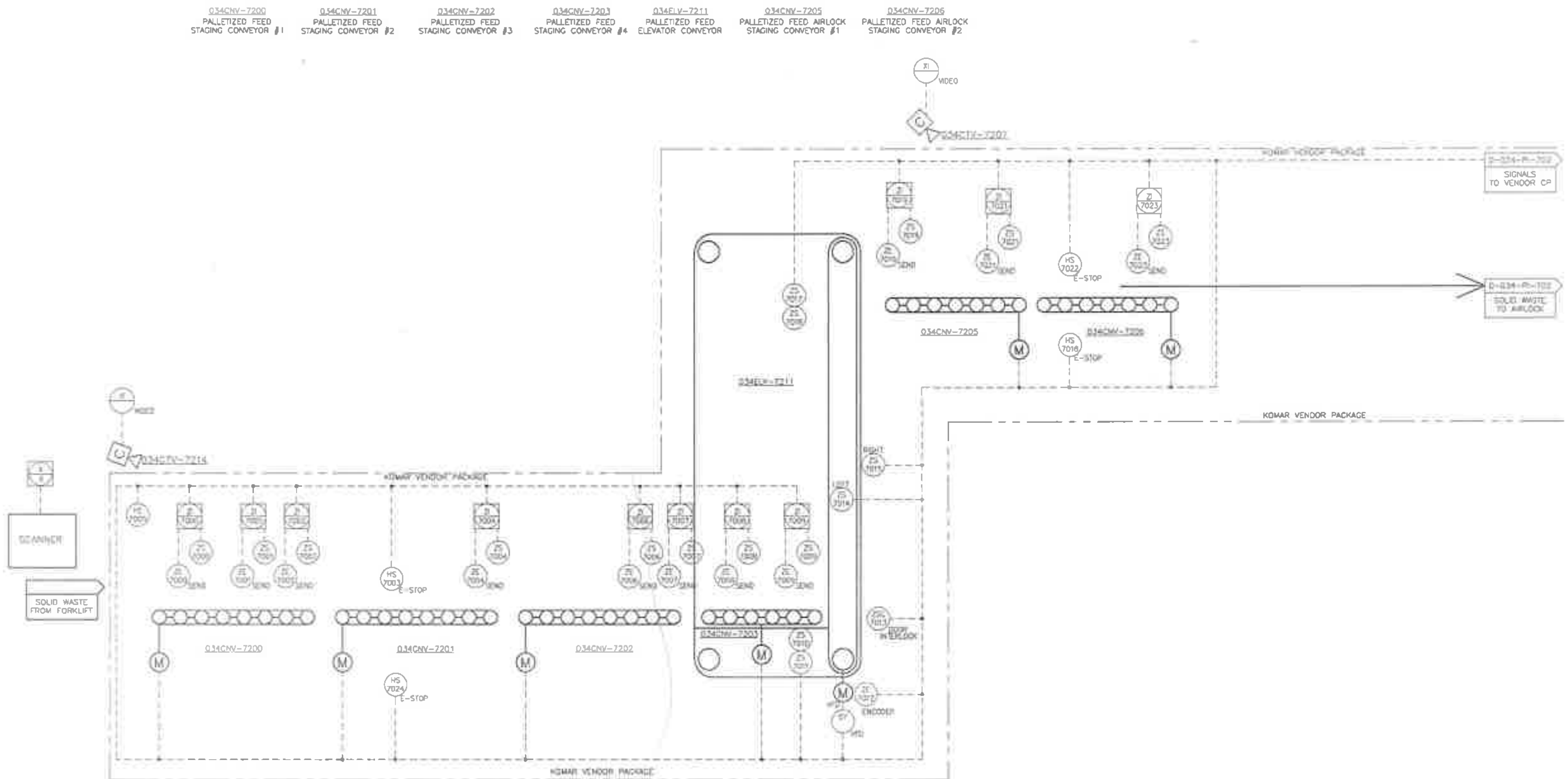
REGISTERED PROFESSIONAL ENGINEER
DATE:_________

CleanHarbors®
ARAGONITE LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
P&ID PLANT, INSTRUMENT AIR & PROPANE

FOR	TOOELE SITE	CAD NO.	EK930P
SCALE	JOB NO	SAFETY-KLEEN DWG NO D-034-PI-606	REV 12


P-611A/B WELL PUMP
X-602 POTABLE WATER TREATMENT UNIT
T-603 POTABLE WATER STORAGE TANK
P-607A/B POTABLE WATER PUMP
V-607 POTABLE WATER HEATER
P-628A/B SHOWER RECIRC. PUMP
F-605 EYEWASH WATER FILTER
F-608 POTABLE WATER FILTER
F-639 POTABLE WATER FEED PUMP
RAW WATER D-034-PI-607
PLANT WATER TEST WELL
PLANT WATER PRODUCTION WELL
CONTAINER STORAGE & BARREL PROCESSING AREA
SLUDGE AREA
KILN FEED TOWER
TRUCK UNLOADING
S.S. TRUCK UNLOADING DIRECT BURN
TO SWAMP COOLER
S.S. DRIVE THRU DIRECT BURN
AFTERBURNER
TANK FARM
SAFETY SHOWER & EYEWASH STATION (TYP. 51 PLCS.)
RETURN WATER D-034-PI-607
PROPANE
CONTROL ROOM SEE ARCH. DWGS.
BUILDING F-12 SEE ARCH DWGS.
GAS CLEANING
TO ADMINISTRATION BUILDING
TO MAINTENANCE BUILDING
ABOVE GROUND
UNDER GROUND
NOTES:
REVISIONS
APPROVALS
THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 8 DATED 3/7/2010
REGISTERED PROFESSIONAL ENGINEER
AS BUILT
CleanHarbors
ARAGONITE LLC
UTAH ENVIRONMENTAL SERVICE CENTER
INDUSTRIAL WASTE INCINERATION PLANT
POTABLE WATER P&id
APTUS DWG NO D-034-PI-608
REV 8



PEC18057 - D-034-PI-701 FAP/CJP 11/22/19

INTERLOCK DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
B	GENERAL REVISIONS	2/8/19	PEC		
C	PERMIT	11/26/19	PEC		

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR

APPROVALS

	BY	DATE
DRAWN	PEC	11/26/19
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

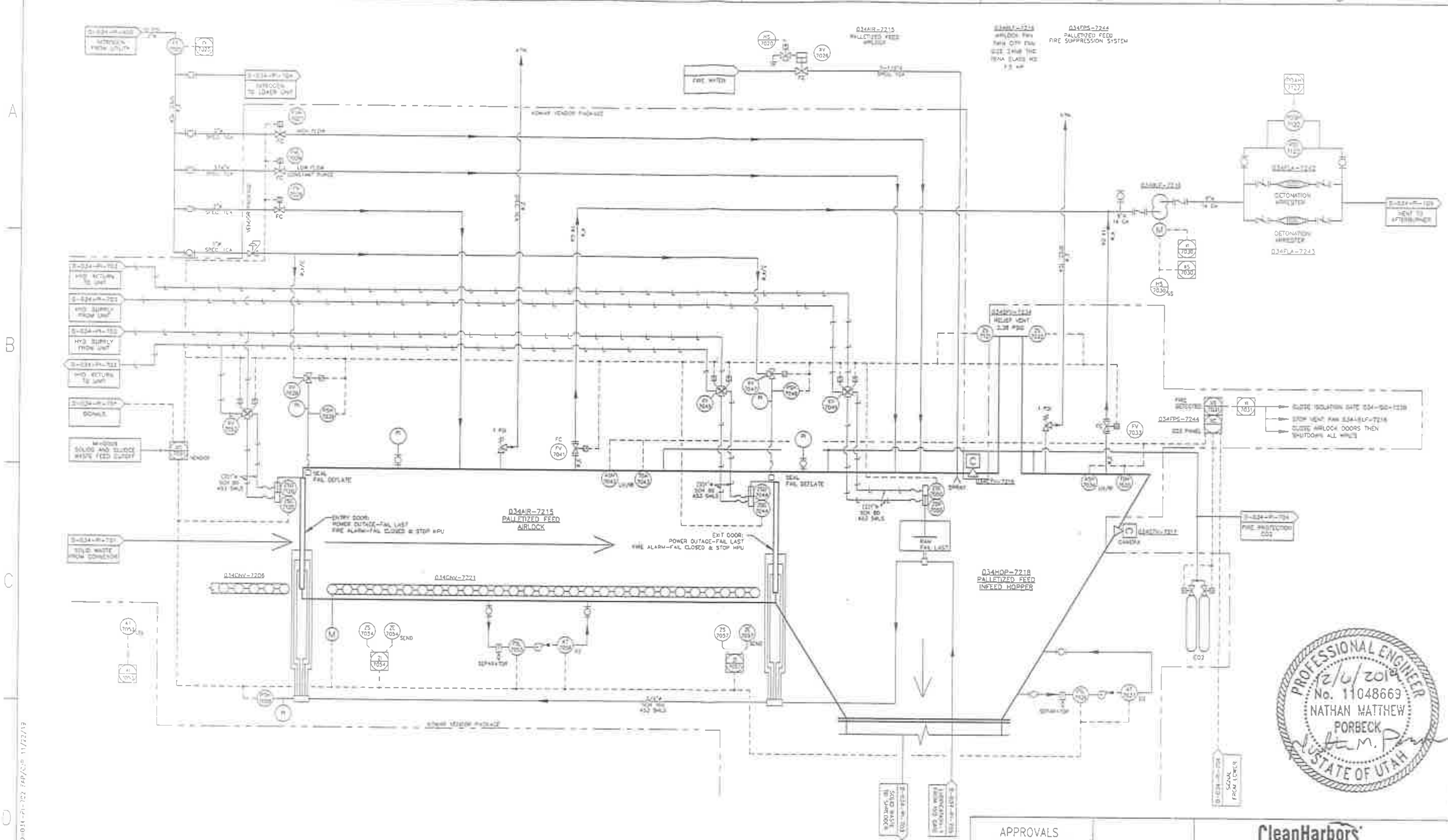
PROFESSIONAL ENGINEER No. 11048882 NATHAN MATTHEW PORBECK STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
DATE: 11/26/2019

CleanHarbors

TITLE
PALLET SHRED SYSTEM
KOMAR SHREDDER FEED SYSTEM
PIPING & INSTR4UMENTATION DIAGRAM

FOR TOOELE SITE
CAD NO. D-034-PI-701
SCALE NONE
JOB NO.
CLEANHARBORS DWG NO D-034-PI-701
REV C



INTERLOCK DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
	GENERAL REVISIONS	2/8/18	PEC			
	PERMIT	11/26/19	PEC			
	GENERAL REVISIONS	12/2/19	PEC			
	GENERAL REVISIONS	12/3/19	PEC			
	GENERAL REVISIONS	12/6/19	PEC			

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR

APPROVALS

	BY	DATE
DRAWN	PEC	
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		

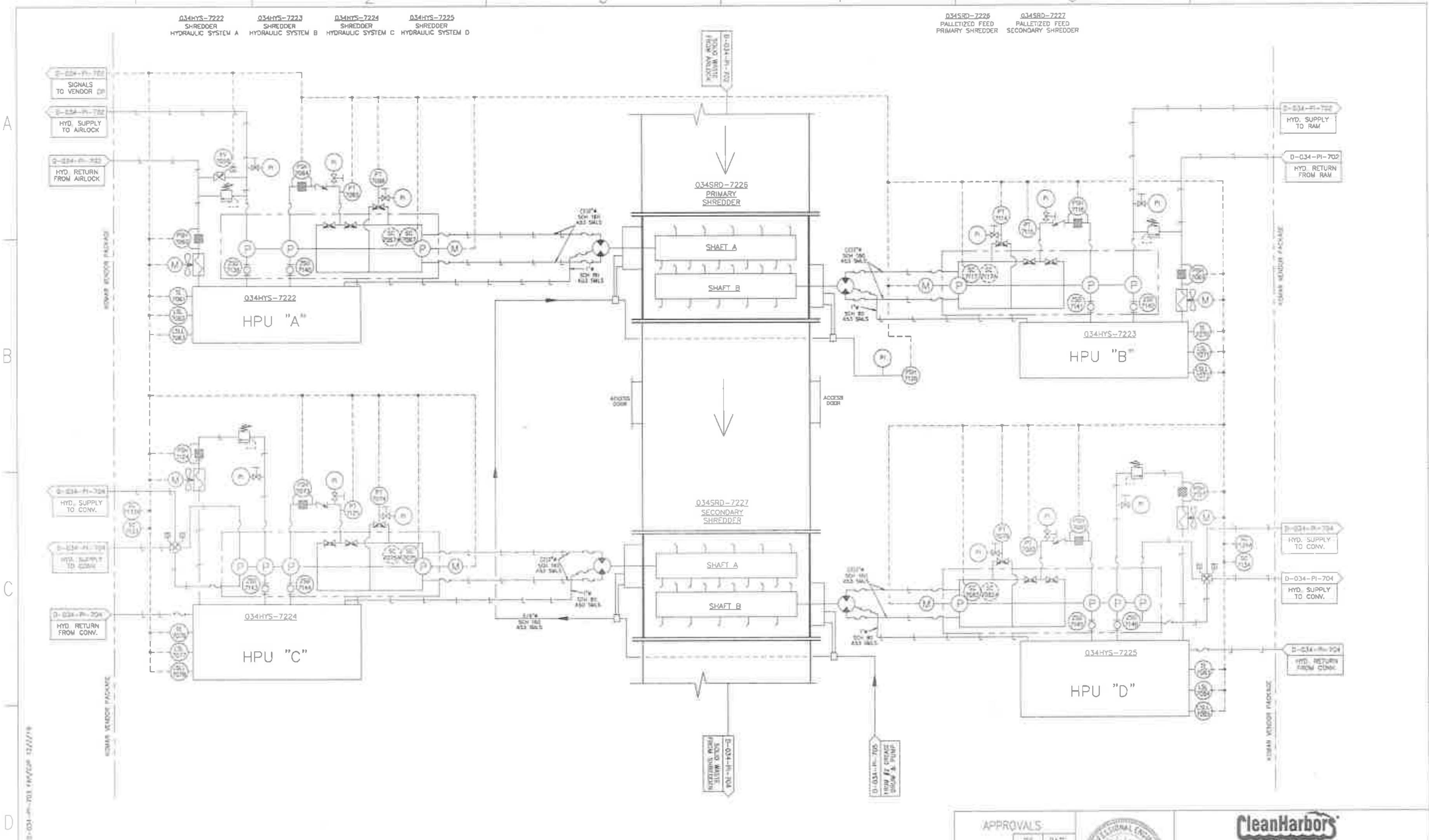
REGISTERED PROFESSIONAL ENGINEER
DATE: ________

PROFESSIONAL ENGINEER
12/6/2019
No. 11048669
NATHAN MATTHEW
PORBECK
STATE OF UTAH

CleanHarbors

TITLE: SHRED TOWER ADDITION
PIPING & INSTRUMENTATION DIAGRAM
KOMAR AIRLOCK

FOR: TOOELE SITE
DWG NO. D-034-PI-702
SCALE: NONE
CLEANHARBORS DWG NO: D-034-PI-702
REV: F



INTERLOCK DESCRIPTION

REVISIONS						
NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
A	GENERAL REVISION	03-19-19	PEC			
B	PERMIT	11/26/19	PEC			
C	GENERAL REVISIONS	12/2/19	PEC			

REVISIONS						
NO	DESCRIPTION	DATE	BY	CHK		ENG MGR

APPROVALS

	BY	DATE
DRAWN		
CHECKED		
ELECT		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		

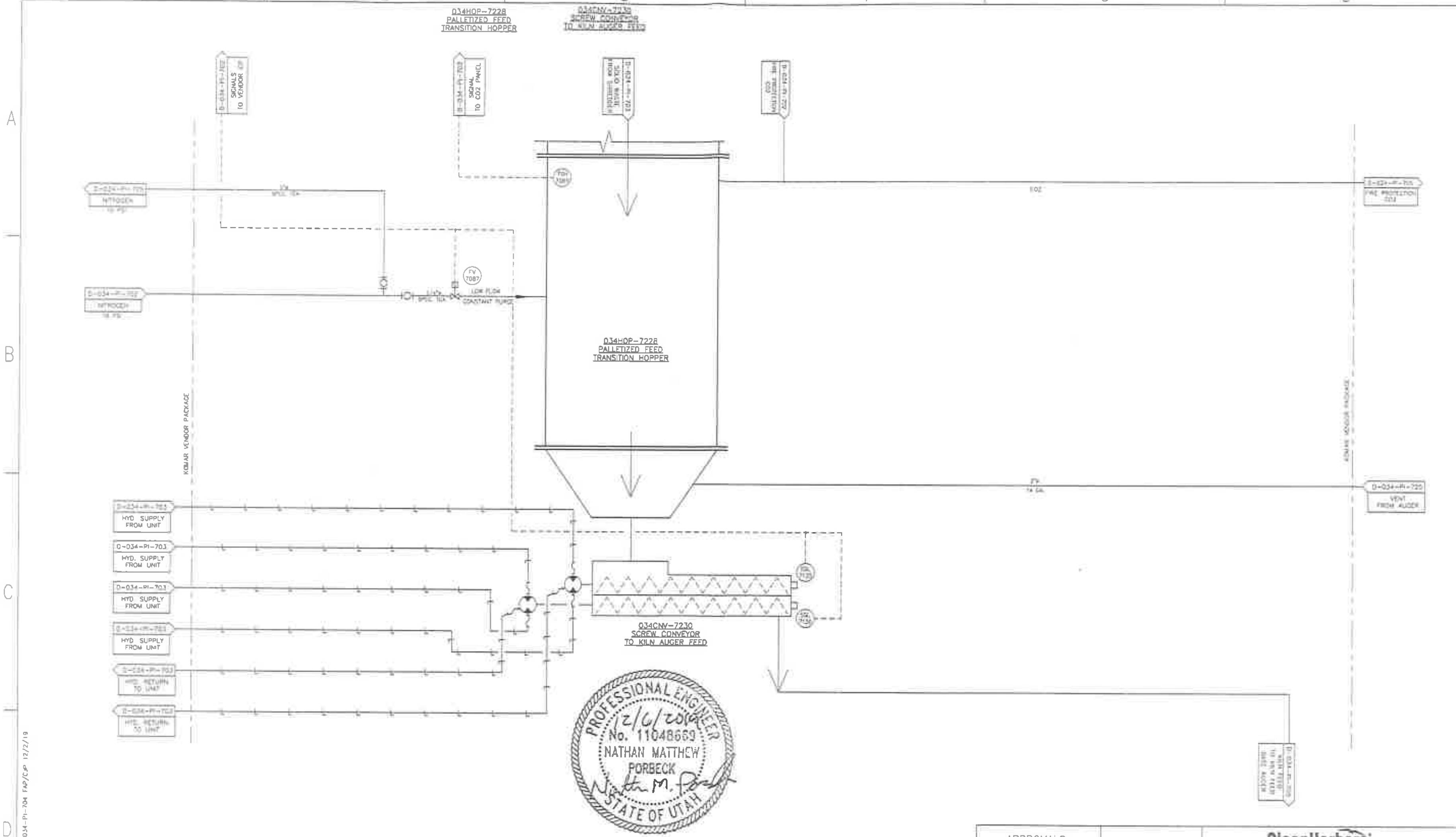
PROFESSIONAL ENGINEER No. 11048659 NATHAN MATTHEW PORKOLAB STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
DATE

CleanHarbors

TITLE
PALLET SHRED SYSTEM
KOMAR DUAL SHREDDER SYSTEM
PIPING & INSTRUMENTATION DIAGRAM

FOR	TOOELE SITE	CAD NO.	D-034-PI-703	
SCALE NONE	JOB NO.	CLEANHARBORS DWG NO.	D-034-PI-703	REV D



D-034-PI-704 FAP/CAP 12/2/19

INTERLOCK DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
	GENERAL REVISIONS	03/08/19	PEC			
	PERMIT	11/26/19	PEC			
	GENERAL REVISIONS	12/2/19	PEC			
	GENERAL REVISIONS	12/6/19	PEC			

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR

APPROVALS

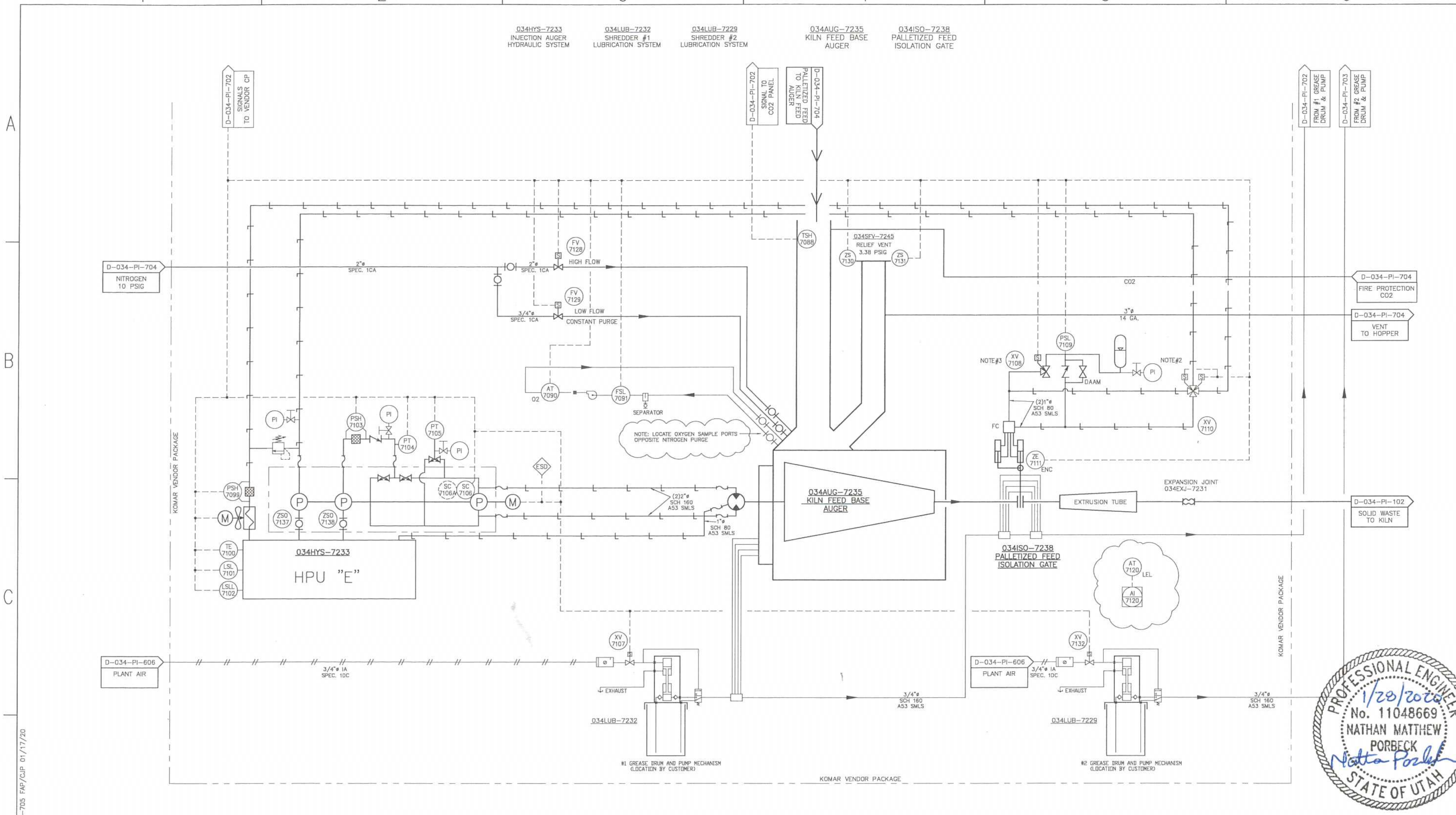
	BY	DATE
DRAWN	PEC	11/26/19
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		

REGISTERED PROFESSIONAL ENGINEER
DATE:________

CleanHarbors

TITLE
SHRED TOWER ADDITION
PIPING & INSTRUMENTATION DIAGRAM
SCREW CONVEYOR TO AUGER KILN FEED

FOR	TOOELE SITE	DWG NO	D-034-PI-704
SCALE NONE	JOB NO	CLEANHARBORS DWG NO D-034-PI-704	REV E



D-034-PI-705 FAP/CJP 01/17/20

INTERLOCK DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
B	GENERAL REVISION	02/08/19			
C	PERMIT	11/26/19	PEC		
D	GENERAL REVISIONS	12/2/19	PEC		
E	GENERAL REVISIONS	12/3/19	PEC		
F	GENERAL REVISIONS	12/6/19	PEC		

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
G	GENERAL REVISIONS	01/17/20	PEC		

APPROVALS

	BY	DATE
DRAWN	PEC	11/28/18
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		

REGISTERED PROFESSIONAL ENGINEER

DATE:_______

CleanHarbors®
ARAGONITE LLC

TITLE
SHRED TOWER ADDITION
PIPING & INSTRUMENTATION DIAGRAM
KOMAR KILN FEED AUGER SYSTEM

FOR TOOELE SITE

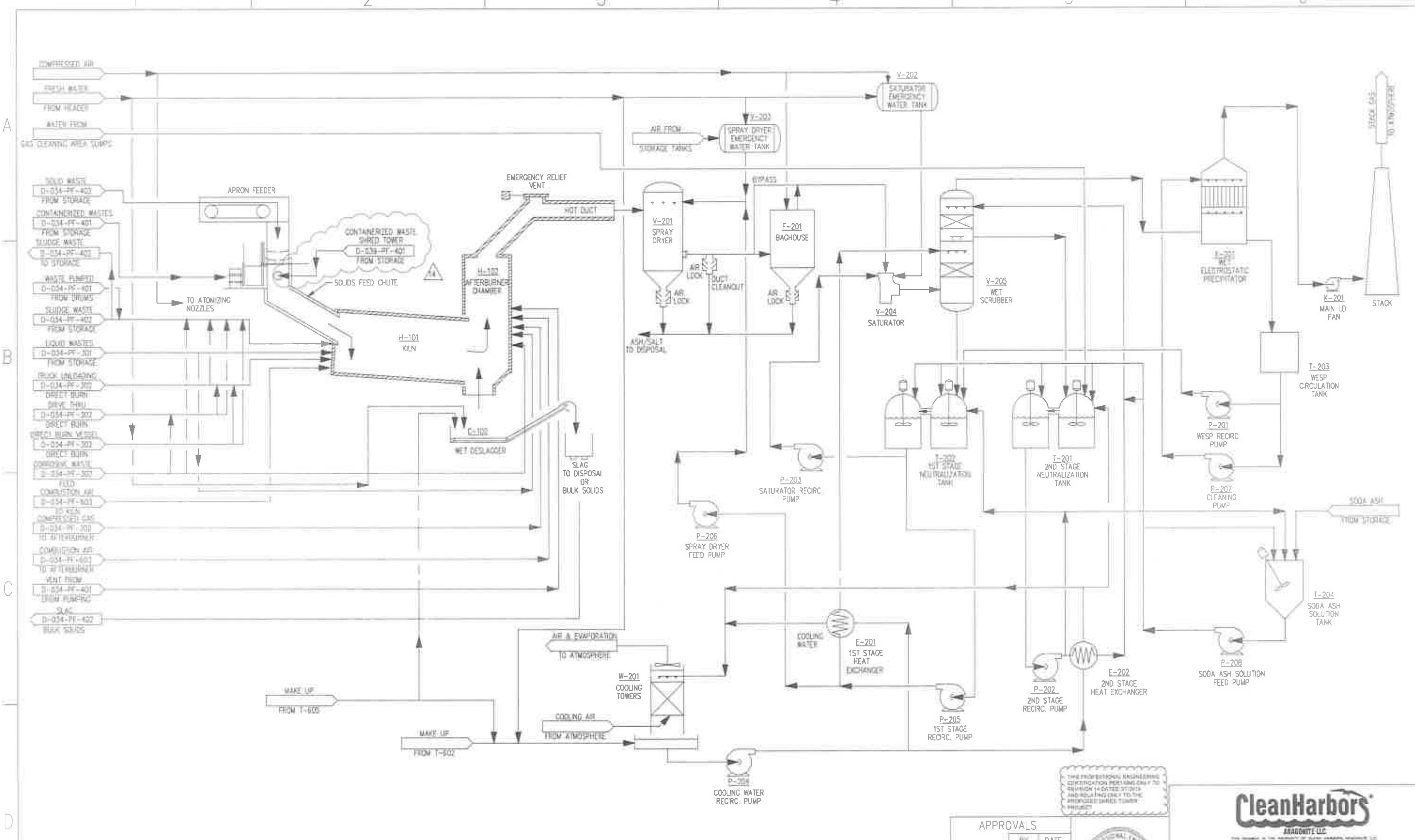
CAD NO. D-034-PI-705

SCALE NONE

JOB NO

CLEANHARBORS DWG NO D-034-PI-705

REV G



REFERENCE DRAWINGS	
DRAWING NO	TITLE

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
[illegible]	REVISED LABELS, ADDED DBV DIRECT BURN	04-16-03	KL			
[illegible]	CORRECTED WATER FLOW					
[illegible]	ADDED COMPRESSED GAS FEED	06-06-03	KL			
[illegible]	ADDED DRUM PUMPING TO SLUDGE	11-03-03	KL			
[illegible]	ADDED CORROSIVE WASTE	12-06-07	KL			

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
[illegible]	ADDED DUCT CLEANOUT	05-21-10	BAB			BAB
12	ADDED CONTAINERIZED WASTE FEED	03-07-10	PEC			
[illegible]	ADDED DIRECT BURN	02-23-00	DVC			
[illegible]	ADDED SLIDE GATE	7-13-00	DVC			
[illegible]	ADDED TRUCK UNLOADING DIRECT BURN	03-28-02	DVC			

APPROVALS

	BY	DATE
DRAWN		
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER

CleanHarbors

ARAGONITE LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
OVERALL FLOW SCHEME

FOR TOOELE SITE

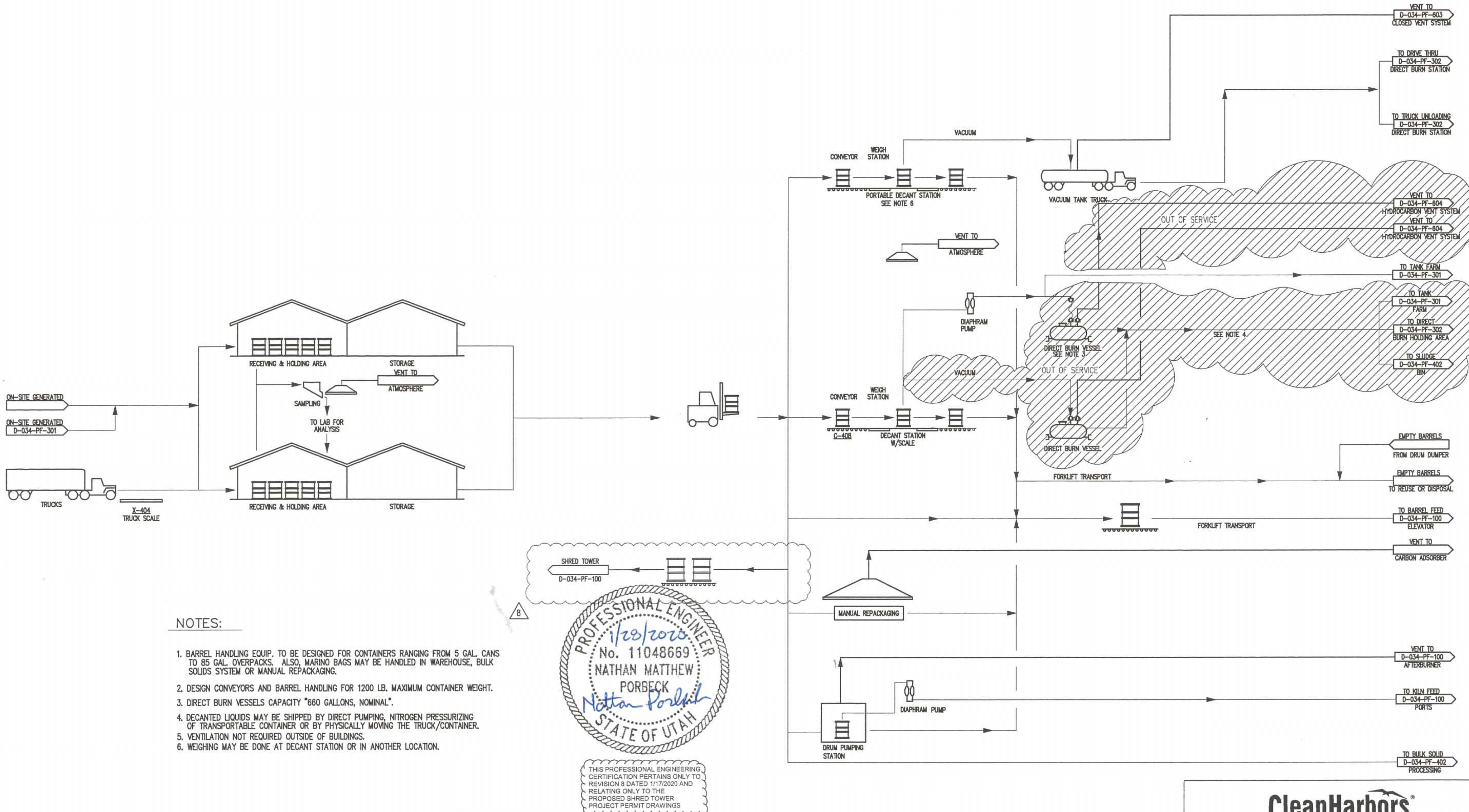
SCALE

JOB NO

CAD NO

SAFETY-KLEEN DWG NO D-034-PF-100

REV 14



NOTES:

1. BARREL HANDLING EQUIP. TO BE DESIGNED FOR CONTAINERS RANGING FROM 5 GAL. CANS TO 85 GAL. OVERPACKS. ALSO, MARINO BAGS MAY BE HANDLED IN WAREHOUSE, BULK SOLIDS SYSTEM OR MANUAL REPACKAGING.
2. DESIGN CONVEYORS AND BARREL HANDLING FOR 1200 LB. MAXIMUM CONTAINER WEIGHT.
3. DIRECT BURN VESSELS CAPACITY "660 GALLONS, NOMINAL".
4. DECANTED LIQUIDS MAY BE SHIPPED BY DIRECT PUMPING, NITROGEN PRESSURIZING OF TRANSPORTABLE CONTAINER OR BY PHYSICALLY MOVING THE TRUCK/CONTAINER.
5. VENTILATION NOT REQUIRED OUTSIDE OF BUILDINGS.
6. WEIGHING MAY BE DONE AT DECANT STATION OR IN ANOTHER LOCATION.

PROFESSIONAL ENGINEER
1/28/2020
No. 11048669
NATHAN MATTHEW PORBECK
Nathan Porbeck
STATE OF UTAH

THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 8 DATED 1/17/2020 AND RELATING ONLY TO THE PROPOSED SHRED TOWER PROJECT PERMIT DRAWINGS

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ELEC	MECH	STR	PROJ MGR
0	AS BUILT	02-02-91	DCP	TB				JV
1	AS BUILT	10-15-91	DCP					CHW
2	AS BUILT	12-07-93	DCP			JV		
3	ADDED WASTE FROM PF-301, REPACK WITHOUT DECANT	10-15-02	KL	LC				
4	ADDED DECANT TO TANKER, GENERAL REVISION	04-16-03	KL					
5	ADDED DRUM PUMPING STATION	11-03-03	KL					

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ELEC	MECH	STR	PROJ MGR
6	ADDED DRUM DUMPER RETURN, DECANT	07-12-06	KL					
	DBV OUT OF SERVICE							
7	ADDED DRUMS TO SHRED TOWER	03-07-19	PEC					
8	GENERAL REVISIONS	01-17-20	PEC					

REFERENCE DRAWINGS

DRAWING NO	TITLE

REGISTERED PROFESSIONAL ENGINEER
DATE:__________

APPROVALS

	BY	DATE
DRAWN	DCP	12-07-93
CHECKED		
LEAD ENG.		
ELEC CHECK		
MECH CHECK		
STRUCT CHECK		
PROJECT ENG		
PROJECT MGR		

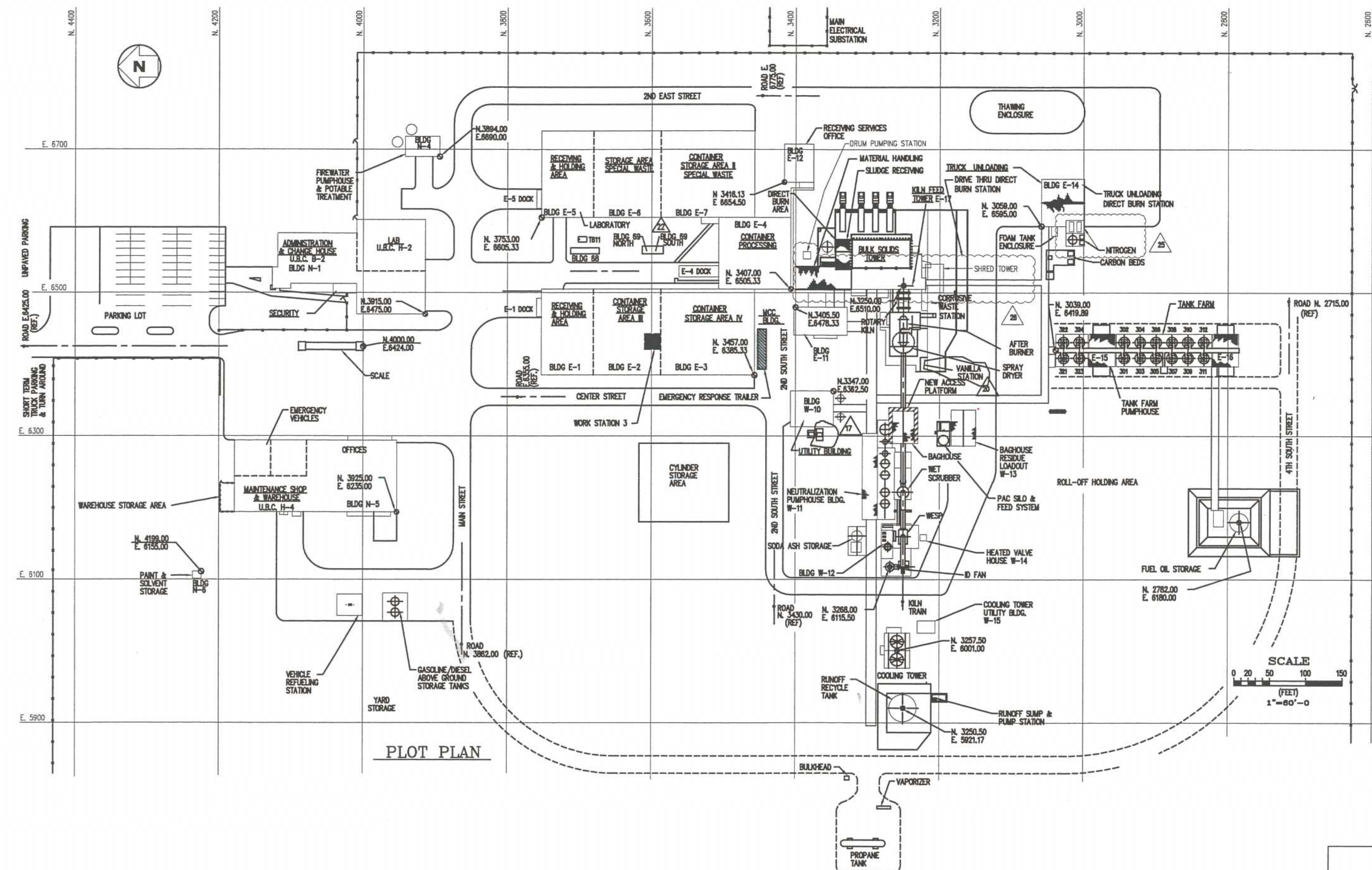
CURRENT DRAWING STATUS

	BY	DATE
PRELIMINARY OR PLANNING		
APPROVED FOR FINAL DESIGN		
APPROVED FOR QUOTE/PURCH		
APPROVED FOR CONSTRUCTION		
AS-BUILT	CHW	12-08-93

CleanHarbors
ARAGONITE LLC

TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
PROCESS FLOW DIAGRAM – BARREL HANDLING

FOR TOOELE SITE | CAD DISK FILE MA063AF
SCALE NONE | JOB NO | ENG. DWG NO | APTUS DWG NO D-034-PF-401 | REV 8



THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 26 DATED 1/17/2020 AND RELATING ONLY TO THE PROPOSED SHRED TOWER PROJECT PERMIT DRAWINGS

NOTES:

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
23	DELETE FUTURE BLDGS E-8 & E-9	04/16/12	TJK		
24	ADDED NEW WATER TANK	12-6-17	GBS		
25	ADD SHRED TOWER, N2 GEN, MOVED DRUM STATION	03-07-19	PEC		
26	MOVED DRUM PUMPING STATION	01-17-20	PEC		

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
20A	ADDED ROLLOOF STORAGE	12/08/09	BAD		
20B	ADDED STORAGE BLDGS. #68 & #69	4OCT11	BAD	WC	BAD
20B	ADDED CONTAINMENT TANK T611	4OCT10	BAD	WC	BAD
21	RELOCATE T611, AS BUILT BLDGS 68 & 69	10-05-11	TJK		TJK
22	ADD BLDG 69 N & S; DELETE ROLLOFF PAD	03-22-12	TJK		

APPROVALS

	BY	DATE
DRAWN	CRM	12-31-98
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER
DATE:

CleanHarbors®
ARAGONITE LLC

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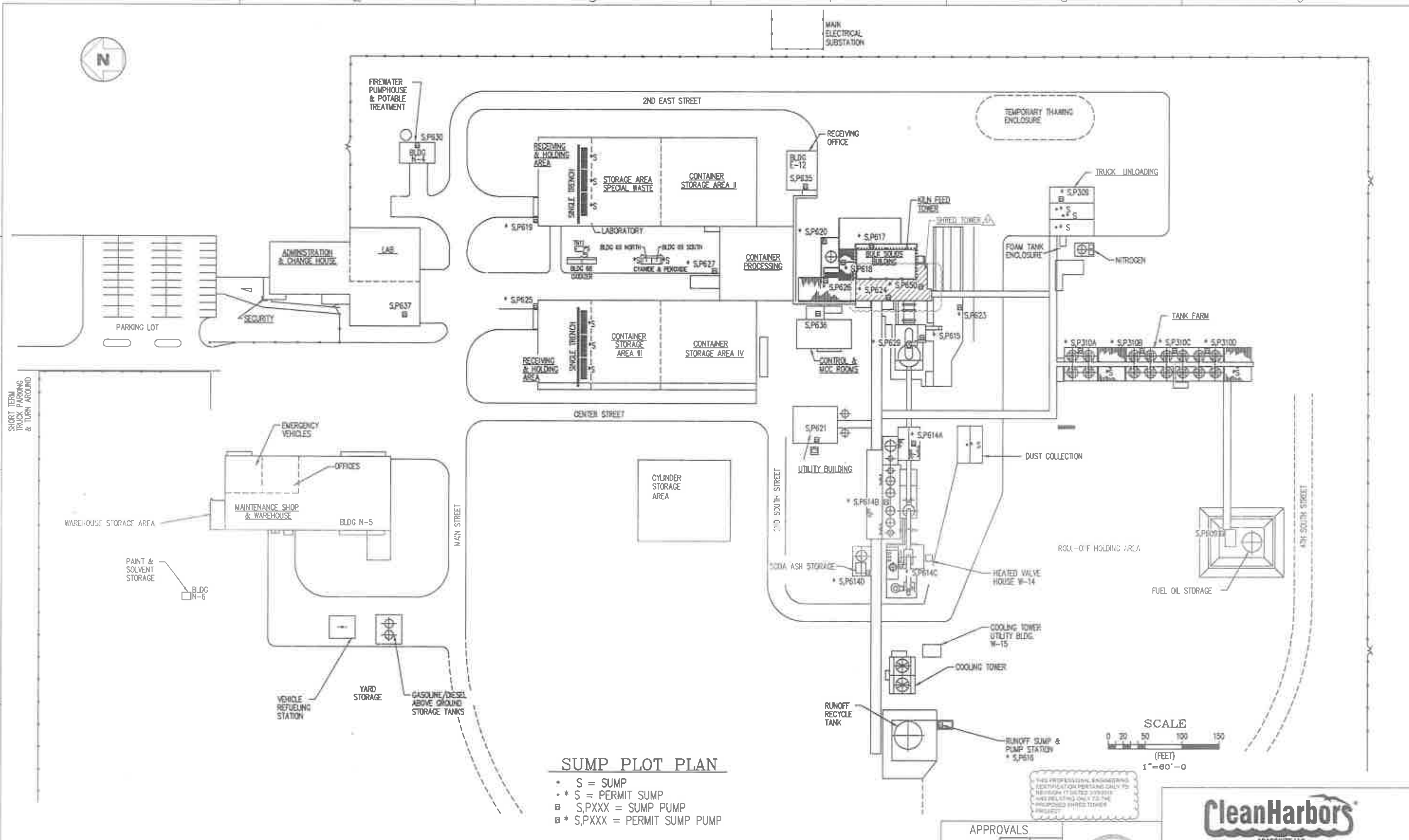
TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
PLOT PLAN

FOR	TOOELE SITE	CAD NO.	MK409AK	
SCALE: AS NOTED	JOB NO	APTUS DWG NO: D-034-M-002		REV 26



SUMP PLOT PLAN

- S = SUMP
- * S = PERMIT SUMP

S,PXXX = SUMP PUMP

* S,PXXX = PERMIT SUMP PUMP

REFERENCE DRAWINGS	
DRAWING NO	TITLE

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
15	RELOCATE T611, AS BUILT BLDGS 68 & 69	10-5-2011	TJK			TJK
16	ADD REF. NORTH & SOUTH COMPARTMENTS BLDG 68	03-28-12	TJK			TJK
17	ADDED SHRED TOWER AREA	03-19-19	PEC			
8	UPDATED DWG. FOR TEMP. BLDGS.	11-11-92	DCP			CHW
9	ADDED WAREHOUSE STORAGE FENCE	03-22-93	DCP			CHW

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
10	PERMIT SUMPS & SUMP PUMPS' LOCATION	07-10-95	DCP			
11	REMOVAL OF SUMP TRENCHES	2-17-00	GVC			
12	ADDED CYLINDER STORAGE, OTHER CHANGES	6-9-03	KL			
13	ADDED SUMP	02-22-08	KL			
14	ADDED T611, BLDG 68 & 69 WITH SUMPS	4OCT10	BAD	WC		BAD

APPROVALS

	BY	DATE
DRAWN	...	12-18-85
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 17 DATED 3/19/2019 AND RELATING ONLY TO THE PROPOSED SHRED TOWER PROJECT

PROFESSIONAL ENGINEER No. 11248648 NATHAN MATTHEW PORRITT STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
DATE: 11/26/2019

CleanHarbors
ARAGONITE LLC

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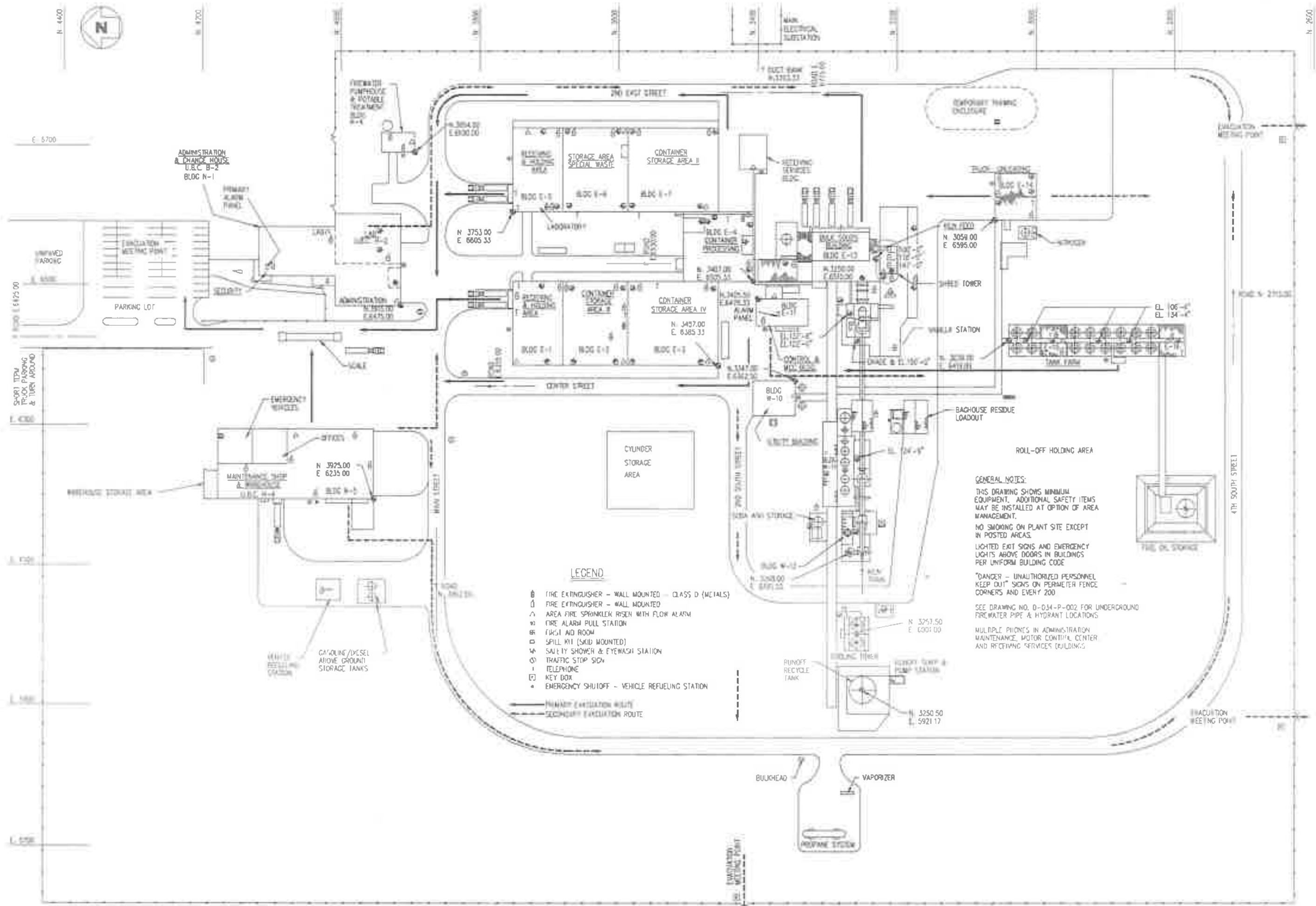
TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
SUMP AND SUMP PUMP LOCATION

FOR	TOOELE SITE	CAD NO.	MA065H	
SCALE 1"= 60'-0"	JOB NO	APTUS DWG NO	D-034-M-002-SP	REV 17



PLOT PLAN

SCALE
0 20 50 100 150
(FEET)
1"=80'-0

THIS PROFESSIONAL ENGINEERING CERTIFICATION PERTAINS ONLY TO REVISION 20 DATED 3/7/2019 AND RELATING ONLY TO THE PROPOSED SHRED TOWER PROJECT

REFERENCE DRAWINGS

DRAWING NO	TITLE

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
14	ADDED FIRE EXTINGUISHER & EYE WASH	4-3-01	GVC			
	AND AS BUILT					
15	ADDED EYE WASH STA.	11-12-31	DCP			DHW
16	UPDATE DWG. FOR CYLINDER STATION OTHER	06-19-03	RL			
	CHANGES					

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK		ENG MGR
17	ADDED EYEWASH/SAFETY SHOWER	04-12-2011	LCC			
18	ADDED E68 & E611 BLDGS	05-06-16	MM	LB		
19	REVISED E1-E7 SAFETY EQUIPMENT LOCATIONS	09-08-16	MM	CF		
20	ADDED SHRED TOWER EQUIPMENT	03-07-19	PEG			
13	ADDED EVACUATION GATE WEST FENCE	12-31-96	CRM			

APPROVALS

	BY	DATE
DRAWN	DM	12-31-96
CHECKED		
ELEC		
MECH		
PROJECT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

PROFESSIONAL ENGINEER No. 11040950 NATHAN MATTHEW FORDOCK STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
DATE 11/26/2019

CleanHarbors ARAGONITE LLC

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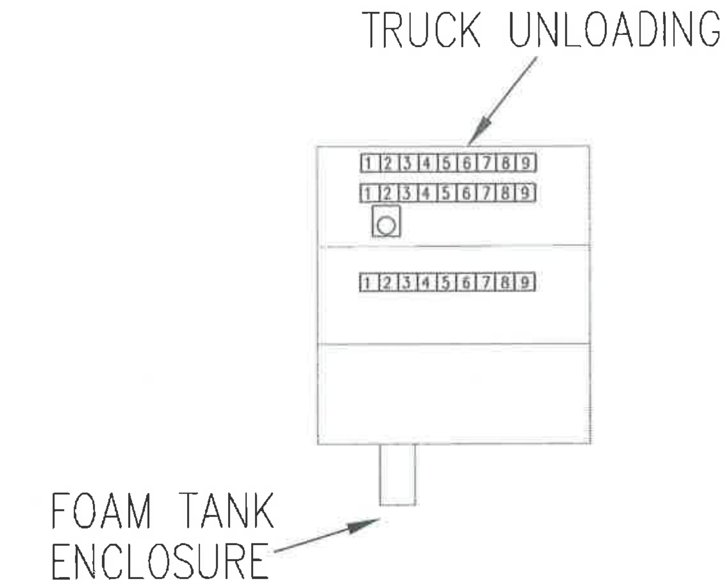
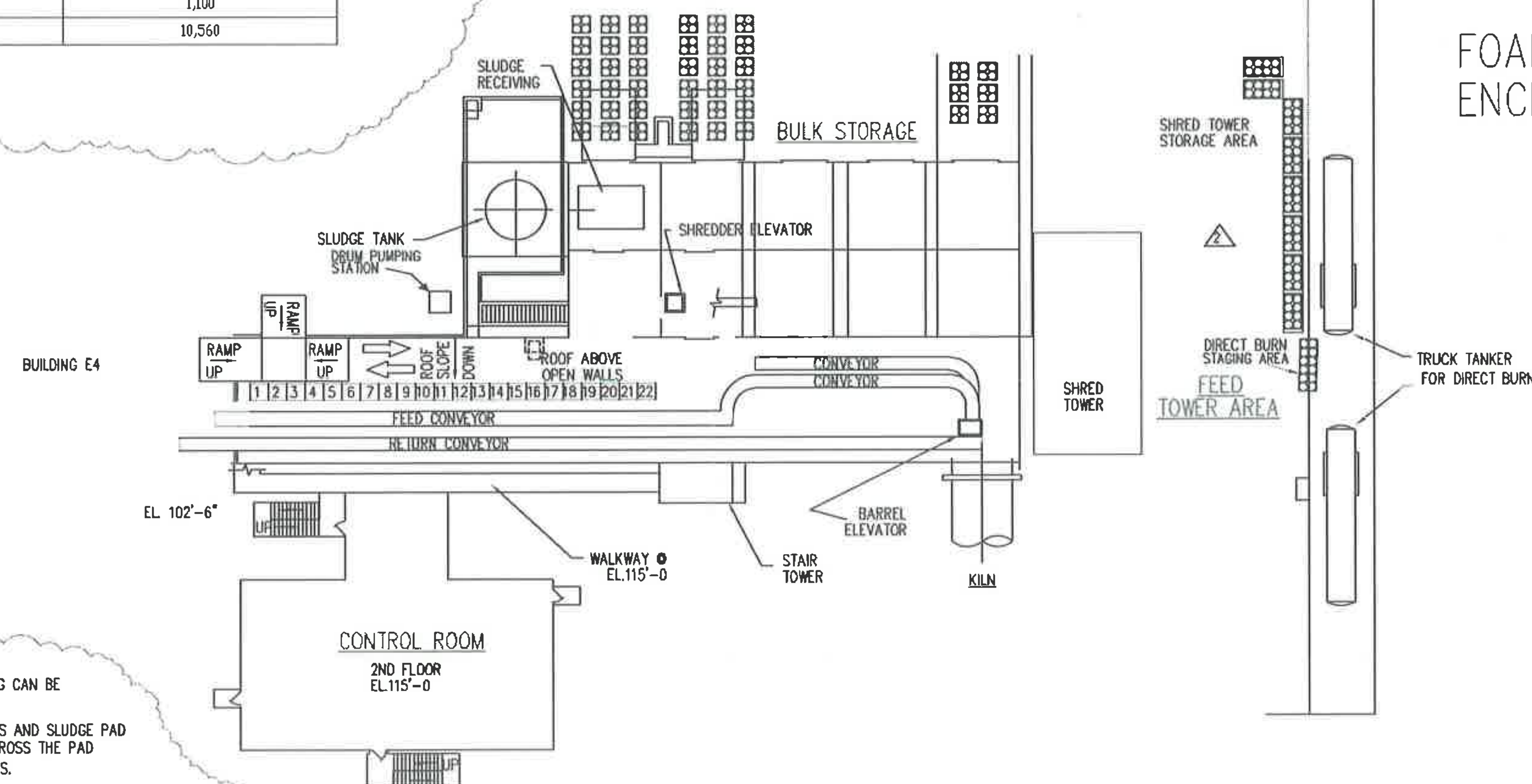
TITLE
UTAH ENVIRONMENTAL SERVICE CENTER
INCINERATION PLANT FOR INDUSTRIAL WASTES
SAFETY EQUIPMENT PLAN

FOR	TOOELE SITE	CAT NO	MK969	
SCALE 1"=80'-0"	JOB NO	APTUS DWG NO	D-034-M-005	REV 20

CAPACITIES (BY LOCATION)

BUILDING OR BAY	55 GALLON CONTAINERS	GALLONS
BREEZEWAY	176	9,680
BREEZEWAY CONVEYOR	80	4,400
BREEZEWAY TOTAL	256	14,080
TRUCK UNLOADING (east bay)	144 OR 1 TANKER	7,920 OR 7,500
TRUCK UNLOADING (center bay)	72 OR 1 TANKER	3,960 OR 7,500
DRIVE THROUGH (corrosive)	6 AND 1 TANKER	7,500
DRIVE THROUGH (roberoller)	6 AND 1 TANKER	7,500
DRUM PUMP STATION (e-duct)	4	220
BULK/SLUDGE PAD	144 OR 6 ROLLOFF BOXES	7,920 OR 23,760 IF BULK CONTAINERS
MAINTENANCE BAY PAD	24	1,320
CYLINDER FEED STATION	20	1,100
SHRED TOWER	192	10,560





DESIGN CRITERIA:

1. 6" MINIMUM CURB AT EXTERIOR OPENINGS.
2. ALL CONVEYORS & DECANT STATIONS INSIDE CONTAINER PROCESSING BUILDING WILL BE FLOOR MOUNTED.
3. PALLETS ARE SHOWN FOR ILLUSTRATION ONLY.
4. EXITS PER U.B.C.
5. DIMENSIONS ARE NOMINAL INSIDE DIMENSIONS.
6. STORAGE ON BULK/SLUDGE PAD CAN BE TANKER, ROLLOFF BOX, OR DRUMS.
7. STORAGE IN TRUCKING UNLOADING CAN BE EITHER DRUMS OR BULK.
8. DRUM ROWS ON THE BULK SOLIDS AND SLUDGE PAD CAN BE MOVED SIDE TO SIDE ACROSS THE PAD TO ALLOW OFF LOADING INTO BINS.
9. BULK SOLIDS/SLUDGE AND SLAG PAD ARE SINGLE LEVEL.
10. BULK CONTAINERS MAY BE PLACED IN ANY OF THE ROWS ON THE BULK SOLIDS/SLUDGE AND SLAG PADS NOT TO EXCESS THE PERMITTED CAPACITY OF THE UNIT.
11. SHRED TOWER STORAGE AREA IS 3 LEVELS OF STORAGE

REGISTERED PROFESSIONAL ENGINEER No. 7207431-2202 JOHN WILLIAM CALDWELL 01/24/20 STATE OF UTAH

SCALE
0 5 10 15 20 40 60
(FEET)
1"=20'-0

REFERENCE DRAWINGS

DRAWING NO	TITLE

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
1	RECOVERED AND ADDED STORAGE	09-25-06	JM		
2	RELOCATE E-DUCT,ADD SHRED TOWER,UPDATE TABLE	11-07-19	JWR	TH	JWR

APPROVALS

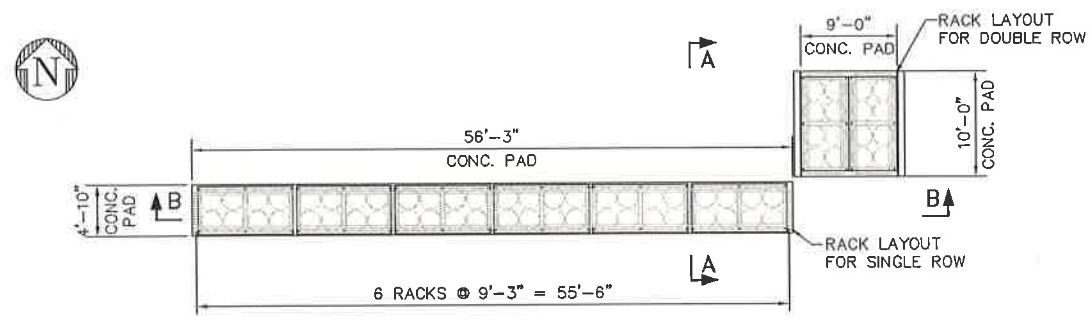
	BY	DATE
DRAWN	SCP	04-25-05
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER
DATE:

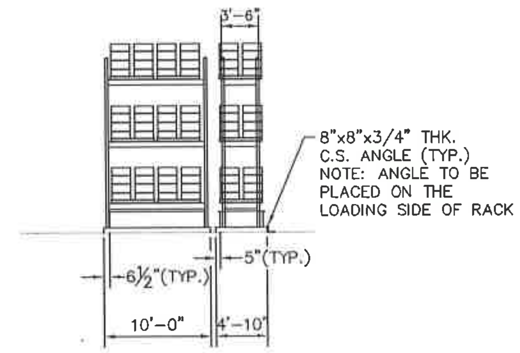
CleanHarbors ARAGONITE LLC

TITLE: UTAH ENVIRONMENTAL SERVICE CENTER INCINERATION PLANT FOR INDUSTRIAL WASTES MATERIAL HANDLING AREA PLAN

FOR: TOOELE SITE
CAD NO. MA301A
SCALE 1"= 20'-0"
JOB NO
SAFETY-KLEEN DWG NO D-800-M-403
REV 2

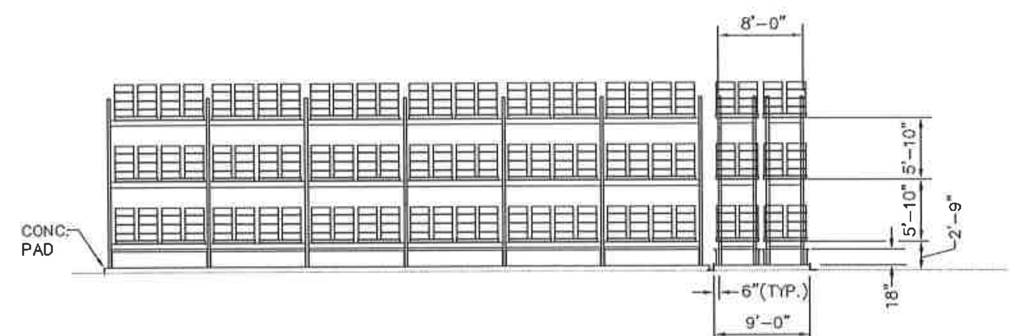


PLAN



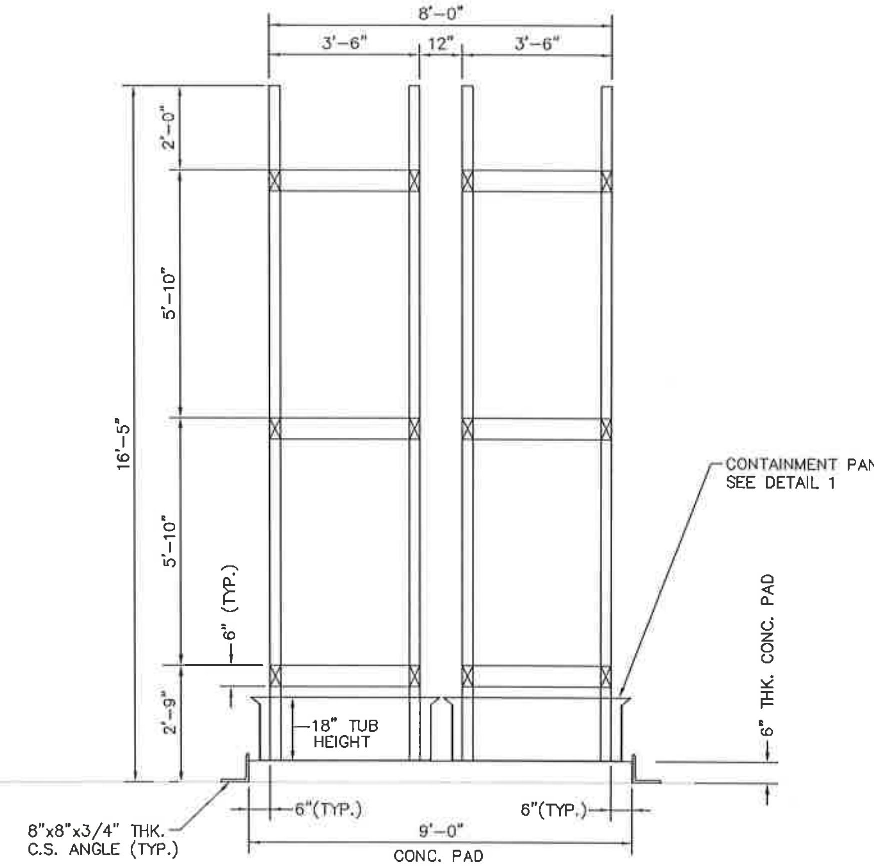
CROSS SECTION A–A

SCALE: 1/8" = 1'-0"



CROSS SECTION B–B

SCALE: 1/8" = 1'-0"

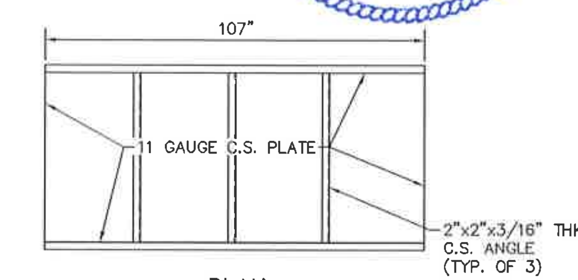


DETAIL 2

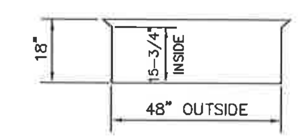
RACK LAYOUT FOR DOUBLE ROW

SCALE: 1/2" = 1'-0"

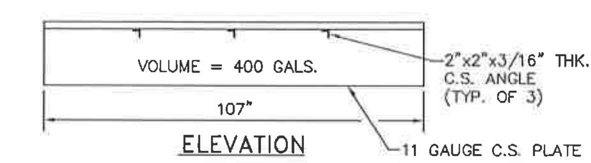
REGISTERED PROFESSIONAL ENGINEER
No. 7207431-2202
JOHN WILLIAM CALDWELL
02/10/20
STATE OF UTAH



PLAN



CROSS SECTION



ELEVATION

DETAIL 1

CONTAINMENT PANS

(TYP. OF 8)

SCALE: 1/2" = 1'-0"

NOTES:

1. RACKS WILL HAVE THREE SIDED SHED PERMANENT WEATHER ENCLOSURE WITH OVERHUNG ROOF TO REDUCE PRECIPITATION ACCUMULATION IN CONTAINMENT TUBS.
2. CONTAINMENT TUB DESIGN CAPACITY IS 400 GALLONS FOR EACH RACK SECTION. DESIGN IS ADEQUATE TO CONTAIN THE VOLUME OF THE LARGEST POSSIBLE CONTAINER WHICH IS 330 GALLON IBC OR 10% OF THE TOTAL POSSIBLE VOLUME PER RACK SECTION WHICH IS (6) x 330 GALLONS x 10% OR 198 GALLONS.
   TUB CONTAINMENT CAPACITY:
   107"x18"x48"/(12"x12"x12")x7.48 GAL. = 400 GAL.

INTERLOCK DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHK	ENG MGR
0	ISSUED FOR PERMIT	02-06-20	KMC		

APPROVALS

	BY	DATE
DRAWN	KMC	01-31-20
CHECKED		
ELEC		
MECH		
STRUCT		
PROJECT ENG		
ENGINEERING MGR		
AS BUILT		

REGISTERED PROFESSIONAL ENGINEER

DATE:

CleanHarbors

ARAGONITE LLC

TITLE: SHRED TOWER STORAGE AREA
PLAN, CROSS SECTIONS & RACK DETAILS

FOR: TOOELE SITE

CAD NO.: XXXXXXX

SCALE | JOB NO | CLEANHARBORS DWG NO: D-034-M-500 | REV: 0

ATTACHMENT 10

DESIGN DRAWINGS

Attachment 10
Design Drawings

number	revision	title
D-034-PI-001	3	P&ID Legend Sheet 1 (unstamped)
D-034-PI-004*	23	Master Interlock System, Sheet 2
D-034-PI-005*	~~17~~18	Operating Interlock System, Sheet 1
D-034-PI-006*	11	Operating Interlock System, Sheet 2
D-034-PI-101	18	P&ID Slagging Rotary Kiln System
D-034-PI-102	~~18~~19	P&ID Kiln Feed System
D-034-PI-103	8	P&ID Kiln Miscellaneous Systems
D-034-PI-105	27	P&ID Front Wall Burner Controls, Sheet 1
D-034-PI-106	33	P&ID Front Wall Burner Controls, Sheet 2
D-034-PI-107	22	P&ID Afterburner Controls, Sheet 1
D-034-PI-108	24	P&ID Afterburner Controls, Sheet 2
D-034-PI-109	~~10~~11	P&ID Afterburner Controls, Sheet 3
D-034-PI-110	9	P&ID Deslagging System
D-034-PI-201	21	P&ID Spray Dryer Quench Tower
D-034-PI-202	14	P&ID Baghouse
D-034-PI-204	15	P&ID Saturator & Scrubber
D-034-PI-205	28	P&ID 1st Stage Neutralization System
D-034-PI-206	22	P&ID 2nd Stage Neutralization System
D-034-PI-207	8	P&ID Soda Ash Storage Handling System
D-034-PI-208	21	P&ID Spray Dryer Feed System
D-034-PI-209	8	P&ID Cooling Tower
D-034-PI-211	4	P&ID Wet Electrostatic Precipitator

number	revision	title
D-034-PI-212	4	P&ID I.D. Fan and Stack
D-034-PI-213	8	P&ID Emergency Air/Water
D-034-PI-214	5	P&ID Residue Handling Building
D-800-PI-215	4	Piping Diagram CEM System #1
D-800-PI-216	2	Piping Diagram CEM System #2
D-034-PI-220	2	Activated Carbon Silo
D-034-PI-221	3	PAC Dosing System Train 1
D-034-PI-222	3	PAC Dosing System Train 3
D-034-PI-300	7	P&ID Liquid Unloading Pumps
D-034-PI-301	12	P&ID Waste Liquid Transfer Pumps
D-034-PI-302-1	17	P&ID Direct Burn Waste Liquid Unloading
D-034-PI-302-2	5	P&ID Direct Burn Waste Liquid Unloading
D-034-PI-302-3	5	Sludge Pad Direct Burn Station
D-034-PI-303	3	P&ID Feed Tanks Sheet 1
D-034-PI-304	4	P&ID Feed Tanks Sheet 2
D-034-PI-305	4	P&ID Liquids Storage
D-034-PI-306	4	P&ID Liquids Storage
D-034-PI-307	7	P&ID Liquids Storage Tanks, PE Stamped 2/22/10
D-034-PI-308	6	P&ID Liquids Storage Tanks
D-034-PI-309	7	P&ID Liquids Storage Tanks, PE Stamped 2/22/10
D-034-PI-310	9	P&ID Liquids Storage Tanks
D-034-PI-313	4	P&ID Blend & Transfer Pumps
D-034-PI-314	5	P&ID Blended Liquid Feed & Transfer Pumps
D-034-PI-315	5	P&ID Aqueous Feed Pumps
D-800-PI-316	19A	P&ID Hydrocarbon Vent System

number	revision	title
D-800-PI-317	6	P&ID Vent System and Combustibles Analyzers
D-034-PI-318	1	P&ID Compressed Gas Waste
D-034-PI-401	4	P&ID Solids Handling
D-034-PI-402	18	P&ID Sludge Handling
D-800-PI-408	6	Bldg. E-4 Decant P&ID
D-800-PI-410	24	P&ID Combustibles Monitoring System
D-800-PI-411	4	P&ID Comb. Air Carbon Adsorption System
D-034-PI-601	8	P&ID Fuel Oil/Outside Storage Tanks/Pumps
D-034-PI-602	5	P&ID Area Sumps Sheet 1
D-034-PI-603	12	P&ID Area Sumps Sheet 2
D-034-PI-604	7	P&ID Air Compressor System
D-034-PI-605	~~13~~14	P&ID Nitrogen & Fuel Oil
D-034-PI-606	~~10~~12	P&ID Plant, Instrument Air & Propane
D-034-PI-607	4	P&ID Plant Water, Runoff Water, Fire Water
D-034-PI-608	~~8~~?	P&ID Potable Water
D-034-PI-609	14	P&ID Plant Water
D-034-PI-701	C	Komar Shredder Feed System
D-034-PI-702	F	Komar Airlock
D-034-PI-703	D	Komar Dual Shredder System
D-034-PI-704	E	Screw Conveyor to Auger Kiln Feed
D-034-PI-705	G	Komar Kiln Feed Auger System
D-034-PF-100	~~13~~14	Overall Flow Scheme
D-800-PF-275	1	Process Flow Diagram – Typical December 1997
D-800-PF-276	1	Process Flow Diagram – Typical December 1997
D-034-PF-301 Sheet 1 of 2	12	Liquids Handling (Tank Farm) - Flowsheet

number	revision	title
D-034-PF-301 Sheet 2 of 2	7	Liquids Handling (Tank Farm) - Flowsheet
D-034-PF-302	12	Direct Burn & Cylinder Material Handling - Flowsheet
D-034-PF-401	~~6~~8	Process Flow Diagram - Barrel Handling
D-034-PF-402	9	Sludge and Bulk Solids Handling - Flowsheet
D-034-PF-603	10	Closed Vent System Flowsheet
D-034-PF-604	9	Hydrocarbon Vent System Flow Diagram
D-034-M-001	3	Site Plan
D-034-M-002	~~23~~26	Plot Plan
D-034-M-002-SP	~~16~~17	Sump and Sump Pump Location
D-034-M-005	~~19~~20	Safety Equipment Plan
~~D-800-M-122~~	~~1~~	~~Direct Burn Vessel~~
D-034-M-401	0	Cylinder Storage Area Plot Plan
D-800-M-402	5	Container Storage Building Plan
D-800-M-403	~~1~~2	Material Handling Area Plan
D-034-M-500	0	Shred Tower Storage Area
SK-090-997-AR	3	Area Site Plan

* NOTE: These drawings include interlocks that are not required by this permit. They are required by other permits and are included in these drawings to avoid the confusion caused by two sets of interlock drawings.

ATTACHMENT 12

WASTE FEED CUTOFF SYSTEMS TESTING PROCEDURE

Attachment 12
Waste Feed Cutoff Systems Testing Procedure

The testing of the automatic waste feed cutoff system will be done on a weekly basis (once every 168 hours on waste). The test initiation will shut off waste feed (effects) as each "cause" is electronically checked.

1. The control board operator is responsible to initiate the weekly waste feed cutoff test.

   Once the test is started, a total waste feed cutoff is initiated by a simulated "cause." The "effects" of this condition will be field verified and recorded on forms. Once this occurs the control system will simulate signals internally for each of the waste feed cutoff causes and generate an alarm printout to indicate that each one operated.

2. The control system is programmed such that one coil (programming loop) will cause all the associated effects. Also, all of the associated waste feed causes will energize the one coil.

   The waste feed cutoff test is conducted in two parts. The first part consists of testing that the one coil causes all the associated "effects" which are field verified and initialed by the operator performing the verification. The second part tests that all of the associated "causes" energize the one coil. In doing this, it is inferred that any of the "causes" will cause the "effects."

3. The following cutoffs (effects) will occur:

a) Apron Feeder	SV 1036	on/off
Upper Flop Gate	SV 1035B	open/shut
Lower Flop Gate	SV 1034B	open/shut
b) Kiln Elevator Container		
Feed Gate	SV 1033B	open/shut
c) Direct Burn (A-101)		
Block Valve	SV 1170	open/closed
Control Valve	FV 1171	open/closed
d) Kiln Liquid Waste Feed (A-104A)		
Block Valve	SV 1120	open/closed
Control Valve	FV 1121	open/closed
e) North ABC Liquid Waste Feed (A-106A)		

	Block Valve	SV 1183	open/closed
	Control Valve	FV 1184	open/closed
f)	South ABC Cylinder Waste Feed (A-106B-3)		
	Block Valve	SV 1103	open/closed
	Control Valve	SV 1104	open/closed
g)	North ABC Aqueous Waste Feed (A-105A)		
	Aqueous Block Valve	SV 1252	open/closed
	Aqueous Control Valve	FV 1253	open/closed
h)	South ABC Liquid Waste Feed (A-106B-1)		
	Block Valve	SV 1220	open/closed
	Control Valve	FV 1221	open/closed
i)	South ABC Aqueous Waste Feed (A-105B)		
	Aqueous Block Valve	SV 1262	open/closed
	Aqueous Control Valve	FV 1263	open/closed
j)	Kiln Sludge Feed (A-103)		
	Kiln Sludge Control Valve	PV 4021	open/closed
	Kiln Sludge Block Valve	SV 4022	open/closed
k)	Kiln Aqueous Waste Feed (A-102)		
	Aqueous Block Valve	SV 1150	open/closed
	Aqueous Control Valve	FV 1151	open/closed
l)	Drum Pumping Station		
	Block Valve	SV3016	open/closed
m)	South ABC Corrosive Waste Feed (A-106B-5)		
	Block Valve	SV 3364	open/closed
	Control Valve	FV 3365	open/closed
n)	Shred Tower Feed Auger		
	Isolation Valve	XV7108	open/closed

4. When the waste feed cutoff test is initiated, waste feed ceases. The liquid burners are put on clean fuel to maintain temperature. A field check verifies that the effect occurred. This is done by a person who will physically check that the cutoff occurred and record the results on the form at the end of this attachment.

5. Once the waste feed ceases, the following list of waste feed cutoff causes will be simulated internally in the control system. Alarms will be recorded to verify operation (signal sent, signal received). The following causes will be simulated:

TOTAL WASTE FEED CUTOFF CAUSES (1)

a) ABC low temperature, TALL-1009
< 2018°F, HRA

b) ABC high pressure, PAH-1006
≥ 0.0" H_2O, 5 sec

c) ABC low oxygen
< 3%, 2 min, AAL-1010
< 2%, 15 sec, AALL-1010

d) Spray dryer high exit temperature
> 400°F, HRA, TAH-2001R
> 520°F, TAH-2001

e) Spray dryer low exit temperature
< 350°F, 15 minutes, TAL-2001
< 250°F, TALL-2001

f) Spray dryer upper nozzle low brine pressure, PAL-2044
< 300 psi

g) Spray dryer lower nozzle low brine pressure, PAL-2045
< 300 psi

h) Baghouse low differential pressure, PDAL 2020
< 1.8" H_2O

i) Baghouse minimum compartments on-line, ZAL2020
<7 compartments

j) Baghouse high broken bag detector, AAH2020B
>50% of the instrument span

k) Saturator high exit temperature, TAHH-2082
> 225°F

l) Saturator low brine flow, FALL-2081
< 300 gpm, HRA

m) 1st stage scrubber feed low pH, AAL-2104
< 5.47, HRA

n) 1st stage scrubber low brine flow, FALL-2092
< 1882 gpm, HRA

o) 1st stage scrubber low pressure drop, PAL-2093A
< 0.5" H_2O, HRA

p) 2nd stage scrubber feed low pH, AAL-2130
< 6.23, HRA

q) 2nd stage scrubber rundown low pH, AAL-2129
< 5.8, HRA

r) 2nd stage scrubber low brine flow, FALL-2095
< 1996 gpm, HRA

s) 2nd stage scrubber low pressure drop, PAL-2093B
< 0.5" H_2O HRA

t) Activated carbon feed rate WT-2037RL
< 25 lb/hr, HRA

u) Stack gas high flow, FAH-2195
> 77,800 ACFM, HRA

v) Stack high CO
> 100 ppm, HRA, AHH-2199
> 500 ppm for more than 60 sec, AAH-2199

w) ABC burners BMS trip, A106AM and A106BM,
both simultaneously

x) Emergency waste feed stop red button, PB-0004

y) WDPF waste feed cutoff, PB-0005

z) Loss of utility power, UA-0001

aa) ABC safety vent open, ZAO-1017

bb) Baghouse on bypass, ZAL-2021

cc) Induced draft fan off, K-201

TOTAL KILN WASTE FEED CUTOFFS CAUSES (2)

a) Kiln outlet temperature, TAL 1005
< 1800°F, HRA (two pyrometers on-line)
< 1940°F, HRA (one pyrometer on-line)

b) Low kiln rotation, SAL-1003
< .15 RPM

c) Kiln Burner Management System, A104M
Loss of Flame
Low Combustion Air Pressure
Low Differential Pressure (atomizing air to waste liquid or fuel) on all enabled fuels and waste liquids
Low Liquid Pressure on all enabled fuels and waste liquids
Disabling all fuels and waste liquids
Manual shutdown of BMS

KILN CONTAINERS, SOLIDS, AND SLUDGE CUTOFF CAUSES (3)

a) Kiln low secondary combustion air pressure, PAL-1018
< 2" H_2O

COMBINED BULK SOLIDS AND CONTAINERS WASTE FEED CUTOFF CAUSES (4)

a) Bulk Solids and Kiln Barrel Feed
High hourly combined container and bulk solids feed rate, WQAH-1040, >18,600 lb/hr, HRA

WASTE FEED CUTOFF TO THE AFFECTED GUN/LANCE/FEED MECHANISM CAUSES (5)

a) Kiln Blend Liquid Lance (A-104)

Kiln blend liquid low pressure switch PSL-1119A
Kiln atomizing air/waste liquid differential low pressure switch, PDSL-1124
High Kiln blend liquid flow rate, FAH-1121, >3090 lb/hr, HRA or >90 lb/min for 15 sec
Low Kiln blend liquid flow rate (turndown), <1.125 gpm for 15 sec (except during 3 minute gun startup)

b) Direct Burn Lance (A-101)
Direct burn atomizing air low pressure switch PSL-1162
High hourly direct burn feed rate, FQAH-1171, >1710 lb/hr, HRA

c) Sludge Feed (A-103)
High hourly sludge feed rate, FQAH-4042, >2170 lb/hr, HRA or >200 lb/min for 15 sec

d) North ABC Blend Liquid Lance (A-106A)
North ABC blend liquid low pressure switch PSL-1119B
North ABC atomizing air/waste liquid differential low pressure switch, PDSL-1187
Low North ABC blend liquid flow rate (turndown), <1.125 gpm for 15 sec (except during 3 minute gun startup)
High North ABC blend liquid flow rate, FAH-1184D, >90 lb/min for 15 sec

e) South ABC Blend Liquid Lance (A-106B)
South ABC blend liquid low pressure switch PSL-1196
South ABC atomizing air/waste liquid differential low pressure switch, PDSL-1224
Low South ABC blend liquid flow rate (turndown), <1.125 gpm for 15 sec (except during 3 minute gun startup)
High South ABC blend liquid/gas flow rate, FAH-1221D, >90 lb/min for 15 sec

f) South ABC Cylinder Lance (A-106B-3)
South ABC cylinder eductor nitrogen low pressure switch, PSL-1107

g) North ABC Aqueous Lance (A-105A)
North ABC aqueous low pressure switch, PSL-1165B
North ABC aqueous atomizing air low pressure switch, PSL-1256
High North ABC aqueous flow rate, FAH-1253D, >60 lb/min for 15 sec

h) South ABC Aqueous Lance (A-105B)
South ABC aqueous low pressure switch, PSL-1165C
South ABC aqueous atomizing air low pressure switch, PSL-1266
High South ABC aqueous flow rate, FAH-1263D, >60 lb/min for 15 sec

i) North ABC Burner Management System, A106AM

Loss of Flame
Low Combustion Air Pressure
Low Differential Pressure (atomizing air to waste liquid or fuel) on all enabled fuels and waste liquids
Low Liquid Pressure on all enabled fuels and waste liquids
Disabling all fuels and waste liquids
Manual shutdown of BMS

j) South ABC Burner Management System, A106BM

Loss of Flame
Low Combustion Air Pressure
Low Differential Pressure (atomizing air to waste liquid or fuel) on all enabled fuels and waste liquids
Low Liquid Pressure on all enabled fuels and waste liquids
Disabling all fuels and waste liquids
Manual shutdown of BMS

k) Kiln Aqueous Lance (A-102)

Kiln aqueous low pressure switch, PSL-1157A
Kiln aqueous atomizing air low pressure switch, PSL-1156A
High Kiln aqueous flow rate, FAH-1151, >1350 lb/hr, HRA or > 60 lb/min for 15 sec

l) South ABC Corrosive Lance (A-106B-5)

South ABC corrosive atomizing air low pressure switch, PSL-3382
Loss of both blend liquid feed to A-106B-1 and fuel oil to A-106B-2

COMBINED A-106A AND A-106B WASTE FEED CUTOFF CAUSES (6)

a) North and South ABC Blend Liquid Guns (A-106A and A-106B-1), South ABC Cylinder Feed (A-106B-3), and Corrosive Direct Burn Feed (A-106B-5) (when the waste has a heat content equal to or greater than 5000 Btu per pound)

High combined North and South ABC blend liquid/gas/corrosive direct burn (when the waste has a heat content equal to or greater than 5000 Btu per pound) flow rate, FAH-1290, >3720 lb/hr, HRA

COMBINED A-105A AND A-105B WASTE FEED CUTOFF CAUSES (7)

a) North and South ABC Aqueous Lances (A-105A and A-105B) and Corrosive Direct Burn Feed burner (A-106B-5) (when the waste being fed has a heat content less than 5000 Btu per pound)

High combined North and South ABC aqueous flow rate, and Corrosive Direct Burn flow rate (when the waste being fed has a heat content less than 5000 Btu per pound), FAH-1270, >6440 lb/hr, HRA

COMBINED SOUTH ABC BURNER (A-106B) WASTE FEED CUTOFF CAUSES (8)

a) South ABC Blend Liquid Guns (A-106B-1, A-106B-3 and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound))

South ABC blend liquid low pressure switch PSL-1196

South ABC atomizing air/waste liquid differential low pressure switch, PDSL-1224

High South ABC blend liquid/gas/corrosive direct burn (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) flow rate, FAH-1221D, >90 lb/min for 15 sec

b) South ABC Blend Liquid Guns (A-106B-1 and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound))

Low South ABC blend liquid and corrosive direct burn flow rate (turndown), <1.125 gpm for 15 sec (except during 3 minute gun startup)

COMBINED A-105B AND A-106B WASTE FEED CUTOFF CAUSES (9)

a) South ABC Aqueous Lance (A-105B) and ABC Blend Liquid Gun (A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content less than 5000 Btu per pound))

High South ABC aqueous and corrosive direct burn (when the waste being fed from the drive through corrosive direct burn system has a heat content less than 5000 Btu per pound) flow rate, FAH-1263D, >60 lb/min for 15 sec

6. The six signals (loss of flame, low combustion air pressure, low atomizing air pressure, low waste liquid pressure, disabling all fuels, and manual shutdown of the BMS) which will cause the Burner Management System on each burner to shut down, causing a waste feed cutoff, are not tested during the weekly waste feed cutoff test. These signals shall be tested periodically in the field at a frequency at least that recommended by the manufacturer. However, the minimum frequency shall be at least quarterly. Documentation of these tests shall be maintained in the facility's operating record.

7. Some causes in section 5 do not create all the effects in section 3. The list of causes with their limited effects follows.

	Cause	Effect
1)	total waste feed cutoff causes	All effects occur
2)	total kiln waste feed cutoff causes	3a, 3b, 3c, 3d, 3j, 3k, 3l, 3n
3)	kiln containers, solids, and sludge waste feed cutoff causes	3a, 3b, 3j, 3l, 3n
4)	combined bulk solids and containers waste feed cutoff causes	3a, 3b, 3n
5)	waste feed cutoff to the affected gun/lance/feed mechanism causes	Affected individual waste stream only
6)	combined A-106A, A-106B-1, A-106B-3, and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) waste feed cutoff causes	3e, 3f, 3h, 3m* *when the waste being fed from the drive through corrosive direct burn system has a heat content ≥5000 Btu/lb
7)	combined A-105A and A-105B and burner A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content <5000 Btu/lb) waste feed cutoff causes	3g, 3i, 3m* *when the waste being fed from the drive through corrosive direct burn system has a heat content <5000 Btu/lb
8a)	combined A-106B-1, A-106B-3 and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) waste feed cutoff causes	3f, 3h, 3m* *when the waste being fed from the drive through corrosive direct burn system has a heat content ≥5000 Btu/lb
8b)	combined A-106B-1 and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) waste feed cutoff causes	3h, 3m* *when the waste being fed from the drive through corrosive direct burn system has a heat content ≥5000 Btu/lb

9)	combined A-105B and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content less than 5000 Btu per pound) waste feed cutoff causes	3i, 3m* *when the waste being fed from the drive through corrosive direct burn system has a heat content <5000 Btu/lb

8. Waste feed not operating at the time of the test will not be tested. That is, if the direct burn system is not in use, it will not be set up just for the test. Clean Harbors Aragonite will verify all valves are still shut.

Waste Feed Cutoff Test

Date:_______________
Time:_______________

EQUIPMENT	TAG#	STATUS	INITIALS
Bulk Solids:			
Apron Feeder	SV-1036		
Upper Flop Gate	SV-1035B		
Lower Flop Gate	SV-1034B		
Kiln Elevator:			
Slide Gate	SV-1033B		
Shred Tower:			
Isolation Gate	XV-7108		
Direct Burn:			
Block Valve	SV-1170		
Control Valve	FV-1171		
Kiln Liquid Waste Feed:			
Blended Waste Block Valve	SV-1120		
Blended Waste Control Valve	FV-1121		
North ABC Liquid Waste Feed:			
Blended Waste Block Valve	SV-1183		
Blended Waste Control Valve	FV-1184		
Aqueous Block Valve	SV-1252		
Aqueous Control Valve	FV-1253		
South ABC Liquid Waste Feed:			
Blended Waste Block Valve	SV-1220		
Blended Waste Control Valve	FV-1221		
Aqueous Block Valve	SV-1262		
Aqueous Control Valve	FV-1263		
Cylinder Block Valve	SV-1103		
Cylinder Control Valve	SV-1104		
Corrosive Waste Block Valve	SV-3364		
Corrosive Waste Control Valve	FV-3365		
Kiln Sludge Feed:			
Sludge Control Valve	PV-4021		
Sludge Block Valve	SV-4022		
Drum Pumping Station:			
Drum Pumping Station Block Valve	SV-3016		

EQUIPMENT	TAG#	STATUS	INITIALS
Kiln Aqueous Feed:			
Aqueous Block Valve	SV-1150		
Aqueous Control Valve	FV-1151		

ATTACHMENT 13

INSTRUMENT CALIBRATION

Attachment 13
Instrument Calibration

The attached table lists each instrument by its tag number, the parameter that it monitors, the type of instrument it is, the manufacturer, model number, and the minimum required frequency of calibration. In all cases, the minimum frequency of calibration will be at least that recommended by the manufacturer.

Each instrument will be calibrated according to the procedures recommended by the manufacturer. These written procedures will be maintained on-site. Each calibration will be documented on log sheets. Each log sheet will clearly identify the instrument being calibrated, the date of calibration and the signature of the person performing the calibration. It will include the settings/readings prior to any adjustments, any adjustments made to the instrument, and any other information recommended to be checked by the manufacturer for that particular instrument. Any unusual findings discovered as part of the calibration will also be noted on the calibration logs. If any problems need to be corrected or any repairs made to the instrument, a work order will be generated.

A separate maintenance file will be maintained for each instrument/monitor. The file shall contain all work, maintenance, calibration, testing, and inspection data as required for each instrument.

As part of the calibration of the tank level instruments, a check of the interlocks will also be performed. To perform the interlock checks, a signal representative of the level transmitter's output will be generated into the system. After the alarm threshold has been crossed, the interlocks should activate. If the proper response is not observed, work orders will be generated to correct all problems.

A check of the accuracy of the tank levels will also be performed as part of the calibration by comparing a manual measurement of the tank (stick the tank) to that indicated by the level instrument. These values will also be noted on the calibration logs.

The calibration of the high-high level switches on the tanks is actually a verification of their operability. With the automatic inlet valve to the tank manually isolated and opened, the level switch will be manually activated to prove mechanical operability of the level switch. If the proper response is not observed, work orders will be generated to correct all problems.

INSTRUMENT CALIBRATION SCHEDULE

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
AT2104A	1st stage inlet pH	pH analyzer	Johnson Yokogawa or Quantum	EXAPH 402, EXAXT 450 or Q45P or PH4506	quarterly
AT2104B	1st stage inlet pH	pH analyzer	Johnson Yokogawa or Quantum	EXAPH 402, EXAXT 450 or Q45P or PH4506	quarterly
AT2129A	2nd stage rundown pH	pH analyzer	Johnson Yokogawa or Quantum	EXAPH 402 or Q45P or PH4506	quarterly
AT2129B	2nd stage rundown pH	pH analyzer	Johnson Yokogawa or Quantum	EXAPH 402, EXAXT 450 or Q45P or PH4506	quarterly
AT2130A	2nd stage inlet pH	pH analyzer	Johnson Yokogawa or Quantum	EXPHA 402, EXAXT 450 or Q45P or PH4506	quarterly
AT2130B	2nd stage inlet pH	pH analyzer	Johnson Yokogawa or Quantum	EXAPH 402, EXAXT 450 or Q45P or PH4506	quarterly
AT2199A	stack CO -- CEM A (low)	nondispersive infrared photometry	Servomex	4900	daily (see Attachment 15)
AT2199B	stack CO – CEM A (high)	nondispersive infrared photometry	Servomex	4900	daily (see Attachment 15)
AT2199C	stack CO – CEM B	nondispersive infrared photometry	Servomex	4900	daily (see Attachment 15)
AT2200A	stack O_2 -- CEM A	paramagnetic	Servomex	4900	daily (see Attachment 15)
AT2200B	stack O_2 -- CEM B	paramagnetic	Servomex	4900	daily (see Attachment 15)
AT1010A	ABC O_2 -- unit A	zirconia oxygen analyzer	Johnson-Yokogawa	ZA-8	monthly
AT1010B	ABC O_2 -- unit B	zirconia oxygen analyzer	Johnson-Yokogawa	ZA-8	monthly
AT2020A	baghouse broken bag	optical particle counter	BHA	CPM-700 or 750	annual
AT2020B	baghouse broken bag	optical particle counter	BHA	CPM-700 or 750	annual
AIT4016	bulk solids vent LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4017	shredder vent LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4018A	kiln comb. air LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4018B	kiln comb. air LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4018C	north ABC comb. air LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4018D	south ABC comb. air LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4089	Roberoller vent LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT1020	A damper LEL	diffusion	Gastech or Buckeye	61-101 or BFT-44	monthly
AIT4051	T-403 vent LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4023	sludge T-406 vent LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
AT1122	cylinder station LEL	diffusion	Gastech or Buckeye	61-101 or BFT-44	monthly
AT3013	drum direct burn glove box LEL	diffusion	Gastech or Buckeye	61-101 or BFT-44	monthly
AIT4019	sludge pit O_2	diffusion	Sensor Electronics or Buckeye	SEC 3000 or BFT-44	monthly
AIT4052	sludge pit LEL	diffusion	Gastech or Buckeye	61-101 or BFT-44	monthly
AIT4012A	repack LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4012B	repack room O_2	sample draw	Scott Instruments or Buckeye	4600 or BFT-44	monthly
AIT4012C	repack room HCN	sample draw	Scott Instruments or Buckeye	4600 or BFT-44	monthly
AIT4012D	repack room H_2S	sample draw	Scott Instruments or Buckeye	4600 or BFT-44	monthly
AIT4013A	decant room LEL	sample draw infrared	Scott Instruments or Buckeye	4600IR or BFT-44	monthly
AIT4013B	decant room O_2	sample draw	Scott Instruments or Buckeye	4600 or BFT-44	monthly
AIT4013C	decant room HCN	sample draw	Scott Instruments or Buckeye	4600 or BFT-44	monthly
AIT4013D	decant room H_2S	sample draw	Scott Instruments or Buckeye	4600 or BFT-44	monthly
AIT3387	corrosive waste HCN	sample draw	Scott/Bacharach or Buckeye	4600 or BFT-44	monthly
AIT3386	corrosive waste H_2S	sample draw	Scott/Bacharach or Buckeye	4600 or BFT-44	monthly
AIT3385	corrosive waste O_2	sample draw	Scott/Bacharach or Buckeye	4600 or BFT-44	monthly
AIT3384	corrosive waste LEL	sample draw infrared	Scott/Bacharach or Buckeye	4600IR or BFT-44	monthly
AIT3044B	hydrocarbon vent O_2	sample draw	Servomex	Servotough Oxy (1900)	semi-annual
AIT4073A	E-7 LEL	diffusion	Gastech or Buckeye	61-101 or BFT-44	monthly
AIT4073B	E-7 LEL	diffusion	Gastech or Buckeye	61-101 or BFT-44	monthly
FT2066A	Carbon Injection Train 1 Air Flow Rate	Orifice Plate / dP Cell	Viatran	IDP10	annual
FT2066B	Carbon Injection Train 3 Air Flow Rate	Orifice Plate / dP Cell	Viatran	IDP10	annual
WT2037A	Carbon Injection Train 1 Carbon Feed Rate	load cells	Thermo Ramsey	Micro-Tech 2000	quarterly
WT2037B	Carbon Injection Train 3 Carbon Feed Rate	load cells	Thermo Ramsey	Micro-Tech 2000	quarterly
FT1121	kiln blend flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT1131	kiln fuel oil flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT1151	kiln aqueous flow rate	coriolis mass flow meter	Micro Motion	DS1005128SU	monthly
FT1184	ABC north blend flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
FT1194	ABC north fuel oil flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT1221	ABC south blend flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT1231	ABC south fuel oil flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT1253	ABC north aqueous flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT1263	ABC south aqueous flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT3018	drum direct burn flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
FT4042	sludge flow rate	coriolis mass flow meter	Endress Hauser	Pro Mass 63 I or 83	monthly
FT3366	corrosive waste flow rate	coriolis mass flow meter	Endress Hauser	ProMass 83	monthly
WT1035	flop gates weigh cells	load links	Mettler Toledo	JAGXTREME or AJB541M	quarterly
WT1102A	cylinder weight	load cells	Rice Lake	HP33-1K	monthly
WT1102B	lecture bottle weight	load cells	Rice Lake	BM1818-300	monthly
N/A	E-1 drum scales	load cells	Avery Weigh-Tronix	1310	annual
N/A	E-5 drum scales	load cells	Avery Weigh-Tronix	1310	annual
N/A	main truck scales	load cells	Avery Weigh-Tronix	1310	annual
N/A	E-2 drum scales	load cell	Rice Lake Weighing System	IQ-355-2A	annual
N/A	E-4 drum scales	load cell	Rice Lake Weighing System	IQ-355-2A	annual
FT1171	direct burn flow rate	coriolis mass flow meter	Endress Hauser	Pro Mass 83	monthly
FT2081A	saturator flow rate	magnetic flow converter	Yokogawa or Endress Hauser	AM11 Mag Flow Converter or Promag 50P	quarterly
FT2081B	saturator flow rate	magnetic flow converter	Yokogawa or Endress Hauser	AM11 Mag Flow Converter or Promag 50P	quarterly
FT2092A	1st stage flow rate	magnetic flow converter	Yokogawa or Endress Hauser	AM11 Mag Flow Converter or Promag 50P	quarterly
FT2092B	1st stage flow rate	magnetic flow converter	Yokogawa or Endress Hauser	AM11 Mag Flow Converter or Promag 50P	quarterly
FT2095A	2nd stage flow rate	magnetic flow converter	Yokogawa or Endress Hauser	AE14 Mag Flow Converter or Promag 50P	quarterly
FT2095B	2nd stage flow rate	magnetic flow converter	Yokogawa or Endress Hauser	AE14 Mag Flow Converter or Promag 50P	quarterly
FT2195	stack flow rate	annubar (Δp converted to flow rate)	Rosemount	3051	annual
FIT1143	kiln primary air flow rate	annubar (Δp converted to flow rate)	Rosemount	3051	annual
FIT1192	north ABC primary air flow rate	annubar (Δp converted to flow rate)	Rosemount	3051	annual
FIT1247	south ABC primary air flow rate	annubar (Δp converted to flow rate)	Rosemount	3051	annual

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
FIT1015	secondary air flow rate	annubar (Δp converted to flow rate)	Rosemount	3051	annual
FS4097	bulk solids vent flow	flow switch	Fluid Components International or K-TEK	FLT93S-1A1A106C1A00000 or TX/A1/S6/0750	annual
FT2201A	CEM sample flow rate	turbine flowmeter	Omega	FMA 1700/1800 series	annual
FT2201B	CEM sample flow rate	turbine flowmeter	Omega	FMA 1700/1800 series	annual
LT3108	tank T301 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3118	tank T302 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3128	tank T303 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3138	tank T304 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3148	tank T305 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3158	tank T306 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3168	tank T307 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3178	tank T308 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3188	tank T309 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3198	tank T310 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3208	tank T311 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3218	tank T312 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3278	tank T321 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3288	tank T322 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3258	tank T323 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT3268	tank T324 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT4023	tank T406 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LT4030	tank T401 level	microwave level transmitter or radar gauge	CannonBear, Saabrosemount or Varec	1001/1220, RTG40 or 7200 Series	quarterly
LS3112	tank T301 high level	float switch	Madison	M4300	quarterly
LS3122	tank T302 high level	float switch	Madison	M4300	quarterly
LS3132	tank T303 high level	float switch	Madison	M4300	quarterly
LS3142	tank T304 high level	float switch	Madison	M4300	quarterly

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
LS3152	tank T305 high level	float switch	Madison	M4300	quarterly
LS3162	tank T306 high level	float switch	Madison	M4300	quarterly
LS3172	tank T307 high level	float switch	Madison	M4300	quarterly
LS3182	tank T308 high level	float switch	Madison	M4300	quarterly
LS3192	tank T309 high level	float switch	Madison	M4300	quarterly
LS3202	tank T310 high level	float switch	Madison	M4300	quarterly
LS3212	tank T311 high level	float switch	Madison	M4300	quarterly
LS3222	tank T312 high level	float switch	Madison	M4300	quarterly
LS3282	tank T321 high level	float switch	Madison	M4300	quarterly
LS3292	tank T322 high level	float switch	Madison	M4300	quarterly
LS3262	tank T323 high level	float switch	Madison	M4300	quarterly
LS3272	tank T324 high level	float switch	Madison	M4300	quarterly
LS4031	tank T401 high level	level switch	Delta Mode 1	104-A-0-N78-1-14"-2" RF flg	quarterly
LS4008	tank T406 high level	float switch	Conery	2900 Series	quarterly
PIT1006A	combustion pressure	pressure transmitter	Rosemount	1151DP3	annual
PIT1006B	combustion pressure	pressure transmitter	Rosemount	1151DP3	annual
PIT1006C	combustion pressure	pressure transmitter	Rosemount	1151DP3	annual
PIT2020A	baghouse inlet pressure	pressure transmitter	Rosemount	1151DP3	annual
PIT2020B	baghouse outlet pressure	pressure transmitter	Rosemount	1151DP3	annual
PT2044	spray dryer top nozzle pressure	pressure transmitter	Rosemount	114G1200	annual
PT2045	spray dryer bottom nozzle pressure	pressure transmitter	Rosemount	114G1200	annual
PIT2093A	scrubber inlet pressure	pressure transmitter	Rosemount	1151DP3	annual
PIT2093B	scrubber outlet pressure	pressure transmitter	Rosemount	1151DP3	annual
PIT2093C	scrubber middle pressure	pressure transmitter	Rosemount	1151DP3	annual
PT1018	kiln combustion air pressure	pressure transmitter	Rosemount	1151DP3	annual
PSL1119A	kiln blend pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PDSL1124	kiln atomizing air / blend Δp switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1119B	north ABC blend pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1156	kiln aqueous atomizing air switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
PSL1157	kiln aqueous pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PDSL1187	north ABC atomizing air / blend Δp switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1196	south ABC blend pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PDSL1224	south ABC atomizing air / blend Δp switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1162	direct burn atomizing air pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1165B	north ABC aqueous pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1256	north ABC aqueous atomizing air switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1165C	south ABC aqueous pressure switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1266	south ABC aqueous atomizing air switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1107	cylinder eductor N_2 pressure	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL1206	glove box eductor N_2 pressure	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
PSL3382	south ABC corrosive atomizing air switch	pressure switch	SOR Static O'Ring Control Devices or REO Temp or Ashcroft	44V1 or 4NX or LDDN4GGB25 or 4LG or 6NN	annual
ST1003	kiln speed	speed	Electro Sensor or Conveyor Components	SA420 or CMS-1G	annual
TT1005A	kiln temperature	infrared pyrometer	E^2 Technology Corp.	Pulsar III M7000SR	annual
TT1005B	kiln temperature	infrared pyrometer	E^2 Technology Corp.	Pulsar III M7000SR	annual
TT1005C*	kiln temperature	infrared pyrometer	E^2 Technology Corp.	Pulsar III M7000SR	annual
TT1009A	ABC temperature	temp transmitter/ type K thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT1009B	ABC temperature	temp transmitter/Type K thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT1009C	ABC temperature	temp transmitter/Type K thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT2001A	spray dryer temp	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
TT2001B	spray dryer temp	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT2001C	spray dryer temp	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT2082A	saturator temp	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT2082B	saturator temp	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT2082C	saturator temp	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
TT2194	stack temperature	temp transmitter/Type J thermocouple	Accutech	AI-2000 W/XP-HDC2-L	annual
AT7090	shred tower kiln feed base auger housing oxygen	TBD	TBD	TBD	TBD
TSH7089	palletized feed transition hopper temperature	TBD	TBD	TBD	TBD
TSH7043	palletized airlock temperature	TBD	TBD	TBD	TBD
AT7056	palletized airlock oxygen	TBD	TBD	TBD	TBD
TSH7035	palletized feed infeed hopper temperature	TBD	TBD	TBD	TBD
AT7037	palletized feed infeed hopper oxygen	TBD	TBD	TBD	TBD
TSH7089	palletized feed transition hopper temperature	TBD	TBD	TBD	TBD
TSH7088	kiln feed base auger housing temperature	TBD	TBD	TBD	TBD
AT7090	kiln feed base auger housing oxygen	TBD	TBD	TBD	TBD
AT7120	shred tower LEL sensor	TBD	TBD	TBD	TBD
AT7053	shred tower LEL sensor	TBD	TBD	TBD	TBD
HS7003	shred tower emergency stop	TBD	TBD	TBD	TBD
HS7024	shred tower emergency stop	TBD	TBD	TBD	TBD

TAG #	SYSTEM PARAMETER MEASURED	MONITOR TYPE	MANUFACTURER	MODEL NUMBER	REQUIRED CALIBRATION FREQUENCY
HS7016	shred tower emergency stop	TBD	TBD	TBD	TBD
HS7022	shred tower emergency stop	TBD	TBD	TBD	TBD

*Kiln pyrometer TT1005C is not currently being used to monitor kiln temperature and demonstrate compliance with permit limits. If the Permittee decides to place TT1005C into use, the pyrometer will be calibrated as required by this attachment.

ATTACHMENT 14

FUME MANAGEMENT

Attachment 14
Fume Management

Table of Contents

1.0 Introduction

This attachment addresses the management of fumes as mandated by RCRA and the Division of Waste Management and Radiation Control. There are two separate and distinct fume systems associated with the incinerator: the closed vent system (i.e., the combustion air system and the backup carbon adsorption system) and the hydrocarbon vent system. Each will be addressed below with their components outlined. Analyzers and interlocks described below are detailed on drawings D-800-PI-316, D-800-PI-317, D-800-PI-410, and D-800-PI-411 in Attachment 10. There are also other vent systems for other storage and processing operations at the facility. These are discussed in section 4.

2.0 Closed Vent System

The closed vent system (i.e., the combustion air system and the backup carbon system) collects ventilation air from sources that handle waste in the aggregate with greater than 140°F flash point (or, in the case of the direct burn tanker vacuum decant operations, the vent gas is diluted to below 60% LEL prior to entering the closed vent system). These sources include the bulk solids building, the shredder, the apron feeder, the small sludge tank, the drive through direct burn tanker vacuum pump, and the sludge pad direct burn tanker vent. The destination of these fumes is to the combustion air fans under normal operating conditions. When the combustion air fans are off, or whenever the ABC temperature is lower than 1400°F for more than ten minutes, the fumes report to the backup carbon adsorption system (described in section 2.7).

The air ventilated from these sources is always exhausted either through the combustion air system to the incinerator or to the backup carbon system. During normal operations, the bulk solids building, the shredder, the apron feeder, the small sludge tank, the diluted vent gas from the drive through direct burn tanker vacuum decant operations (when operating), and the sludge pad direct burn tanker vent (when operating) will be vented to the kiln and ABC and the backup carbon adsorption system will be isolated. During backup operations (when the combustion air fans are off or when the ABC is operating at a temperature less than 1400°F for more than ten minutes) the bulk solids building, shredder and small sludge tank will be vented to the carbon adsorption system, and the kiln and ABC will be isolated from these sources and will draw combustion air from the 48 inch plenum through the atmospheric vents. The vent from the apron feeder will be closed (i.e., damper HV4050 will be closed) and any venting of this device will be through the bulk solids building to the carbon adsorption system. The drive through direct burn tanker vacuum decant operations and the sludge pad direct burn tanker operations will not occur during backup operations.

Inspection ports are located in the kiln and ABC combustion air ducts. These will be checked for dusting and liquid accumulation at least once per week. In-line LEL instruments monitor the ducts (north and south side of kiln combustion air duct, and north and south ABC combustion air ducts) to determine hydrocarbon levels. The LEL instruments are tied to the control computer (WDPF). The process flow is shown in drawing D-034-PF-603 in Attachment 10. The combustion air system and the backup carbon system are shown in drawings D-800-PI-410, and

D-800-PI-411 in Attachment 10. The liquid trap for the vacuum decant system in the drive through direct burn station is equipped with a high level sensor, which will alarm locally and in the control room when the liquid level reaches one foot. The operator will then stop the vacuum decant system and drain the liquid from the trap.

The closed vent system between the bulk solids building, the shredder, the apron feeder, the small sludge tank and the inlet to the ID fans (both kiln/ABC combustion air fans and the carbon adsorption system ID fan) will be operated at below atmospheric pressure. It will have at least one magnehelic pressure gauge installed in the vent system to verify a draft condition in the combustion air ductwork. There will be a flow switch in the combustion air ductwork that will generate a digital signal that will be recorded in Wonderware that can also be used to verify that the closed vent system is operated at a pressure less than atmospheric. The duct work sections between the carbon adsorption system ID fan (K-401) and the carbon adsorbers, between the combustion air fans (K-101 and K-102A/B) and the incinerator, between the vacuum pump dilution air fan (K-407) and the combustion air plenum, and between the sludge pad direct burn system and the closed vent system will be operated at a positive pressure. These sections of the vent system will be monitored annually to ensure that there are no VOC emissions greater than 500 ppm above background.

2.1 Bulk Solids Building

Dirt and debris are typical waste in bulk solids. Air is drawn from the bulk solids building by the combustion air fans during normal plant operations. The vent system consists of ducting from bulk solids to the air plenum that reports to combustion air fans. The system is activated whenever the combustion air fans are on and the temperature in the ABC is greater than 1400°F. In-line LEL instruments monitor the duct to determine hydrocarbon levels. The LEL instruments are tied into the kiln's control computer, the WDPF. Inspection ports in the ducting must also be checked for dusting and liquid accumulation at least once per week.

When the combustion air fans are off, or whenever the ABC temperature is lower than 1400°F for more than ten minutes, the fumes report to the backup carbon adsorption system.

The bulk solids building and associated vents will serve as the enclosure that is vented through a closed vent system to an enclosed combustion control device (or to the backup carbon adsorption system) in order for the bulk solids tanks to comply with Tank Level 2 controls specified in R315-264-1084(d)(5). The bulk solids building shall be operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T -- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR§52.741, Appendix B. Testing to demonstrate that the bulk solids building meets these criteria will be done initially, and annually thereafter.

Tables 1 and 2 list the natural draft openings (NDOs) that are allowed in the bulk solids building during normal and backup operations respectively. Clean Harbors Aragonite will maintain the surface area of each of the NDOs at or below the specifications given in Table 1 (during normal operations) or Table 2 (during backup operations). However, in order to allow for time to seal openings for backup operations, the NDOs listed in Table 1 may be in place for periods of up to four hours while venting to the backup carbon adsorption system.

The doors to the bulk solids building must remain closed except when unloading waste into the tanks, managing waste with external equipment, emergencies, and maintenance activities. Doors must be closed as soon as possible (at least within 15 minutes) after unloading a truck or performing other activities for which the doors must be opened.

During normal operations, a minimum flow of 5300 acfm will be vented from the bulk solids enclosure at all times to maintain the required minimum flow velocity through the NDOs. Since this air combines with vent gas from the direct burn tanker vacuum pump and dilution air prior to being measured, the following will be implemented. The dilution air fan, damper, or both will be configured to produce a maximum total flow of 5225 acfm to the combustion air plenum. This will be documented by manual measurements prior to operation, and the same configuration will be maintained during operation. To ensure a minimum flow from the bulk solids enclosure, the flow of combustion air will be maintained above 12,000 acfm when the vacuum pump/dilution air fan are operating and above 6775 acfm when they are not operating. This flow will be determined based on the combined flow measured by flow meters FIT1143, FIT1192, FIT1247, and FIT1015. Should there be a malfunction with one or more of these flow meters, four hours will be allowed for repair. These flows will be monitored and recorded at all times the fumes are being directed to the incinerator. The atmospheric air vents (HV4018 and HV4025) will be closed during normal operations. However, during emergency situations, HV4018 will modulate, if necessary, to maintain the LEL of the highest of sensors AIT4018A, B, C, or D below 25%. Any time HV4018 is not closed during normal operations will be recorded in the Wonderware archiving system. The required minimum flow during backup operation will be determined by annually measuring the volumetric flow, corrected to standard conditions, by EPA Method 2 as required by "Procedure T -- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR§52.741, Appendix B. An anemometer may be used in place of the pitot tube for determining the flow in the ducts. The carbon adsorption ID fan and dampers will have the same configuration during operation as during the most recent test. The minimum required flow, along with the documentation supporting this value, will be submitted to the Director within fourteen days of completing the test.

2.2 Shredder

The shredder is located in the bulk solids building. In-line LEL instruments monitor the duct to determine hydrocarbon levels. The LEL instruments are tied into the WDPF. Inspection ports in the ducting must also be checked for dusting and liquid accumulation at least once per week.

The shredder is vented to the incinerator through the combustion air system during normal operations. During backup operations (when the combustion air fans are off or when the ABC is operating at a temperature less than 1400°F for more than ten minutes) the shredder will be vented to the carbon adsorption system. Damper HV4017 will be maintained between 5 and 25% open.

2.3 Apron Feeder

The apron feeder conveys material from bulk solids to the kiln. Air is drawn from the apron feeder to the combustion air system during normal operations.

The apron feeder, which is connected to the bulk solids building, does not function as part of the enclosure for the bulk solids tanks. Rather, the apron feeder chute and dribble chute openings function as NDOs for the bulk solids building. When the backup carbon adsorption system is in operation, the apron feeder chute and dribble chute will be sealed as indicated in Table 2. To minimize air emissions, Clean Harbors Aragonite will seal the apron feeder openings as much as is feasible.

The material from the apron feeder drops through a double set of flop gates before entering the kiln. To isolate the kiln from the apron feeder, only one set of flop gates is open at once. To further isolate the kiln from the apron feeder, a slide gate is located below the bottom flop gates. The slide gate only opens to allow the bottom flop gates to drop the material into the kiln. The chamber between the flop gates is equipped with a nitrogen purge system. This system is used when feeding material that has a potential of catching fire before entering the kiln. When the material is between the flop gates, the chamber is purged with nitrogen so that the heat from the kiln will not ignite the material.

2.4 Small Sludge Tank

The small sludge tank (T-406) is a 5549 gallon tank used for receiving sludge waste from tankers and from other containers. The sludge material must have a flash point greater than 140°F, and must not be reactive. This tank has a large hinged door that covers a grizzly type grating for straining the sludge, and a smaller door for adding material from containers. Material from the large sludge tank (T-401) can be added to the tank via hard piping or a hose. This tank (T-406) is vented to the incinerator through the combustion air system during normal operations. During backup operations (i.e., when the combustion air fans are off or the ABC temperature drops below 1400°F for more than ten minutes), the ventilation duct damper (HV4023) will remain open and the tank will be vented to the backup carbon adsorption system.

In-line LEL instruments monitor the hydrocarbon levels in the duct. The LEL instruments are tied to the WDPF. Inspection ports in the ducting must also be checked for dusting and liquid accumulation at least once per week.

The tank will comply with the Tank Level 2 controls specified in R315-264-1084(d)(3). Except when adding waste through the doors to the tank, all doors will be closed. They will be maintained so that there are no visible cracks, holes, gaps, or other open spaces. The doors must be closed as soon as possible (at least within 15 minutes) after unloading a truck or container into the tank. When it is necessary to add waste to the tank through the large tank lid, it should be maintained as closed as possible during the operation.

2.5 Drive Through Direct Burn Tanker Vacuum Pump

Decanting of containers may occur in the drive through direct burn station. Liquids are transferred from a container to a tanker (robberoller) by using the vacuum pump on the tanker. When the vacuum pump is used, the vacuum exhaust will be mixed with dilution air and directed to the closed vent system. When the backup carbon adsorption system is being used, no vacuum pump decanting from a container to a tanker occurs.

2.6 Sludge Pad Direct Burn Tanker

After a direct burn tanker is moved to the sludge pad direct burn station and set up to be fed to the incinerator, nitrogen is connected to the tanker to maintain a nitrogen blanket in the tanker as its contents are being fed to the incinerator. Following off-loading of the direct burn tanker, any compressed nitrogen in the tanker will be relieved through the closed vent system.

2.7 Backup Carbon Adsorption System

The carbon adsorption system includes an ID fan (K-401) that maintains the required draft to provide the necessary face velocity across the NDOs in the bulk solids building to capture VOCs and transport them to the carbon adsorbers. An in-line particulate filter prevents dust from clogging the carbon adsorber beds. The carbon adsorption system will vent fumes from the bulk solids building, the shredder, and the small sludge tank when it is in operation. The vent from the apron feeder will be closed and any venting of the apron feeder will be through the bulk solids building.

The carbon adsorption system will be in use during planned maintenance activities and during emergency or unplanned maintenance activities where the ABC temperature is reduced to less than 1400°F for more than ten minutes or when the combustion air fans are off.

The backup carbon adsorption system includes two single stage carbon adsorbers in a parallel arrangement that are operated one at a time. The unit that is in use is the primary backup unit. The unit that is not in use will serve as a secondary backup. The unit serving as the secondary backup will be placed on-line before the carbon in the primary backup unit becomes exhausted. The exhausted carbon will be replaced in the primary unit and that unit will then serve as the secondary backup.

Each carbon adsorber will be filled with 4000 pounds of activated carbon. Each has a bed depth of 2.8 feet and a volume of 133 cubic feet. The type of carbon to be used will meet or exceed the requirements of the following specifications:

For reactivated carbon -- Calgon vapor phase react carbon (VPR 4x6 - 4x10)
For virgin carbon -- Calgon vapor phase BPL 4x6 - 4x10 carbon

The carbon will be replaced on a regular predetermined time interval that is less than the design carbon replacement interval based on the flow rates and VOC concentrations in the closed vent system. Only the hours that the carbon is actually in use are counted for determining when the carbon will be replaced. The actual number of hours that each carbon adsorber is in use (as well as which time period it is in) will be recorded in Wonderware. If a carbon adsorber is used during both time periods (summer as well as other months) the time used will be prorated for each time period (e.g., if reactivated carbon with a summer replacement interval of 528 hours and a replacement interval of 888 hours for all other months were used for 264 hours during the summer and the rest of the time during the other months, the carbon would need to be changed after being used for 444 hours in the other months). June, July, and August are designated as summer months.

The spent carbon will be managed as a hazardous waste. Records of the dates the carbon is removed, placed into permitted storage, and treated will be maintained in the operating record.

The carbon adsorbers will be equipped with CO detectors for monitoring for hot spots in the carbon bed. The carbon adsorbers will be maintained in an inert nitrogen atmosphere while not in use. When idle, the carbon adsorbers will be isolated with dampers at the inlet and outlet (stack) to maintain the inert atmosphere and to minimize VOC emissions.

The carbon adsorption system ID fan and dampers will be configured to maintain the minimum required flow from the bulk solids enclosure as explained in section 2.1. Following each verification of the Procedure T enclosure using the backup carbon adsorption system, the appropriate carbon replacement intervals will be determined (based on the flow necessary to maintain the criteria for the permanent total enclosure and any changes in the VOC concentrations in the closed vent system). Any changes to the system that requires a higher flow rate than was previously determined will not be made until new carbon replacement intervals have been calculated and programmed into the system.

Aragonite will periodically measure the VOC concentrations in the closed vent system by sampling the exhaust at a location before the backup carbon units and analyzing the gas contents to verify that they remain similar to those used in the design analysis. These measurements shall be made at least annually and whenever requested by the Director. If the periodic readings indicate that the VOC levels are higher than those used in the previous calculation of the carbon replacement interval, the carbon replacement interval will be recalculated and programmed into the system. Similarly, if the periodic readings indicate that the VOC levels are lower than those used in the previous calculation of the carbon replacement interval, the carbon replacement interval may be recalculated and programmed into the system.

The carbon replacement intervals (for both reactivated and virgin carbon during both summer and non-summer months) along with any supporting documentation (e.g., flow rate measurements, VOC measurements, etc.) and calculations will be certified by a Utah licensed professional engineer and submitted to the Director within fourteen days of making any change to the carbon replacement interval.

3.0 Hydrocarbon Vent System

The hydrocarbon vent system collects fumes from nitrogen blanketed storage tanks and from processing units that may handle waste with a flash point less than 140°F. Normal operation is to collect fumes via piping or ducting and direct those fumes to the afterburner chamber. A blower and nozzle rated for pre-mixed fuel-air service will be used to input the fumes directly into the afterburner (ABC). In accordance with NFPA, a flame arrestor will separate the collection system from the ABC. The pre-mix blower and an air inlet valve will insure minimum flow velocity at all times to prevent flashback.

A second part of the hydrocarbon system is carbon canisters. These 55-gallon canisters are filled with carbon. There are primary and secondary carbon canister systems. The four primary canisters are sized to handle normal flow rates and the secondary canisters are sized to handle peak flow rates. Each system consists of a first-stage and second-stage contact of the vent air with carbon. The canisters can be used either in conjunction with the pre-mix blower or independent of the blower. The canisters are used on these occasions:

a) when there is excess flow rate, as determined by overpressure in the hydrocarbon vent system;
b) when the pre-mix blower, K-104, is off;
c) when the ABC temperature is less than 1400°F;
d) when ABC O_2 is less than 2%; or
e) when any combination of these conditions exists.

The process flow is shown in drawing D-034-PF-604.

Temperature is monitored in the carbon system. Piping is installed to allow manual flooding on the carbon canisters with nitrogen if the temperature approaches auto ignition.

When fumes are directed to the carbon canisters, the fumes are monitored with a PID or equivalent every three hours. The sample ports are shown on drawing D-800-PI-316 in Attachment 10. Readings are taken from both primary and secondary headers and recorded on a logsheet at preset three hour intervals. A reading of 100 ppm or greater will indicate breakthrough. Aragonite will immediately replace (not to exceed 30 minutes) any carbon adsorption canisters in which breakthrough has occurred.

Condensation traps are also part of this system. The condensation traps are equipped with level sensors that alarm to the WDPF when approximately 1/3 full. The traps will also be manually checked for liquid accumulation at least once per week. The following sources are part of the hydrocarbon vent system.

3.1 Liquid Tank Farm
The twelve storage tanks and the four blend tanks report to the hydrocarbon vent system. All tanks are under a nitrogen blanket.

3.2 Decant Operations
The decant process is located in the decant building inside of E-4, container processing. Containers of liquids are decanted via the use of either a vacuum pump or a diaphragm pump to pull liquids from the container and transfer that liquid directly to the tank farm~~ or a direct burn vessel~~. Air and vapors displaced by the vacuum pump or from the tank or vessel are directed to the hydrocarbon vent system.

~~3.3 Direct Burn Vessel~~
~~The direct burn vessel can be off-loaded by moving it to the truck unloading building and off-loading the material to the tank farm, or by pressurizing the vessel in building E-4 with nitrogen and forcing the liquid to the tank farm through the decant header, or the vessel can be moved to the direct burn pad and off-loaded to the incinerator with nitrogen pressure. Following off-loading of a direct burn vessel, any compressed nitrogen in the vessel will be relieved through the hydrocarbon vent system.~~

~~3.4~~3.3 Drive Through Direct Burn Tanker
After a direct burn tanker is moved to the drive through direct burn station and set up to be fed to the incinerator, nitrogen is connected to the tanker to maintain a nitrogen blanket in the tanker as its contents are being fed to the incinerator. Following off-loading of the direct burn tanker, any compressed nitrogen in the tanker will be relieved through the hydrocarbon vent system.

~~3.5~~3.4 Truck Unloading Direct Burn Tanker
After a direct burn tanker is moved to the truck unloading direct burn station and set up to be fed to the incinerator, nitrogen is connected to the tanker to maintain a nitrogen blanket in the tanker as its contents are being fed to the incinerator. Following off-loading of the direct burn tanker, any compressed nitrogen in the tanker will be relieved through the hydrocarbon vent system.

~~3.6~~3.5 Corrosive Feed Direct Burn Tanker
The corrosive waste feed system can be off-loaded by pressurizing the tanker/tote with nitrogen, by pumping, or both. Following the off-loading of the corrosive waste tanker/tote, any compressed nitrogen in the tanker/tote will be relieved through the hydrocarbon vent system.

~~3.7~~3.6 Tanker to Tanker Transfer
Nitrogen and vapors displaced from filling a tanker during a tanker to tanker transfer are also directed to the hydrocarbon vent system.

~~3.8~~3.7 Large Sludge Tank

The large sludge tank (T-401), is tied into the hydrocarbon vent system. This tank is nitrogen blanketed.

4.0 Other Vent Systems

There are other vent systems at Aragonite where waste is stored, sampled, or both, but are not part of either the combustion air or the hydrocarbon system. There are three types of these systems: those that pass through a carbon system prior to discharge to the atmosphere, those that discharge directly to the atmosphere, and those that vent to the incineration system.

4.1 Carbon Systems

Carbon filters exist on the vent systems in the E-4 decant area, the E-4 repack area, and the E-2 repack area. Weekly inspections are conducted on each of the carbon filters. The inspection consists of checking to see if the carbon is free of impediments, verifying operability of the vent system, checking the carbon level, and checking for organic saturation. Saturation will be determined once a week by venting a container with volatile organic liquid and measuring the hydrocarbon concentration exiting the filters with a PID or equivalent. The carbon will be removed and ultimately incinerated when the reading goes over 500 ppm. These inspections will be documented and the log sheets will contain the area, date, inspectors name, material removed, operational status, carbon level, and hydrocarbon concentration. If carbon changeout is required, documentation that it was changed will also be provided. The profile number of the waste being vented through the system at the time of the inspection will also be noted on the inspection form.

4.1.1 Repack Operations

Repack operations occur at the three workstations in building E-2 and the repack area in building E-4. Each workstation and the E-4 repack area is supplied with point source ventilation for the capture of fumes from the repack operations. No container processing will occur at a workstation or the E-4 repack area unless the ventilation system for that particular area is operating. In order to ensure adequate capture velocities, any container that is open in the workstations will be no more than 3 feet from the ventilation hood in workstation 3 or no more than 2 feet from the ventilation hood in workstations 1 or 2. This requirement is only applicable for lab packs when the inner container(s) are opened. The ventilation air from each workstation is pulled by a fan located external to E-2 on the west side of the building. The air from the fan passes through carbon filters before being discharged to the atmosphere. For the E-4 repack area, a fume exhauster is used to pull air from the work room's area to a carbon filter and then to a roof ventilator on top of building E-4.

4.1.2 Decant Operations

The container decant room is in the container processing building, E-4. Liquid is removed from containers and pumped to ~~either~~ the tank farm ~~or a direct burn vessel~~. A fume exhauster pulls across the top of a drum while liquid is removed to the tank farm ~~or to a direct burn vessel~~. The ventilation of the fumes is to a carbon filter and then to atmosphere at the roof of E-4.

4.2 Discharge to Atmosphere

4.2.1 Container Storage and Staging

Container storage occurs in the buildings designated as E-1, E-2, E-3, E-4, E-5, E-6, E-7, 68, and 69-North/South. Staging containers for processing (feed to the kiln, repacking, decanting, shredding, or any combination thereof) occurs in building E-4.

Fumes are not expected in these areas since containers are kept closed. The buildings have ventilation systems designed to meet the air exchanges specified in the Uniform Building Code (UBC).

4.2.2 Tanker Unloading

The tanker unloading building ventilation meets Uniform Building Code requirements for air exchanges. Waste is exposed to atmosphere only when a sample of the truck load is taken. Pumps are used to unload liquid tankers. The contents of these tankers report to the liquid tank farm.

4.2.3 E-5 Fingerprint

Anytime there are waste samples/chemicals present in an E-5 fingerprint area fume hood, the fume hood is exhausted to the atmosphere above E-5. The fume hoods in the E-5 fingerprint area meet all applicable NFPA requirements.

4.3 Vents to Incineration System

There are ~~three~~ four systems that vent directly to the incinerator: (1) the deslagger chute, (2) an eductor that vents the glove box in the cylinder feed station, and (3) a second eductor that vents the drum pumping station glove box, and (4) the shred tower.

4.3.1 Deslagger Chute

The chute of the deslagger is vented back to the ABC to minimize the release of steam and other emissions. A duct leads from the top of the deslagger chute to the ABC and fumes are drawn into the incinerator by the fan in the duct.

4.3.2 Cylinder Feed Station Glove Box

An eductor vents from the top of the glove box in the cylinder feed station to ports in the south side of the afterburner. An eductor draws a vacuum of 1-2" WC on the glove box and exhausts it to the afterburner. This glove box is only used during emergencies to manage leaking cylinders and will not be used routinely to empty cylinders.

4.3.3 Drum Pumping Station Glove Box

A second eductor vents the drum pumping station glove box. Compressed air to the eductor draws a vacuum of 1" WC in the glove box. If compressed air to the eductor cannot be maintained, the system will automatically switch to nitrogen to continue venting the glove box.

4.3.4 Shred Tower

The shred tower vents from the top of the upper shredder and the purge chamber. A blower draws a vacuum and exhausts it to the afterburner. If the blower fails, the shred system shuts down.

Table 1 -- NDOs During Normal Operations

Opening Description	Location Description	Dimensions of NDO	Size (in^2)	Comments
North Roll Up Door (10'x16')	East side of bulk solids building	½" x 32'	192	Gap around door edge
Middle Roll Up Door (10'x16')	East side of bulk solids building	½" x 32'	192	Gap around door edge
South Roll Up Door (10'x16')	East side of bulk solids building	½" x 32'	192	Gap around door edge
North Roll Up Door (10'x16')	East side of bulk solids building	½" x 10'	60	Gap at top of door
Middle Roll Up Door (10'x16')	East side of bulk solids building	½" x 10'	60	Gap at top of door
South Roll Up Door (10'x16')	East side of bulk solids building	½" x 10'	60	Gap at top of door
Man door 3'x7' (shredder feed chute)	4th floor, west side	⅛" x 17'	25.5	Gap around door
Man door 3'x7' (shredder feed chute)	4th floor, west side	⅛" x 3'	4.5	Gap under door
Man door 3'x7' (crane bay)	5th floor, south side	⅛" x 17'	25.5	Gap around door
Man door 3'x7' (crane bay)	5th floor, south side	⅛" x 3'	4.5	Gap under door
Shredder Camera Opening	Inside west 2nd floor double doors, west side of shredder	6" x 6"	36	Opening into shredder
Shredder Camera Light Opening	Inside west 2nd floor double doors, west side of shredder	6" x 6"	36	Opening into shredder
Shredder Side Access Door	Inside west 2nd floor double doors, east side of shredder	4 x 36" x ¼"	36	Gaps around door edges
Shredder Side Access Door	Inside west 2nd floor double doors, east and west side of shredder	4 x (9" + 32") x ¼"	0	2 doors @ 9" x 32" sealed
Shredder Side Access Door	Inside west 2nd floor double doors, south side of shredder	4 x (16" + 28") x ¼"	0	2 doors @ 16" x 28" sealed
Shredder Area Clean Up Door	Inside west 2nd floor double doors, south side of room at floor level	2 x 12" x ¼"	6	Gaps around door edges
Shredder Drum Dump Door	Inside north 3rd floor door	42" x 12" + ½" x 31"	519.5	Gaps around the seal plate: Two triangular openings on east and west sides of door; each with a base of 42" and altitude of 12" and one rectangular opening of 31" x ½" at bottom of door
Shredder Ram Access Door	Inside west 3rd floor door, west side of shredder	2 x (28" + 28½") x ¼"	28.3	Gaps around door edges
Shredder Ram Access Door	Inside north or west 3rd floor door, on top of shredder ram on south side of shredder	4 x 28" x ¼"	0	1 door @ 28" x 28" sealed
Shredder Ram Access Door	Inside north 3rd floor door, east side of shredder	pi x 20" x ¼"	0	1 round access @ 20" diameter sealed
Shredder Chute Cleanup Doors	Inside west 1st floor opening, ladder to 2nd floor of shredder chute	((18" x 2 + 52" x 2) + 2 x 4 x 19") x ½"	146	Gaps around edges of doors: Two side doors - 19" x 19" (east and west sides) One front door - 52" x 18" (south side)
Dribble Chute (first flange)	Inside south 4th floor door, first flange in dribble chute above entrance to T404A	21" x 21"	441	At first flange
Apron Feeder Dribble Chute (opening)	Inside south 4th floor door, inside apron feeder (door on the east) below back end of conveyor	72" x 24"	0	Not part of enclosure
Apron Feeder Feed Chute	Inside south 4th floor door, bottom of feed hopper, above conveyor in apron feeder	72" x 24"	1728	At bottom of chute
Dribble Chute Access Door	Inside south 4th floor door, on floor			

	north of east end of apron feeder	2 x (24" + 24") x ½"	0	Not part of enclosure
TOTAL			3792.8 (26.3 ft^2)	

Table 2 -- NDOs During Backup Operations

Opening Description	Location Description	Dimensions of NDO	Size (in^2)	Comments
North Roll Up Door (10'x16')	East side of bulk solids building	½" x 32'	192	Gap around door edge
Middle Roll Up Door (10'x16')	East side of bulk solids building	½" x 32'	192	Gap around door edge
South Roll Up Door (10'x16')	East side of bulk solids building	½" x 32'	192	Gap around door edge
North Roll Up Door (10'x16')	East side of bulk solids building	½" x 10'	60	Gap at top of door
Middle Roll Up Door (10'x16')	East side of bulk solids building	½" x 10'	60	Gap at top of door
South Roll Up Door (10'x16')	East side of bulk solids building	½" x 10'	60	Gap at top of door
Man door 3'x7' (shredder feed chute)	4th floor, west side	⅛" x 17'	0	Gap around door, sealed
Man door 3'x7' (shredder feed chute)	4th floor, west side	⅛" x 3'	0	Gap under door, sealed
Man door 3'x7' (crane bay)	5th floor, south side	⅛" x 17'	0	Gap around door, sealed
Man door 3'x7' (crane bay)	5th floor, south side	⅛" x 3'	0	Gap under door, sealed
Shredder Camera Opening	Inside west 2nd floor double doors, west side of shredder	6" x 6"	0	Sealed with Visqueen and duct tape
Shredder Camera Light Opening	Inside west 2nd floor double doors, west side of shredder	6" x 6"	0	Sealed with Visqueen and duct tape
Shredder Side Access Door	Inside west 2nd floor double doors, east side of shredder	4 x 36" x ¼"	36	Gaps around door edges
Shredder Side Access Door	Inside west 2nd floor double doors, east and west side of shredder	4 x (9" + 32") x ¼"	0	2 doors @ 9" x 32" sealed
Shredder Side Access Door	Inside west 2nd floor double doors, south side of shredder	4 x (16" + 28") x ¼"	0	2 doors @ 16" x 28" sealed
Shredder Area Clean Up Door	Inside west 2nd floor double doors, south side of room at floor level	2 x 12" x ¼"	6	Gaps around door edges
Shredder Drum Dump Door	Inside north 3rd floor door	42" x 12" + ½" x 31"	0	Sealed with Visqueen and duct tape
Shredder Ram Access Door	Inside west 3rd floor door, west side of shredder	2 x (28" + 28½") x ¼"	0	Gaps around door edges sealed with duct tape
Shredder Ram Access Door	Inside north or west 3rd floor door, on top of shredder ram on south side of shredder	4 x 28" x ¼"	0	1 door @ 28" x 28" sealed
Shredder Ram Access Door	Inside north 3rd floor door, east side of shredder	pi x 20" x ¼"	0	1 round access @ 20" diameter sealed
Shredder Chute Cleanup Doors	Inside west 1st floor opening, ladder to 2nd floor of shredder chute	((18" x 2 + 52" x 2) + 2 x 4 x 19") x ½"	0	Gaps around edges of doors sealed with duct tape: Two side doors - 19" x 19" (east and west sides) One front door - 52" x 18" (south side)
Dribble Chute (at first flange)	Inside south 4th floor door, first flange in dribble chute above entrance to T404A	21" x 21"	0	Not part of enclosure
Apron Feeder Dribble Chute (opening)	Inside south 4th floor door, inside apron feeder (door on the east) below back end of conveyor	72" x 24"	0	Cover over opening
Apron Feeder Feed Chute	Inside south 4th floor door, bottom of feed hopper, above conveyor in apron feeder	72" x 24"	0	Cover over opening
Dribble Chute Access Door	Inside south 4th floor door, on floor north of east end of apron feeder	2 x (24" + 24") x ½"	0	Gap around door edge, sealed
TOTAL			798 (5.5 ft^2)	

ATTACHMENT 16

DATA MONITORING AND RECORDING SYSTEM

Attachment 16
Data Monitoring and Recording System

The following table lists the tag names for the parameters that will be monitored/calculated and recorded in the facility data archiving system. The parameters in the table must be monitored by the facility control system without interruption, with the value of each parameter evaluated at least once every 15 seconds and the average value of each parameter calculated and recorded at least every 60 seconds in accordance with 40 CFR§63.1209(b)(3).

Tag Name	Description	Units
AT2104	1st stage neut. feed pH (selected)	N/A
AT2104A	1st stage neut. feed pH A	N/A
AT2104B	1st stage neut. feed pH B	N/A
AT2104RL	1st stage neut. feed pH (HRA)	N/A
AT2129	2nd stage rundown pH (selected)	N/A
AT2129A	2nd stage rundown pH A	N/A
AT2129B	2nd stage rundown pH B	N/A
AT2129RL	2nd stage rundown pH (HRA)	N/A
AT2130	2nd stage neut. feed pH (selected)	N/A
AT2130A	2nd stage neut. feed pH A	N/A
AT2130B	2nd stage neut. feed pH B	N/A
AT2130RL	2nd stage neut. feed pH (HRA)	N/A
AT2199	stack CO (selected)	ppm
AT2199A	stack CO -- CEM A (low)	ppm
AT2199B	stack CO -- CEM A (high)	ppm
AT2199C	stack CO -- CEM B	ppm
AT2199CR	corrected stack CO	ppm
AT2207	stack THC (selected)	ppm
AT2207A	stack THC – CEM A	ppm
AT2207B	stack THC – CEM B	ppm
AT2207CR	corrected stack THC	ppm
AT2200	stack O2 (selected)	%
AT2200A	stack O2 -- CEM A	%
AT2200B	stack O2 -- CEM B	%
AT2199RL	CO rolling average	ppm
AT2207RL	THC rolling average	ppm
FT2201	CEM sample flow	l/hr
AT1010A	ABC O2 -- unit A	%
AT1010B	ABC O2 -- unit B	%
AT2020B	baghouse broken bag	%
AIT3044B	hydrocarbon vent O2	%

Tag Name	Description	Units
FT1121	A104 blend liquid flow	lb/min
FT1121RL	A104 blend liquid flow (HRA)	lb/hr
A104WL1	A104 blend liquid waste enabled	N/A
FT1131LB	A104 fuel oil flow	lb/min
FT1151	A102 aqueous liquid flow	lb/min
SV1150	A102 aqueous waste enabled	N/A
FT1151RL	A102 aqueous liquid flow (HRA)	lb/hr
FT1184	A106A blend liquid flow	lb/min
A106AWL1	A106A blend liquid waste enabled	N/A
FT1194LB	A106A fuel oil flow	lb/min
FT1221	A106B blend liquid flow	lb/min
A106BWL1	A106B blend liquid waste enabled	N/A
WT1102A	V1 station weigh scale A	lbs
WT1102B	V1 station weigh scale B	lbs
FT1102	V1 station feed rate	lb/min
FQT1102	V1 station hourly total	lbs
FT1102RL	V1 station feed fate (HRA)	lb/hr
SV1103	V1 station block valve	N/A
AT1122	V1 station LEL	%
FT1231LB	A106B fuel oil flow	lb/min
FT1253	A105A aqueous liquid flow	lb/min
SV1252	A105A aqueous waste enabled	N/A
FT1263	A105B aqueous liquid flow	lb/min
SV1262	A105B aqueous waste enabled	N/A
FT1270	ABC combined aqueous flow	lb/min
ABCAQTOT	ABC combined aqueous flow (HRA)	lb/hr
FT1290	ABC combined blend flow	lb/min
ABCBLDTO	ABC combined blend flow (HRA)	lb/hr
FT1171RL	A101 direct burn flow (HRA)	lb/hr
FT1171	A101 direct burn flow	lb/min

Tag Name	Description	Units
SV1170	A101 direct burn waste enabled	N/A
FT4042	A103 sludge flow	lb/min
SLGONWST	A103 sludge system enabled	N/A
FT4042RL	A103 sludge flow (HRA)	lb/hr
FT3018	A103 drum direct burn flow	lb/min
AT3013	drum direct burn glove box LEL	%
TT3201	drum direct burn feed line temp	ºF
FT3366	corrosive waste feed flow rate	lb/min
SV3364	corrosive waste feed enabled	N/A
TT3367	corrosive waste feed line temp	ºF
AA4012	repack room gas meter alarm	N/A
AA4013	decant room gas meter alarm	N/A
AA338X	corrosive waste gas meter alarm	N/A
WT1035RL	bulk solids feed rate (HRA)	lb/hr
WT1029RL	containers feed rate (HRA)	lb/hr
BLKCONRL	bulk solids and containers feed rate (HRA)	lb/hr
FIT1143	air to the kiln	acfm
FIT1192	air to the north ABC	acfm
FIT1247	air to the south ABC	acfm
FIT1015	secondary combustion air flow	acfm
FQT1250	total combustion air flow	acfm
FS4097	bulk solids vent flow switch	N/A
HY4018	atmospheric air damper	%
AT4089	RobbeRoller suction LEL	%
SV4086	RobbeRoller suction valve	N/A
HY4090	RobbeRoller dilution air valve	%
K407S	RobbeRoller dilution air fan	N/A
LSH4099	RobbeRoller liquid trap high	N/A
SV4083	carbon bed A inlet damper	N/A
SV4085	carbon bed B inlet damper	N/A

Tag Name	Description	Units
FT2081A	saturator brine flow A	gpm
FT2081B	saturator brine flow B	gpm
FT2081	saturator brine flow (selected)	gpm
FT2081RL	saturator brine flow (HRA)	gpm
FT2092A	1st stage scrubber brine flow A	gpm
FT2092B	1st stage scrubber brine flow B	gpm
FT2092	1st stage scrubber brine flow (selected)	gpm
FT2092RL	1st stage scrubber brine flow (HRA)	gpm
FT2095A	2nd stage scrubber brine flow A	gpm
FT2095B	2nd stage scrubber brine flow B	gpm
FT2095	2nd stage scrubber brine flow (selected)	gpm
FT2095RL	2nd stage scrubber brine flow (HRA)	gpm
FT2195	stack flow rate	acfm
FT2195RL	stack flow rate (HRA)	acfm
FT2195D	stack flow rate	dscfm
FT2066	Carbon Inj Air Flow	FPM
FT2066A	Carbon Inj Air Flow Train 1	FPM
FT2066B	Carbon Inj Air Flow Train 3	FPM
FT2066FZ	Carbon Inj Air Flow 1 min ave	FPM
FT2066RL	Carbon Inj Air Flow HRA	FPM
WT2037	Carbon Injection Feed Rate	lbs/hr
WT2037A	Carbon Injection Rate Train 1	lbs/hr
WT2037B	Carbon Injection Rate Train 3	lbs/hr
WT2037FZ	Carbon Injection 1 min ave	lbs/hr
WT2037RL	Carbon Injection Rate, HRA	lbs/hr
LT3108	tank T301 level	gals
LT3118	tank T302 level	gals
LT3128	tank T303 level	gals
LT3138	tank T304 level	gals
LT3148	tank T305 level	gals
LT3158	tank T306 level	gals
LT3168	tank T307 level	gals

Tag Name	Description	Units
LT3178	tank T308 level	gals
LT3188	tank T309 level	gals
LT3198	tank T310 level	gals
LT3208	tank T311 level	gals
LT3218	tank T312 level	gals
LT3278	tank T321 level	gals
LT3288	tank T322 level	gals
LT3258	tank T323 level	gals
LT3268	tank T324 level	gals
LT4023	tank T406 level	gals
LT4030	tank T401 level	gals
MI0006	north ABC waste feed cutoff	N/A
MI0007	south ABC waste feed cutoff	N/A
MI0009	solids and sludge waste feed cutoff	N/A
MI0010	total kiln waste feed cutoff	N/A
MI0015	total waste feed cutoff	N/A
MI0020	kiln blend waste feed cutoff	N/A
MI0021	north ABC blend waste feed cutoff	N/A
MI0022	south ABC blend waste feed cutoff	N/A
MI0023	direct burn waste feed cutoff	N/A
MI0024	north ABC aqueous waste feed cutoff	N/A
MI0025	south ABC aqueous waste feed cutoff	N/A
MI0026	barrel waste feed cutoff	N/A
MI0027	bulk solids waste feed cutoff	N/A
MI0028	sludge waste feed cutoff	N/A
MI0029	kiln aqueous waste feed cutoff	N/A
MI0030	V1 station AWFCO	N/A
ONWASTE	operating on waste	N/A
PIT1006A	ABC pressure A	" H_2O
PIT1006B	ABC pressure B	" H_2O
PIT1006C	ABC pressure C	" H_2O

Tag Name	Description	Units
PIT1006	ABC pressure	" H_2O
PIT2020A	baghouse inlet pressure	" H_2O
PIT2020B	baghouse outlet pressure	" H_2O
PDR2020	baghouse differential pressure	" H_2O
ZAL2021I	baghouse compartments on-line	N/A
PT2044	spray dryer top pressure	psi
PT2045	spray dryer mid pressure	psi
PD2093AR	1st stage differential pressure (HRA)	" H_2O
PD2093BR	2nd stage differential pressure (HRA)	" H_2O
PDSL1124	kiln blend atomizing air Δp	N/A
PDSL1187	north ABC blend atomizing air Δp	N/A
PDSL1224	south ABC blend atomizing air Δp	N/A
PSL1156	kiln aqueous atomizing air pressure	N/A
PSL1107	V1 station N_2 pressure switch	N/A
PSL1266	north ABC aqueous atomizing air pressure	N/A
PSL1256	south ABC aqueous atomizing air pressure	N/A
PSL1162	direct burn atomizing air pressure	N/A
PSL1153	sludge atomizing air pressure	N/A
PSL3382	corrosive waste feed atomizing air pressure	N/A
PSL1157	kiln aqueous pressure at block valve	N/A
PSL1165B	north ABC aqueous pressure at block valve	N/A
PSL1165C	south ABC aqueous pressure at block valve	N/A
PSL1119A	kiln blend pressure at block valve	N/A
PSL1119B	north ABC blend pressure at block valve	N/A
PSL1196	south ABC blend pressure at block valve	N/A
TT1005A	kiln outlet temp pyrometer A	ºF
TT1005B	kiln outlet temp pyrometer B	ºF
TT1005C	kiln outlet temp pyrometer C	ºF
TT1005S	kiln outlet temp	ºF
TT1005RL	kiln outlet temp (HRA)	ºF

Tag Name	Description	Units
TT1009A	ABC outlet temp A	ºF
TT1009B	ABC outlet temp B	ºF
TT1009C	ABC outlet temp C	ºF
TT1009S	ABC outlet temp	ºF
TT1009RL	ABC outlet temp (HRA)	ºF
TT2001A	spray dryer outlet temp A	ºF
TT2001B	spray dryer outlet temp B	ºF
TT2001C	spray dryer outlet temp C	ºF
TT2001S	spray dryer outlet temp	ºF
TT2001RL	spray dryer outlet temp (HRA)	ºF
TT2082A	saturator temp A	ºF
TT2082B	saturator temp B	ºF
TT2082C	saturator temp C	ºF
TT2082S	saturator temp	ºF
TT2194	stack temperature	ºF
SV3954	primary canister valve	N/A
SV3953	secondary canister valve	N/A
TMCARBA	carbon unit A timer	hours
TMCARBB	carbon unit B timer	hours
ST1003	kiln speed	rpm
PB0004	emergency stop button	N/A
TBD	emergency trip switch	N/A
PB0005	manual waste feed cutoff	N/A
ZSC1017	emergency hot vent	N/A
ZAL2021I	baghouse bypassed	N/A
UA0001	utility power failure alarm	N/A
WFTIMER	time on waste since WFCO test	hours
A104M	front wall BMS loss of flame	N/A
A106AM	north ABC BMS loss of flame	N/A
A106BM	south ABC BMS loss of flame	N/A
KIL-BTU	kiln Btu per pound	Btu/lb

Tag Name	Description	Units
ABN-BTU	north ABC blend Btu per pound	Btu/lb
ABS-BTU	south ABC blend Btu per pound	Btu/lb
AQU-BTU	aqueous Btu per pound	Btu/lb
DDB-BTU	drum direct burn Btu per pound	Btu/lb
DIR-BTU	direct burn Btu per pound	Btu/lb
KIL-VIS	kiln blend viscosity	cps
ABN-VIS	north ABC blend viscosity	cps
ABS-VIS	south ABC blend viscosity	cps
DIR-VIS	direct burn viscosity	cps
SLG-VIS	sludge viscosity	cps
DDB-VIS	drum direct burn viscosity	cps
KIL-SPGR	kiln blend specific gravity	N/A
ABN-SPGR	north ABC blend specific gravity	N/A
ABS-SPGR	south ABC blend specific gravity	N/A
CON-WGT	weight per container	lbs
TOTBTURL	system heat release (HRA)	MM Btu/hr
TOTCLRL	total chlorine feed (HRA)	lb/hr
CLRL12HR	total chlorine feed (12-hr RA)	lb/hr
AS7	total cumulative arsenic feed	lbs
BE7	total cumulative beryllium feed	lbs
CD7	total cumulative cadmium feed	lbs
CR7	total cumulative chromium feed	lbs
HG7	total cumulative mercury feed	lbs
PB7	total cumulative lead feed	lbs
SEMVOLRL	semi-volatile metals (HRA)	lb/hr
SEMVOL12	semi-volatile metals (12-hr RA)	lb/hr
LOWVOLRL	low volatile metals (HRA)	lb/hr
LOWVOL12	low volatile metals (12-hr RA)	lb/hr
TOTHGRL	mercury feed rate (HRA)	lb/hr
TOTHG12	mercury feed rate (12-hr RA)	lb/hr

Tag Name	Description	Units
AT7090	shred tower kiln feed base auger housing oxygen sensor	%
TSH7089	palletized feed transition hopper temperature switch	N/A
ZSC7120	palletized airlock entry door	N/A
ZSC7044	palletized airlock exit door	N/A
ASH7042	palletized airlock flame sensor	N/A
TSH7043	palletized airlock temperature switch	N/A
AT7056	palletized airlock oxygen sensor	%
ASH7034	palletized feed infeed hopper flame sensor	N/A
TSH7035	palletized feed infeed hopper temperature switch	N/A
XV7026	palletized feed infeed hopper fire water	N/A
AT7037	palletized feed infeed hopper oxygen sensor	%
TSH7089	palletized feed transition hopper temperature switch	N/A
TSH7088	kiln feed base auger housing temperature switch	N/A
AT7090	kiln feed base auger housing oxygen sensor	%
AT7120	shred tower LEL sensor	%
AT7053	shred tower LEL sensor	%
ZS7130	kiln feed base auger relief vent	N/A
ZS7121	palletized feed infeed hopper relief vent	N/A
XV7108	palletized feed isolation gate	N/A
TBD	palletized container feed rate (HRA)	lb/hr
TBD	palletized container weight	lb
TBD	shred tower CO_2 system discharge	N/A
HS7003	shred tower emergency stop	N/A
HS7024	shred tower emergency stop	N/A
HS7016	shred tower emergency stop	N/A
HS7022	shred tower emergency stop	N/A