MODULE 3
STORAGE AND PROCESSING IN CONTAINERS

3.A. APPLICABILITY

The requirements of this module apply to the operation of hazardous waste container storage and processing areas at the facility. For purposes of this Permit, the Thaw Unit – Unit 105; the Rail/Truck Transfer Bay located within Unit 535; the Truck Wash Bay located in Unit 604; and the Containerized Bulk Solids Storage Unit – Unit 106 (Subunits 1 through 3) are hazardous waste container storage and processing areas. For detail of all operational units at the Clive facility, refer to Attachment 9 (Design Drawings).

The Railcar to Trailer Transload Building (Unit 255), 10-day drum transfer facility (Unit 101) and the Treatment Container (Unit 707) are not permitted for storage. Unit 255 is used as a transfer facility in accordance with the requirements of R315-263-12. Unit 707 is used for the addition of absorbent and/or reagent to a waste stream. Waste streams managed in Unit 707 are subject to the requirement of R315-262, Hazardous Waste Generator Requirements and Attachment 8, Container Management. Unit 707 is located at the north end of Subunit 3 of Unit 106. A full description of Unit 106 is found in Section 1.1 of Attachment 8.

3.B. STORAGE CAPACITY

3.B.1. 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 area is prohibited. For purposes of determining compliance with the capacity limitations, all containers shall be considered to be full to their respective capacities with liquid hazardous waste:

a. Thaw Unit (Unit 105) – 60,000 gallons
b. Rail/Truck Transfer Bay (Unit 535) – 23,560 gallons
c. Truck Wash Bay (Unit 604) and Containerized Bulk Storage Unit (Unit 106) – Combined Capacity – 1,847,871 gallons;
d. Unit 106, Subunit 1 – 448,440 gallons in the enclosed area, 181,800 gallons in the unenclosed area; Unit 106, Subunit 2 – 617,463 gallons; Unit 106, Subunit 3 – 600,168 gallons.
e. No more than four 30-yd^3 roll-offs (or volume equivalent) may be stored in Unit 604 at the same time.
~~e.~~f. No other containers may be stored in Unit 604 while tanks T-4522 and T-4523 are located there.

3.B.2. The Permittee may process solid, semi-solid or liquid wastes in containers in the container storage and processing areas identified below. The processing is limited

to waste transfer between containers, neutralization of acidic waste in tanks T-4522 and T-4523, and the addition of absorbent material to containerized waste. Any other treatment or processing of waste in containers or in the container management areas listed below is prohibited, except as provided in Condition 3.A above:

a. Thaw Unit (Unit 105)
b. Rail/Truck Transfer Bay (Unit 535)
c. Truck Wash Bay (Unit 604)
d. Containerized Bulk Solids Storage Unit (Unit 106) – Subunits 1, 2 and 3

3.C. PERMITTED AND PROHIBITED WASTES

The Permittee may store and process hazardous waste specified in Condition 2.C in the container storage areas.

3.D. OPERATION AND MAINTENANCE

3.D.1. The Permittee shall maintain the container storage and processing areas and associated secondary containment systems as constructed and in accordance with the drawings contained in Attachment 9.

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

3.D.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 .

3.D.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.D.5. The Permittee shall design, construct, maintain and operate the container storage, processing areas and associated secondary containment systems 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.D.6. The Permittee shall comply with the provisions specified in Attachment 8, Container Management.

3.E. OPERATING REQUIREMENTS

3.E.1. If a container holding hazardous waste 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, as soon as possible, but no later than 24 hours from the time the problem was first discovered. If the damaged or leaking container is a large container (e.g., roll-off), instead of transferring the waste to another container or repackaging the leaking container within 24 hours, the following option may be followed:

3.E.1.a. If the large container is subject to R315-264-1080 through R315-264-1091 (Air Emission Standards for Tanks, Surface Impoundments, and Containers) the Permittee shall attempt an initial repair within 24 hours of discovery of the leak. If repair efforts are unsuccessful at stopping the leak, the container shall be placed in Unit 105~~604~~ within 24 hours of discovery of the leak and the leak repaired within five calendar days of discovery. If the leak cannot be repaired within five days of discovery, the contents of the container shall be transferred to a container in good condition after which normal management of the waste may resume in accordance with this permit. The date and time of leak detection, repair efforts, and container movements shall be documented in the operating record, which is defined in Utah Admin. Code R315-264-73.

3.E.1.b. If the large container is not subject to R315-264-1080 through R315-264-1091, the Permittee shall attempt an initial repair within 24 hours of discovery of the leak. If repair efforts are unsuccessful at stopping the leak, the container shall be placed in an enclosed storage location at the facility within 24 hours of discovery of the leak and the leak repaired within ten calendar days of discovery. If the leak cannot be repaired within ten days of discovery, the contents of the container shall be transferred to a container in good condition after which normal management of the waste may resume in accordance with this permit. The date and time of leak detection, repair efforts, and container movements shall be documented in the operating record.

3.E.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.E.3. The Permittee shall not place incompatible waste and materials in the same container.

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

3.E.5. The Permittee shall separate any container holding a waste that is incompatible with any waste or other material from the incompatible waste or materials by placing it an alternative storage location in accordance with Attachment 8, Container Management.

3.E.6. The Permittee shall always keep containers closed except when adding or removing wastes or adding absorbent, as allowed by this permit.

3.E.7. The Permittee shall not be open, handle, store, or manage containers in a manner which may rupture the containers or cause them to leak.

3.E.8. Within ten days of arrival at the Clean Harbors Clive, LLC (Clive) facility, the Permittee shall accept and place all hazardous waste into permitted container storage at Clive or ship the waste off-site to another facility. Arrival for purposes of this condition is the day the waste enters the rail or truck gate of the Clive facility.

3.E.9. Within in ten days from the time that the Permittee hooks the site rail engine to railcars left by Union Pacific, the Permittee shall transfer all hazardous waste in the railcar into permitted storage or ship the waste off site in accordance with applicable rules.

3.E.10. The Permittee shall maintain sufficient aisle space in the container storage and processing areas to allow the unobstructed movement of personnel, fire protection equipment, discharge control equipment, and decontamination equipment to all areas of the container storage and processing 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 label.

3.E.11. The Permittee shall not locate containers holding ignitable or reactive waste, within 50 feet of the facility's property line.

3.E.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.

3.E.13. The Permittee shall maintain a record of the location of each container in the container storage and processing areas. This record shall be updated prior to the

end of the shift and shall document all containers and their locations. A history of the movement of each container of waste will be maintained from the time it is placed into one of the permitted container management areas until it is manifested off-site. The Permittee shall comply with the waste tracking provisions of Attachment 8, Container Management.

3.E.14. The Permittee shall not store small containers of hazardous waste (i.e., those having a capacity of 120 gallons or less) shall not be stored in in Unit 106, Subunits 2 and 3, or in the unenclosed portion of Subunit 1, Unit 106.

3.E.1.5 Small containers (<120 gallons) and intermediate bulk containers (<350 gallons) may be stored marked areas of Units 105, the enclosed portion of Unit 106, Subunit 1 and 604. Unit 604 cannot be used to store containers when tanks T-4522 and T-4523 are located there.

3.F. CONTAINMENT

3.F.1 The Permittee shall operate and maintain the secondary containment systems such that they are free of both cracks and gaps and are impervious to contain leaks, spills, and accumulated precipitation..

3.F.2. When the facility is staffed, 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 managed as hazardous waste.

3.F.3. The Permittee shall maintain a minimum secondary containment of 10% of the maximum capacity or the volume of the largest container, whichever is greater, for each container storage and processing area identified in Condition 3.B.1.

3.G. ORGANIC AIR EMISSION STANDARDS

3.G.1. The Permittee shall control air emissions from each of the containers of hazardous waste stored in the container storage and processing units in accordance with the applicable provisions of R315-264-1082 and R315-264-1086.

3.G.2. The requirements contained in Condition 3.G. do not apply to a container that has a design capacity less than or equal to 0.1 m^3 (about 26 gallons).

3.G.3. The following containers are exempt from the standards specified in condition 3.G:

3.G.3.a. A container for which all hazardous waste in the container has an average volatile organic (VOC) concentration at the point of waste origination of less than 500 parts per million by weight (ppmw). The average VO concentration shall be

determined using the procedures specified in R315-264-1083(a). The Permittee shall review and update, as necessary, this VO determination at least once every 12 months following the date of the initial determination for each type of waste managed in containers at the facility. The initial review shall be conducted within 30 days of the effective date of this Permit. The reviews shall be documented in the Operating Record.

3.G.3.b. A container for which the organic content of all hazardous waste in the container has been reduced by an organic destruction method or removal process that achieves any one of the conditions contained in R315-264-1082(c)(2). For these wastes, the necessary determinations to demonstrate organic destruction or removal shall be made using the applicable procedures specified in R315-264-1083(b).

3.G.3.c. A container for which all hazardous waste in the container either: meets the numerical concentration limits for organic constituents, applicable to the hazardous waste, as specified in R315-268-40 in the table "Treatment Standards for Hazardous Wastes" (LDR Treatment Standards), or the hazardous constituents in the waste have been treated by the treatment technology established by the EPA for the waste in R315-268-40 in the table "Treatment Standards for Hazardous Wastes"(LDR Treatment Technology Standards), or have been removed or destroyed by an equivalent method of treatment approved by the Director pursuant to R315-268-40(b).

3.G.4. The Director may at any time perform or upon the Director's request, the Permittee shall perform an average VO concentration determination of a hazardous waste managed in a container exempted from using air emission controls under the provisions of R315-264-1082(d).

3.G.5. For containers of hazardous waste in the container storage and processing units having a design capacity greater than 0.1 m^3 (about 26 gallons) and less than or equal to 0.46 m^3 (about 119 gallons), the Permittee shall control air pollutant emissions from the containers in accordance with Level 1 standards.

3.G.5.a. Containers using Level 1 controls shall be one of the following:

3.G.5.a.i. A container that meets the applicable U.S. DOT regulations on packaging hazardous materials for transportation as specified in R315-264-1086(f).

3.G.5.a.ii. A container that is equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position, there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container, or may be an integral part of the container structural design.

3.G.5.a.iii. An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere.

3.G.5.b. A container complying with Level 1 controls shall be equipped with covers and closure devices, as applicable to the container, that are composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere, and to maintain the equipment integrity for as long as the container is in service.

3.G.5.c. Whenever a hazardous waste is in a container using Level 1 controls, the Permittee shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position, except as follows:

3.G.5.c.i. Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material as follows:

3.G.5.c.i.A. When filling the container to the intended final level in one continuous operation, the Permittee shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

3.G.5.c.i.B. When filling the container with discrete quantities or batches of material intermittently over a period of time, the Permittee shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within 15 minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

3.G.5.c.ii. Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

3.G.5.c.ii.A. Opening of the closure device or cover shall be allowed at any time if the container is empty as defined in R315-261-7.

3.G.5.c.ii.B. If discrete quantities or batches of material are removed from the container but the container does not meet the definition of an empty container, the Permittee shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within 15 minutes, or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

3.G.5.c.iii. Opening of a cover or closure device is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Following completion of the activity, the Permittee shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

3.G.5.c.iv. Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device that vents to the atmosphere, is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position.

3.G.5.c.v. Opening of a safety device, as defined in R315-265-1081, shall be allowed at any time conditions require doing so to avoid an unsafe condition.

3.G.5.d. The Permittee shall inspect containers subject to Level 1 controls and their covers and closure devices as follows:

3.G.5.d.i. In the case when a hazardous waste is already in the container at the time the Permittee first accepts possession of the container at the facility and the container is not emptied within 24 hours after the container is accepted at the facility, the Permittee shall visually inspect the container and its cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the Permittee shall make first attempts at repair no later than 24 hours after detection and the repair shall be completed as soon as possible, but not later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

3.G.5.d.ii. In the case when a container used for managing hazardous waste remains at the facility for a period of 1 year or more, the Permittee shall visually inspect the container and its cover and closure devices initially and thereafter, at least weekly, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the Permittee shall make first attempts at repair no later than 24 hours after detection and the repair shall be completed as soon as possible, but not later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

3.G.6. For containers of hazardous waste at the container storage and processing units having a design capacity greater than 0.46 m^3 (about 119 gallons) that are not in light material service (see definition in R315-265-1, which incorporates 40 CFR §

1081by reference), the Permittee shall control air pollutant emissions from the containers in accordance with Level 1 standards identified in this module.

3.G.7. For containers of hazardous waste at the container storage and processing units having a design capacity greater than 0.46 m^3 (about 119 gallons) that are in light material service (see definition in R315-265-1, which incorporates 40 CFR § 265.1081 by reference), the Permittee shall control air pollutant emissions from the containers in accordance with Level 2 standards.

3.G.7.a. Containers using Level 2 controls shall be one of the following:

3.G.7.a.i. A container that meets the applicable U.S. DOT regulations on packaging hazardous materials for transportation as specified in R315-264-1086(f).

3.G.7.a.ii. A container that operates with no detectable organic emissions as defined in R315-265-1081 and determined in accordance with the procedure specified in R315-264-1086(g).

3.G.7.a.iii. A container that has been demonstrated within the preceding 12 months to be vapor-tight by using 40 CFR § 60, Appendix A, Method 27 in accordance with the procedure specified in R315-264-1086(h).

3.G.7.b. Transfer of hazardous waste in or out of a container using Level 2 controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, reactive, or other hazardous materials. Examples of waste transfer procedures that are considered to meet the requirements of this condition include: A submerged-fill pipe or other submerged-fill method to load liquids into a container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing it from the container opening.

3.G.7.c. Whenever a hazardous waste is in a container using Level 2 controls, the Permittee shall install all covers and closure devices for the container, and secure and maintain each closure device in the closed position, except as follows:

3.G.7.c.i. Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:

3.G.7.c.i.A. When filling the container to the intended final level in one continuous operation, the Permittee shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

3.G.7.c.i.B. When filling the container with discrete quantities or batches of material intermittently over a period of time, the Permittee shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within 15 minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

3.G.7.c.ii. Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

3.G.7.c.ii.A. Opening of the closure device or cover shall be allowed at any time if the container is empty as defined in R315-261-7.

3.G.7.c.ii.B. If discrete quantities or batches of material are removed from the container but the container does not meet the definition of an empty container, the Permittee shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within 15 minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

3.G.7.c.iii. Opening of a cover or closure device is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Following completion of the activity, the Permittee shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

3.G.7.c.iv. Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device that vents to the atmosphere is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position.

3.G.7.c.v. Opening of a safety device, as defined in R315-264-1081, shall be allowed at any time conditions require doing so to avoid an unsafe condition.

3.G.7.d. The Permittee shall inspect containers subject to Level 2 controls and their covers and closure devices as follows:

3.G.7.d.i. In the case when a hazardous waste is already in the container at the time the Permittee first accepts possession of the container at the facility and the container is not emptied within 24 hours after the container is accepted at the facility, the Permittee shall visually inspect the container and its cover and closure devices to

check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the Permittee shall make first attempts at repair no later than 24 hours after detection and the repair shall be completed as soon as possible, but not later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired**.**

3.G.7.d.ii. In the case when a container used for managing hazardous waste remains at the facility for a period of 1 year or more, the Permittee shall visually inspect the container and its cover and closure devices initially and thereafter, at least weekly, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the Permittee shall make first attempts at repair no later than 24 hours after detection and the repair shall be completed as soon as possible, but not later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

3.G.8. The Permittee shall comply with the applicable recordkeeping and reporting requirements contained in R315-264-1089 and R315-264-1090.

3.H. UNIT 106 SUSPENDED SUBUNIT OPERATIONS

3.H.1. At the Permittee's option, active waste management operations at one or two subunits in Unit 106 may cease and associated permit requirements for the subunit(s), including inspections, precipitation removal and management as a hazardous waste and maintaining financial assurance coverage, may be suspended provided the Permittee complies with the procedures outlined below:

3.H.1.a. The Permittee shall submit a Class 1 modification request requiring approval from the Director. The modification request shall identify the subunit(s) to be suspended from active operations and outline a tentative schedule for waste removal, subunit decontamination and confirmatory sampling. The Permittee may proceed with decontamination activities provided timely notification is provided to the Director regarding decontamination activities.

3.H.1.b. The Permittee shall decontaminate the subunit proposed for deactivation as outlined in Section 1.9 of Attachment 7, Closure Plan.

3.H.1.c. The Permittee shall submit to the Director, the analytical results and supporting documentation demonstrating that the decontamination standard has been achieved for the subunit being deactivated.

3.H.1.d. Upon demonstrating to the Director that a subunit has achieved the decontamination standard outlined above, the Director, as formal action on the Class 1 modification request requiring prior agency approval, will change the status of the subunit(s) from active to suspended. The necessary changes to the Permit will be made and notification of this decision will be provided to the Permittee in writing. This change in status of a subunit is not effective until the Permittee receives notification of the decision from the Director in writing. Modified permit conditions shall not be implemented and financial assurance for closure of the affected subunit(s) shall be maintained until the Permittee receives notice of the change in status from active to suspended for the subunit(s).

3.H.2. To reactivate a previously suspended subunit, the Permittee shall submit a Class 1 modification request requiring approval from the Director. The modification request shall identify proposed permit changes, including an updated closure cost estimate and modified financial assurance documentation, necessary to reactive the subunit. The necessary changes to the permit will be made and notification of the decision on the modification request to reactivate a subunit will be provided to the Permittee in writing. Active waste management on a previously suspended subunit may not begin until the Permittee receives written notice from the Director of the change in status.

3.H.3. The Permittee may suspend active waste management operations for up to two subunits. If the Permittee wishes to suspend operations at all three subunits, the applicable closure requirements of Condition 2.M. and Attachment 7, Closure Plan, apply.

3.H.4. The current status of the Unit 106 subunits is as follows:

Subunit 1 – Active
Subunit 2 – Active
Subunit 3 – Active

ATTACHMENT 3

INSPECTIONS

Table of Contents

1.0 Introduction

At a minimum, the inspections outlined in this Attachment shall be conducted as instructed on the forms. All inspections required by this permit will be documented on forms and maintained as part of the operating record. The 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 identified on the Inspection Matrix must be inspected at the frequency specified and will be included on the applicable forms.

Documentation of each inspection, necessary notifications and any corrective action shall be maintained at the Clive facility. Documentation may be maintained electronically as long as a legible hard copy can be produced upon request. All inspection forms will note the date, the inspector's name, the time of the inspection, any deficiencies found (parameter status), corrective action taken and a work order number if a repair request has been submitted. If a repair is minor and fixable the same day of the inspection (such as by replacing a sign or a fire extinguisher), the inspector may note remedy on the form rather than initiating a work order and referencing the order number. All items on the inspection forms and logs must be filled in and not left blank. If a particular inspection item is not applicable, it must be noted on the form along with the reason.

2.0 Frequency of Inspections

Inspections shall be conducted in accordance with the minimum frequency specified in the Inspection Matrix for each required item.

3.0 Types of Problems

The personnel conducting the inspections shall be trained to identify conditions that indicate or may lead to a malfunction, deterioration or discharge related to the specific equipment or structures located at Clive. The inspection parameters found in the Inspection Matrix shall be on the inspection forms. The inspector or his supervisor shall prepare a remedial work order for deficiencies that cannot be resolved during the shift.

Any equipment or structure out-of-service or subject to an active work order will be documented on the inspection forms. The forms are maintained in the operating record. A historical list of out-of-service items or remedial work orders will also be maintained on paper or electronically. Once the corrective action specified in the work order has been completed, the reference to the work order will be removed from the inspection form going forward.

4.0 Sumps and Secondary Containment Areas

Sumps, secondary containment, and the Temporary Storage Pad are inspected daily when the facility is staffed to determine the presence of liquids or other material.

Any material or liquid identified in a sump, secondary containment area, or the Temporary Storage Pad will be emptied or removed within 24 hours of discovering the contents During ongoing precipitation, the sump(s) or secondary containment system located outside a building will be emptied within 24 hours of the end of the precipitation event. If this occurs, the time and date of the end of the precipitation event and the date and time that the sump is emptied will be

noted on the inspection forms. However, material must be removed during the event to maintain secondary containment capacity of the system. Solid material that accumulates in sumps inside buildings from the routine operations (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, with the exception of plant debris that may blow onto the exterior portion of Unit 106 or onto the Temporary Storage Area.

5.0 Corrective Action

The inspection forms will clearly state the status of each piece of equipment or structure (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.

Inspection documentation shall specify the date and time of the request for repair or corrective action, the work order number, and the completion date.

All work orders will clearly describe the corrective action performed and who performed the work. Multiple work orders may be utilized to complete an individual repair or corrective action if each work order describes the completed work, the date of completion for the work ~~describe~~ and references to additional work orders to complete the individual corrective action.

Discharges shall be removed within 24 hours of discovery, whereas any malfunction or deterioration discovered by an inspection shall be noted on the inspection forms, reported internally and corrected within 72 hours. If the remedy requires more time, Clean Harbors Clive, LLC shall submit to the Director of DWMRC 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 deficiency is corrected, the deficiency will remain noted on the inspection form.
Until the problem is corrected, the equipment will be declared out-of-service. This will be noted on the inspection forms.

All deterioration shall be noted on the inspection forms and reported internally so that corrective action will be taken.

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. When required, notification will be made to the appropriate agencies in accordance with Section I.P of Module 1.

6.0 Inspection Matrix

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

INSPECTION MATRIX

Inspection Item	Minimum Frequency	Types of Problems – Inspection Parameters
Container Storage (Units 105, 106, 535 & 604)		
Unit 105 sumps	Daily when staffed	Empty
Unit 105 loading/unloading area	Daily when in use	Leaks, spills
Unit 105 loading/unloading area	Monthly	Visually free of cracks, gaps, damage
Unit 105 debris drum	Weekly	Closed, labeled, dated, <90 days
Unit 105 aisles	Weekly	Adequate (2.5 feet minimum)
Unit 105 containers	Weekly	Bulging, leaking, corroding
Unit 105 containers	Weekly	Proper placement and stacking
Unit 105 containers	Weekly	Closed, bungs in
Unit 105 containers	Weekly	Labels intact and legible
Unit 105 railcar tankers	Weekly	Leaking, corroding
Unit 105 railcar tankers	Weekly	Closed
Unit 105 railcar tanker hoses	Daily	Leaks, spills
Unit 105 railcars	Weekly	Labels intact and legible
Unit 105 pallets	Weekly	Provide 4" clearance
Unit 105 eyewash	Weekly	Operable
Unit 105 shower	Weekly	Operable

Inspection Item	Minimum Frequency	Types of Problems – Inspection Parameters
Unit 105 waste segregation	Weekly	~~Incompatiblity~~Incompatibility verification
Unit 105 floor, berms	Monthly	Visually free of cracks, gaps, damage
Unit 106 secondary containment	Daily when staffed	Empty
Unit 106 loading/unloading area	Daily when in use	Leaks, spills
Unit 106 aisles	Weekly	Adequate (2.5 feet minimum)
Unit 106 containers/rolloff boxes	Weekly	Bulging, leaking, corroding
Unit 106 containers/rolloff boxes	Weekly	Proper placement and stacking
Unit 106 containers/rolloff boxes	Weekly	Closed (tarped/bungs in)
Unit 106 containers/rolloff boxes	Weekly	Labels intact and legible
Unit 106 pallets/containers	Weekly	Provide 4" clearance
Unit 106 eyewash	Weekly	Operable
Unit 106 shower	Weekly	Operable
Unit 106 waste segregation	Weekly	Incompatible check
Unit 106 floor, berms	Monthly	Visually free of gaps, cracks, damage
Unit 106 Spill Kit	Monthly	Verify contents (Shovel, broom, absorbent materials)
Unit 535 sumps	Daily when staffed	Empty
Unit 535 loading/unloading area	Daily	Leaks, spills
Unit 535 aisles	Weekly	Adequate (2.5 feet or greater)

Inspection Item	Minimum Frequency	Types of Problems – Inspection Parameters
Unit 535 railcars/containers	Weekly	Bulging, leaking, corroding
Unit 535 containers	Weekly	Proper placement and stacking
Unit 535 railcars/containers	Weekly	Closed, bungs in
Unit 535 containers	Weekly	Labels intact and legible
Unit 535 containers/pallets	Weekly	Provide 4" clearance
Unit 535 eyewash	Weekly	Operable
Unit 535 shower	Weekly	Operable
Unit 535 waste segregation	Weekly	Incompatibility verification
Unit 535 floor, berm	Monthly	Visually free of cracks, gaps, damage
Unit 535 hoses/fittings	Daily	Good condition; no leaks observed from rail tanker to truck tanker
Unit 535 piping	Daily	No leaks observed from rail tanker to truck tanker
Unit 535 Spill Kit	Monthly	Verify contents (Shovel, broom, absorbent materials)
Unit 604 loading/unloading area	Daily when in use	Leaks, spills
Unit 604 sumps	Daily	Empty
Unit 604 sumps	Weekly	Concrete coating free of cracks and chips
Unit 604 rolloff boxes	Weekly	Leaking, corroding
Unit 604 rolloff boxes	Weekly	Closed/tarped

Inspection Item	Minimum Frequency	Types of Problems – Inspection Parameters
Unit 604 rolloff boxes	Weekly	Labels intact and legible
Unit 604 eyewash	Weekly	Operable
Unit 604 shower	Weekly	Operable
Unit 604 waste segregation	Weekly when in use	~~Incompatiblity~~Incompatibility verification
Unit 604 floor, berms	Monthly	Visually free of cracks, gaps, damage
Unit 604 Spill Kit	Monthly	Verify contents (Shovel, broom, absorbent materials)
T-4522/T-4523 Secondary Containment	Daily when in use	Leaks
Unit 255 – Bulk Solid Rail to Truck Transfer		
Loading/unloading area	Daily	Leaks, spills
Eyewash	Weekly	Operable
Shower	Weekly	Operable
Spill Kit	Monthly	Verify contents (Shovel, broom, absorbent materials)
Warning signs	Weekly	Are signs visible and legible?
Temporary Storage Pad		
Loading/unloading area	Daily	Leaks, spills, debris present
Emergency Equipment		
Primary and secondary diesel fire pumps	Weekly	Start pump, operable (verify pressure is stable)

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Inspection Item	Minimum Frequency	Types of Problems – Inspection Parameters
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?
All phones plant wide	Weekly	Functioning properly
All fire extinguishers plant wide	Monthly	Tagged, charged, in place, damaged
Evacuation drills	Quarterly	Check for proper response

ATTACHMENT 7

CLOSURE PLAN

Table of Contents

List of Tables

List of Appendices

1.0 Closure Plan

The closure plans contained herein are intended to address the entire Clean Harbors Clive, LLC facility (Clive) at Clive, Utah. Because Clive is not a land disposal facility no Post-Closure Plan or permits are required. It should be noted that all areas to the east of the rail spur inside the fence line of the facility, with the exception of Unit 101 (Container Management Building) and Unit 061 (Maintenance Building) have been clean closed and require no further action. However, soil sampling that will be conducted at final closure must be done for the entire site, including the area east of the rail spur.

Clive is a transfer, treatment and storage facility located in the West Desert Hazardous Industry Area of Tooele County, Utah. The site is owned and operated by Clean Harbors Clive, LLC and operates under the authority of the Utah Division of Waste Management and Radiation Control (UDWMRC), the U.S. Environmental Protection Agency, Region VIII, and the Tooele County Department of Engineering.

1.1 Waste Management Units to be Closed

1.1.1 Land Disposal Units

There are no landfills, surface impoundments, land treatment areas, or any other type of land disposal units at the facility.

1.1.2 Storage Areas

There are a variety of hazardous waste and TSCA storage units at the Clive facility. These units may be grouped into two basic types: permitted storage and ten-day transfer areas. Detailed descriptions of the various units and systems are contained in Attachment 8, Container Management, Attachment 9, Design Drawings, and Attachment 10, Containment Building, of this permit. These storage areas are summarized below.

1.1.2.1 Container Storage

Storage of containers occurs in several areas of the Clive facility, including the Thaw Unit (Unit 105), the Containerized Bulk Solids Storage Unit (106), the Rail/Truck Transfer Bay (Unit 535) and the Truck Wash Bay (Unit 604). All container storage units are managed in accordance with Attachment 8, Container Management.

The Thaw Unit (Unit 105) is a large building suitable for the inside parking of several trucks or railcars as well as containers of smaller sizes. The unit may be heated in cold weather to thaw frozen shipments for subsequent sampling and management.

The Containerized Bulk Solids Storage Unit (Unit 106) is used for receiving, segregating, and storing wastes in sludge boxes, intermodal containers and other large or small containers Unit

106 consists of an enclosed portion of Subunit 1. The remainder of Subunit 1 and all of Subunits 2 and 3 are unenclosed.

The Rail/Truck Transfer Bay (Unit 535) provides an area for the transfer of wastes between rail cars and trucks.

The Truck Wash Bay (Unit 604) is used for transferring waste between containers, and the storage of containers, including leaking containers being prepared for shipment to alternate facilities. It is also used for washing containers and equipment. Unit 604 may also be used to hold two frac tanks, T-4522 and T-4523, which ~~used to~~will hold corrosive waste for neutralization. Containers will not be stored in Unit 604 if used for the frac tanks.

1.1.2.2 Ten-Day Transfer Areas

There are four areas that are not permitted for storage where waste is temporarily placed or where waste is transferred from rail to truck transport vehicles or transferred from one truck to another. These are 10-day transfer areas and include:

- Unit 101, which is used for truck to truck container transfer;
- Unit 255, which is used for bulk solid rail to truck transfer;
- The Temporary Storage Pad, where vans or roll-off are temporarily placed awaiting further processing at the facility; and
- The rail yard adjacent to Unit 255, where intermodal containers are unloaded from flat standard railcars.

Drawings of these areas can be found in Attachment 9, Design Drawings.

1.2 Closure Performance Standard

Clive will be closed in a manner that: minimizes the need for further maintenance; and controls, minimizes, or eliminates, to the extent necessary to protect human health and environment, post-closure escape of hazardous waste, hazardous constituents, contaminated run off, or hazardous waste decomposition products to the ground or surface water or to the atmosphere. Clive will meet this performance standard by following the guidance below.

1.2.1 Decontamination Standards

Clive intends to close all waste management units by complete removal of waste and waste constituents to meet the standards in accordance wth section 1.2.1.2
so that there will not be any need for post-closure monitoring and maintenance of the facility. Upon closure of Clive, waste handling equipment and containment areas shall be decontaminated and removed, or decontaminated and left in place or removed without decontamination and managed as a hazardous waste. The decontaminated buildings, structures, equipment and secondary containment areas are all that will remain of the facility itself. All exposed soil areas

which may be subject to erosion will be revegetated using native plants, to approximately the same extent as consistent with the existing plant community. Soils will be cleaned to the Regional Screening Level (RSL) values for Industrial Soils. Hard Surfaces will be decontaminated in accordance with section 1.2.1.1.

1.2.1.1 Hard Surface Reinstate

Hard surfaces include concrete surfaces, metal building materials, equipment manufactured from metal and other non-porous materials. All decontamination will be done within secondary containment so that wash waters can be collected and sampled. Concrete surfaces will be hydroblasted with an appropriate industrial strength detergent solution. Wash water will be collected in sumps or within the secondary containment. Representative rinsate samples will be collected from sumps or secondary containment areas from the final rinse water.

Decontamination will be considered acceptable when the rinseate analytical result produces a TOC level of less than 50 ppm or less than 1 ppm of R315-261, Appendix VIII constituents at no greater than maximum contaminant levels for drinking water, and pH between 6 and 9. Test methods will be those specified in the Waste Analysis Plan.

If test results fail to meet the decontamination standards the area or piece of equipment must be decontaminated again. This must be repeated until the standard is achieved.

Contaminated rinse water will be collected for either on-site treatment or for disposal at a permitted hazardous waste disposal facility.

1.2.1.2 Soils

A soil is defined as all soil media and includes soils adjacent to permitted units, soils collected from beneath sumps and secondary containment, roadways and any other soil that is excavated during the closure activities.

Metals, Volatile and Semi-Volatile compounds shall meet the Industrial Levels established in the most current version of the Regional Screening Levels (RSL) Risk Assessment Summary Table. Soils will be determined to be clean as long as the constituents present in Appendix VIII are at or less than the RSL levels and the sum risk from multiple contaminants equal the following:

For carcinogens, the total cancer risk must be $\leq 1 \times 10^{-6}$.

For all other contaminants (the non-carcinogen) for which there is a detection, the Total Hazard Index must be ≤ 1.

Section 1.2.1.3 below addresses Sum Risk from Multiple Contaminants.

1.2.1.3. Accumulated Risk (Based on the EPA RSL)

Using RSLs to Sum Risk from Multiple Contaminants

RSLs can be used to estimate the total risk from multiple contaminants at a site as part of a screening procedure. This methodology, which does not substitute for a baseline risk assessment, is often called the "sum of the ratios" approach. A step-wise approach follows:

1. Conduct sampling and perform analysis in accordance with the Waste Analysis Plan.
2. Identify contaminants in the SL Table. Record the SL concentrations of the various contaminants and note whether SL is based on cancer risk (indicated by 'c') or noncancer hazard (indicated by 'n'). Segregate cancer SLs from non-cancer SLs.
3. For sampling scenarios that have at least eight samples, a statistical approach to data evaluation can be used on a case by case basis when approved by the Director. Evaluations that use this approach can use a program developed by the EPA called ProUCL Software (or similar). For cancer risk estimates, take the site-specific concentration (maximum or 95th percent of the upper confidence limit (UCL) on the mean) and divide by the SL concentrations that are designated for cancer evaluation 'c' . Multiply this ratio by 10-6 to estimate chemical-specific risk for a reasonable maximum exposure (RME). For multiple pollutants, simply add the risk for each chemical. See equation below.

$$CR = \left[\left(\frac{CC_1}{SV_1}\right) + \left(\frac{CC_2}{SV_2}\right) + \left(\frac{CC_3}{SV_3}\right) + \cdots + \left(\frac{CC_n}{SV_n}\right)\right] \text{ x } 10^{-6} \qquad \text{(Eq. 1)}$$

4. For non-cancer hazard estimates, divide the concentration term by its respective non-cancer SL designated as 'n' and sum the ratios for multiple contaminants. The cumulative ratio represents a non-carcinogenic hazard index (HI). A hazard index of 1 or less is generally considered 'safe'. A ratio greater than 1 suggests further evaluation. Note that carcinogens may also have an associated non-cancer SL that is not listed in the SL Table. To obtain these values, the user should view the Supporting Tables. See equation below:

$$HI = \left[\left(\frac{CC_1}{SV_1}\right) + \left(\frac{CC_2}{SV_2}\right) + \left(\frac{CC_3}{SV_3}\right) + \cdots + \left(\frac{CC_n}{SV_n}\right)\right] \text{ x } 1 \qquad \text{(Eq. 2)}$$

Where:

HI = Hazard Index

CR =

Cancer Risk

CC = Contaminant Concentration

SV – Screening Values (RSLs)

n = Number of Contaminants

Soils that exceed either the Total Cancer Risk or the Total Hazard Index must be disposed of in a permitted landfill cell. Soils that meet or are less than the established value can be left in place.

1.2.2 Procedures at Closure

Waste receipts will be terminated 90 days prior to commencing closure. Additionally, all process units will not be operational during closure, thus, all waste inventories, including waste generated during closure activities, shall be transported off-site for treatment and disposal.

The facility uses a financial assurance mechanism that guarantees performance of closure, so that 40 CFR 264.112(b)(7) does not apply. Final sampling of the soils upon the closure of Clive will occur after all waste management units have been fully closed and decontaminated, and all wastes removed from the site~~.~~. This Plan provides for a visual inspection of the entire facility, to try ~~and~~to find any areas of contamination~~,~~; and ~~,~~a random sampling effort along roads and around buildings. All samples collected will be analyzed as specified in the Contaminated Soil Sampling Plan, and the results compared against the RSL. Any soil with analytical values exceeding these standards shall be removed and disposed off-site. Current State and Federal hazardous waste and TSCA regulations will be used to determine whether the soil must be managed as hazardous~~,~~ ~~or~~ TSCA~~,~~ or non-hazardous waste. The beginning presumption, however, will be that the soil must be considered hazardous and must be shown otherwise if non-hazardous waste disposal is desired. All Quality Assurance (QA) shall be in accordance with the QA Plan~~,~~ which is Appendix 1 of Attachment 1 (Waste Analysis Plan) of this Permit.

1.3 Partial Closure and Final Closure Activities

Clive will implement steps 1 through 10, below, in order to accomplish closure of the entire facility. Steps 1 through 3 are the steps relevant to the particular unit being closed and will be implemented to accomplish partial closure of a given unit at the facility. Steps 1 through 10 are:

1. At least 45 days prior to the date it anticipates beginning closure of the first unit or partial closure of any unit, Clive shall provide a "Notice of Intent to Close the

Facility" to the Director of the Utah Division of Waste Management and Radiation Control (UDWMRC), to the US EPA, Region VIII Administrator, and to the Tooele County Engineering Department. These notices shall indicate the date that closure activities are expected to commence and the anticipated closure date for each unit.

2. Clive shall modify or amend this Closure Plan in accordance with Condition I.D.2. Clive shall not implement this Closure Plan or any portion thereof until approval by UDWMRC and/or other appropriate agencies has been received in accordance with Condition I.D.2.

3. Within 90 days after receiving the final volume of hazardous wastes, Clive shall remove all hazardous wastes from the facility or portion of the facility undergoing partial closure. The Director of DWMRC and any other appropriate regulatory agencies may authorize an extension of time. The estimated time requirement for total facility closure is approximately six months.

4. Following decontamination, as per Section ~~*~~ 1.8 of this Plan, the waste storage buildings (Units 105, 106, 535, 604), as well as non-permitted buildings which are used as 10- day transfer areas (Units 101, 255, and 707) may be left as is. If a building is left standing, all doors of a building will be closed and locked. All process equipment shall be decontaminated in accordance with Section ~~*~~ 1.8 of the Plan and may be left in place on-site, salvaged/sold for reuse, or cut apart and disposed off-site in accordance with applicable laws. The decision on whether to salvage a piece of equipment, leave in place on-site, or dispose off-site will be based upon economics and regulatory requirements at the time of closure. For the purposes of estimating closure costs, however, it is assumed that all items will be disposed at an off-site facility.

5. All storm water diversions, dikes, and corrugated steel pipe conduits will be maintained throughout closure in order to protect the facility from surface water run-on. These structures may be left in-place at final closure for use by any subsequent tenants.

6. All contaminated soils, structures, and equipment shall be decontaminated in accordance with Section 1.2.1.2 or disposed at an appropriate off-site hazardous waste or TSCA permitted facility.~~.~~

7. Contaminated liquids generated by the closure process shall be managed in accordance with applicable regulations at the time of closure. Management options may include: treatment on-site by filtration to remove PCBs, as allowed by TSCA regulations, followed by subsequent RCRA management; treatment and disposal off-site by stabilization and landfilling; deep well injection; or treatment and discharge by a properly permitted wastewater treatment system. Liquids generated by the closure process will be collected using drums, tankers, or other containers and transferred to 90-day storage containers or transport vehicles using pumps or vacuum systems.

8. Throughout closure activities, the fence, gates, and warning signs shall be maintained, pursuant to this Permit and all applicable Utah and Tooele County rules and regulations.

9. Within 60 days of the completion of closure or partial closure, Clive shall submit the certification of closure to the Director of the UDWMRC, EPA and the Tooele County Engineering Department certified by Clive and an independent, Utah-Registered Professional Engineer attesting that the facility, unit or specific areas have been closed in accordance with the requirements of this Closure Plan.

10. No later than the submission of the certification of closure for the entire facility, Clive shall submit to the Director of the UDWMRC, EPA and to the Tooele County Land Office, a survey plat prepared by a professional land surveyor indicating the location and dimensions of any permanent structures with respect to permanently surveyed benchmarks. Clive shall record a notation on the property deed indicating that the facility has been used to store and treat hazardous wastes, to alert future owners.

1.4 Maximum Waste Inventory

Table 1.1 specifies the maximum inventory of wastes that could be on-site at Clive at the time of closure. The maximum inventory of wastes in storage would occur if all units were at maximum capacity. The maximum amount of waste requiring treatment would be the capacity of the container storage areas, If any units are closed prior to total facility closure, the maximum extent of operations will decrease.

Table 1.1
Maximum Inventory of Wastes that Could Be On-Site at the Clive Facility

Facility Units	Description	Maximum Waste Capacity[1,2]
Container Management		
105	Thaw Unit	60,000 Gallons
106	Containerized Bulk Solids	2,357,384 Gallons
535	Rail/Truck Transfer Bay	23,560 Gallons
106 West	Containerized Bulk Solids	1,373,423 Gallons
Tank Management		
604	Frac Tank Storage	40,000 Gallons

Notes

1. The Truck Wash Bay (Unit 604) is not included as having capacity in storage at closure because Unit 106 is assumed to be at full capacity. Unit 604 may only store wastes when a corresponding volume of capacity remains available at Unit 106.

2. Materials in storage requiring shipment off-site/treatment.

1.5 Schedule For Closure

Partial closures and final closure will occur as described in this Closure Plan. Projected closure schedules for Clive are included at the end of Section 2.3.

1.6 Time Allowed for Closure

Table 1.2 summarizes the planned closure activities of the facility with an estimated timeline, as if no partial closures are anticipated. These activities may be seen in more detail in Section 2.3, the Schedule for Closure.

Table 1.2
Projected Schedule of Events at Closure
of the Entire Facility

Elapsed Time (months)	Event(s)
-	Notification to UDWMRC, EPA and Tooele County Engineering Department
1.5	Final receipt of containerized wastes at Units 535, 105 & 106, mobilize work force
4.5	Removal of wastes stored in Units 105, 106, 106 West535 and 604
6.0	Complete disposal or decontamination of Units 105, 106, 535 and 604 and all ten-day transfer areas.
7.5	Finish decontamination of miscellaneous areas
7.5	Finish soils investigations/sampling/reseeding
7.5	Facility closed
9.5	Certifications due to UDWMRC, EPA and Tooele County Engineering Department & notice to Tooele County land records.

1.7 Closure Plan Modifications

Copies of the closure plan are maintained by Clean Harbors and the UDWMRC. When facility operational changes dictate a modification to this plan, the Clive facility will submit a request for permit modification to the Director of UDWMRC to make the necessary changes to the closure plan in accordance with R315-264-112 and Condition 1.D.2.

1.8 Inventory Disposal, Removal, or Decontamination

Clive has been designed to meet all existing standards regarding the containment of wastes and any spills that may result from waste handling. This includes provisions for managing wastes only in designated areas with adequate primary and secondary containment, and the prompt cleanup of any spilled material to prevent its spread. Only the area west of the 106 containment building, known as 106 West, lacks secondary containment.

Spills in 106 West are cleaned promptly, and after cleanup is complete samples of the soil where the spill occurred are collected and compared with samples of soils taken from the surrounding area. Spills of PCB materials are cleaned up pursuant to either 40 CFR 761 Subpart G or 40 CFR 761.79 as appropriate.

All areas external to the waste management units themselves are expected to be clean, except for incidental spills that might occur during closure itself. However, to ensure that this is indeed the case, a thorough visual inspection of the entire facility will be made after all waste management units are closed, and all waste has been removed from the facility. This inspection will be specifically looking for standing liquids, staining, or accumulations of debris or residues that would indicate soils or pavement contamination.

~~Clive has been designed to meet all existing standards regarding the containment of wastes and any spills that may result from waste handling. This includes provisions for managing wastes only in designated areas with adequate primary and secondary containment, with the exception of the area west of the 106 containment building designated as 106 West, and the prompt cleanup of any spilled material to prevent its spread. 106 West does not have secondary containment, all spills are cleaned promptly, after cleanup is complete samples of the soil where the spill occurred are taken and compared with samples of soils taken from the surrounding area. Spills of PCB materials are cleaned up pursuant to either 40 CFR 761 Subpart G or 40 CFR 761.79 as appropriate. All areas external to the waste management units themselves are expected to be clean, except for incidental spills that might occur during closure itself. However, to ensure that this is indeed the case, a thorough visual inspection of the entire facility will be made after all waste management units are closed, and all waste has been removed from the facility. This inspection will be specifically looking for standing liquids, staining, or accumulations of debris or residues that would indicate soils or pavement contamination.~~

In addition, a series of random samples shall be collected from along facility roads , rail spurs and around the waste management units and analyzed for potential contamination. Any areas found to be contaminated will be further investigated, and the contamination will be removed to meet the RSL standards. This entire inspection and sampling effort is fully described in Appendix B, the Contaminated Soils Sampling Plan.

It is planned that once closure starts, closure activity will continue (except for weather and equipment delays, etc.) until closure is complete. Closure activities may or may not occur on individual units at the same time.

Equipment needing decontamination may be transported to the Truck Wash (Unit 604) or any other fixed or temporary containment area to provide working room for decontamination or staging of equipment awaiting decontamination.

The following steps can be utilized to decontaminate various components of the facility:

- The tractors, forklifts, trucks and other similar mobile equipment which are known or suspected to be contaminated with hazardous waste will be decontaminated. Decontamination will require the use of water, steam, heated detergent solutions, or water-miscible solvents, whatever removes the contamination. The wastewaters will either be treated off-site by incineration for destruction, or transported off-site anddeep

well injected, treated and discharge, or stabilized for disposal off-site in an appropriate land disposal facility. The decontaminated mobile equipment may be transferred to another hazardous waste facility after demonstrating the final rinse water meets the "hard surface" decontamination standard specified in section 1.2.1.1. If the mobile equipment fails to meet the standard specified in section 1.2.1.1, or decontaminated to meet this standard, the equipment must be disposed off-site in a hazardous waste land disposal facility.

- Each of the waste storage and/or transfer units being closed that have managed PCB wastes in the past will undergo a visual inspection to identify and record potential new or previously unidentified PCB spills. Potential spills will be sampled and analyzed for PCBs unless decontaminated in accordance with 40 CFR §761.79. Sampled spills containing PCBs > 10 µg/100 cm^2 will be decontaminated in accordance with the PCB spill cleanup policy (for spills less than 72 hours old) or 40 CFR §761.79 (for spills more than 72 hours old). The decontamination procedures identified in the steps below will then be performed if not already accomplished during PCB decontamination. Details on wipe sampling of a given area after cleaning are presented in the sections specific to each waste management unit that stored or processed PCB wastes.

- During closure of a given waste management unit and transfer areas, facility personnel will visually inspect the surrounding areas on a weekly basis. These inspections will be documented and kept in the facility operating record. These inspections should detect any spills that might have occurred as a result of the on-going closure activities. Based on the inspection, any surfaces that appear to be contaminated with hazardous wastes will be cleaned to the RSL standards or excavated and backfilled with clean soil. Contaminated soils will be subject to the generator analysis referenced in the Waste Analysis Plan and managed accordingly or the soil may be assumed to be a hazardous waste and shipped off-site for treatment/disposal.

- Hard surface (concrete, steel, etc.) decontamination procedures: These procedures are intended to apply to both structures and equipment. Closure of "hard surface" items is performance based and any cleaning method may be used to achieve the standard. No actual direct testing of the surfaces is intended, as there are no general "wipe tests" which have been approved or designated by the U.S. EPA or the UDWMRC. The standard for successful decontamination is a sample of the final rinse water from the item or surface meeting the standards specified in section 1.2.1.1, and additionally, for those areas used to manage PCBs, the final rinse sample from the containment area having a total PCB concentration of 0.5 ppb or less.

  All wash/rinse water or other cleaning residues will be collected and handled as hazardous waste. The closure cost estimate assumes that these residues will be sent for off-site incineration. However, waste-water residues may also be treated via filtration to decontaminate it with respect to PCBs, sent to a facility for deep well injection, treated and discharged under the NPDES program, or stabilized for landfill disposal. The

method actually used will be decided at the time of closure, based upon site availability, regulatory approvals/regulations and economics.

- The various waste items that will need to be disposed of during closure may be treated in different ways, depending upon what they are and how they were generated. Some items will be incinerated or landfilled at RCRA and/or TSCA-permitted waste facilities, while others may be landfilled at non-hazardous waste facilities or other approved disposal options may be used.

- Tanks and similar items may be decontaminated as hard surfaces as described above, after which they may be put to other uses, sold for salvage, or disposed of as non-hazardous waste. If a given item fails to meet the RSL standard, it may be cut into manageable pieces and disposed of in a RCRA and/or TSCA-permitted landfill, or disposed of by other RCRA or TSCA treatment technology authorized at the time of closure. The decision as to whether to salvage a particular item for reuse, or sell it for scrap metal value, or to dispose of it, will be based upon the market conditions at the time of closure, and the economics of salvage versus disposal. However, as required by R315-264- 142(a)(3), it has been assumed that all units which have actively held wastes will be disposed in a hazardous waste facility when calculating the closure costs. Certain equipment, as specifically noted elsewhere, may be assumed as salvaged following decontamination, but no positive salvage value is given to these items in the closure cost estimates.

1.9 Closure Plans, By Waste Management Unit

There are four areas of the ~~facility which~~facility that relate directly to receipt of waste shipments. These units are the Thaw Unit (Unit 105), the Containerized Bulk Solids Storage Area (Unit 106), the Rail/Truck Transfer Bay (Unit 535), and the Railcar to Trailer Transload Building (Unit 255). The Truck Wash Bay (Unit 604) is permitted for container storage but, for purposes of calculating the maximum inventory, it is not assumed to be storing waste at the time of closure. This is because waste may only be stored in Unit 604 if an equivalent volume of capacity remains available in Unit 106 and tanks T-4522 and T-4523 are not installed. ~~, and~~ T~~t~~his plan assumes that Unit 106 is ~~presumed to be~~ full at the time of closure and the two tanks are installed in Unit 604. Clive must remove all waste in Unit 604 for off-site management and decontaminate the unit as described in section 1.9.4.

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1.9.1 Thaw Unit, Unit 105

Upon closure of Unit 105, all wastes will be removed from the unit and transported offsite for management in accordance with applicable rules. At closure, Unit 105 is assumed to be filled to the maximum total capacity of 60,000 gallons of waste. This is generally anticipated to be rail tank cars, bulk solids in sludge boxes, intermodal containers and other large containers, but may also include smaller containers of waste.

Upon completion of waste removal, all containment surfaces will be visually inspected for indications of PCB contamination, i.e. stains, discolored areas, operator knowledge, operating record review. Areas suspected of being contaminated with PCBs will be identified, recorded, and sampled to determine if the area exceeds PCBs >10 µg/100 cm^2 in accordance with 40 CFR 761.79 and must be decontaminated in accordance with this section.. The containment area of Unit 105 will be cleaned as a "hard surface" in accordance with Section 1.8 of this Closure Plan, Attachment 7. In addition to the wipe sampling necessary to demonstrate PCB decontamination of stained areas, wipe samples for PCBs will be taken from the containment area following cleaning, in accordance with 40 CFR § 761.123, Definitions, *Standard Wipe Test* and the following sampling scheme. The wipes will be taken from horizontal floor and sump bottom surfaces. A total of ~~9~~ planned wipes will be taken by establishing diagonal lines from the NW to SE and from the NE to the SW corner of each containment area. The intersecting point (center) of the lines will be one sampling point. The other sampling points will be located at equal increments from the intersection point (center) to each of the four containment area corners. Each wipe sample will be analyzed separately. Surfaces found to be above the 40 CFR 761.79 standard will be decontaminated until wipe testing confirms wipe concentrations are below the 40 CFR § 761.79 standard. A sample of the final rinse solution from the containment area will be analyzed for the standards specified in section 1.2.1.1 and PCBs. Decontamination will be complete when the standard in section 1.2.1.1 is met and the total PCB concentration is 0.5 ppb or less.

Should Unit 105 be closed for used oil management, the same procedures outlined above will be followed.

1.9.2 Containerized Bulk Solids Storage Unit 106

Upon closure of Unit 106, all wastes will be removed from the unit and transported offsite for management in accordance with applicable rules. At closure, Unit 106 is assumed to be filled to the maximum total capacity of 2,357,384 gallons - 1,139,753 gallons in Subunit 1, with 957,953 gallons in the enclosed area of Subunit 1 and 181,800 gallons in the unenclosed portion of Subunit 1; 617,463 gallons in Subunit 2 and 600,168 gallons in Subunit 3he wastes stored in Unit 106 are generally anticipated to be bulk solids in sludge boxes, intermodal containers and other large containers, but may also include smaller containers of waste.

For 106 building and subunits, upon completion of waste removal, all containment surfaces will be visually inspected for indications of PCB contamination, i.e. stains, discolored areas, operator knowledge, operating record review. Areas suspected of being contaminated with PCBs will be identified, recorded, and sampled to determine if the area exceeds PCBs >10 µg/100 cm^2 in accordance with 40 CFR § 761.79 and must be decontaminated in accordance with 40 CFR § 761.79.

The containment area of unit 106 subunits, and the truck lanes will be cleaned as a "hard surface" in accordance with Section 1.8 of this Closure Plan, Attachment 7. In addition to the wipe sampling necessary to demonstrate PCB decontamination of stained areas, wipe samples for

PCBs will be taken from the containment areas following cleaning, in accordance with 40 § 761.123, Definitions, *Standard Wipe Test* and the following sampling scheme. The wipes will be taken from horizontal floor surfaces. A total of 9 planned wipes from each area will be taken by establishing diagonal lines from the NW to SE and from the NE to SW corner of each containment area. The intersecting point (center) of the lines will be one sampling point. The other sampling points will be located at equal increments from the intersection point (center) to each of the four containment area corners for each area. Each wipe sample will be analyzed separately. Surfaces found to be above the 40 CFR § 761.79 standard will be decontaminated until wipe testing confirms wipe concentrations are below the 40 CFR § 761.79 standard . Samples of the final rinse solution from the containment areas will be analyzed per section *.

Salvageable equipment will be cleaned as "hard surfaces," , following the requirements set forth in Section 1.2.1.1 and,if required, according to 40 CFR 761.79 (c). Equipment to be used in Unit 106 may include trucks for rolloff bins, straddle-packers, forklifts, hand tools and similar equipment.

1.9.3 Unit 535, Rail Tank Car to Truck Transload Area

All waste stored in Unit 535 will be removed and transported offsite for disposal in accordance with applicable rules. As with the other buildings and containment areas on-site, it is assumed that the containment area of Unit 535 is RCRA-contaminated. At the time of closure, Unit 535 is assumed filled to the maximum total capacity of 23,560 gallons of PCB waste.

Upon completion of waste removal, all containment surfaces will be visually inspected for indications of PCB contamination, i.e. stains, discolored areas, operator knowledge, operating record review. Areas suspected of being contaminated with PCBs will be identified, recorded, and sampled to determine if the area exceeds PCBs >10 µg/100 cm^2 in accordance with 40 CFR § 761.79 and must be decontaminated in accordance with 40 § CFR 761.79. The containment area of Unit 535 will be cleaned as a "hard surface" in accordance with Section 1.8 of this Closure Plan, Attachment 7.

In addition to the wipe sampling necessary to demonstrate PCB decontamination of stained areas, wipe samples for PCBs will be taken from the containment area following cleaning, in accordance with 40 CFR § 761.123, Definitions, *Standard Wipe Test* and the following sampling scheme. The wipes will be taken from horizontal floor and sump bottom surfaces. A total of 20 planned wipes will be taken from unit 535 secondary containment areas. The sampling points will be taken by establishing diagonal lines from the NW to SE and from the NE to the SW corner of each containment area. The intersecting point (center) of the lines will be one sampling point. The other sampling points will be located at equal increments from the intersection point (center) to each of the four containment area corners. Each Wipe sample will be analyzed separately. Surfaces found to be above the 40 CFR § 761.79 standard will be decontaminated until wipe testing confirms wipe concentrations are below the 40 CFR § 761.79 standard. Samples of the final rinse solution from the containment areas will meet the standards listed in

section 1.2.1.1 and PCBs. Decontamination will be complete when the standard in section 1.2.1.1 is met and the total PCB concentration is 0.5 ppb or less.

Should Unit 535 be closed for used oil management, the same procedures outlined above will be followed.

1.9.4 Miscellaneous Containment Areas, Units 255 & 604

Two other waste management areas must be closed, along with miscellaneous piping, hoses, portable pumps, hand tools and similar equipment. These areas are: the Railcar to Truck Transload Bay (Unit 255) and the Truck Wash Building (Unit 604). As with the other buildings and containment areas on-site, it is assumed that the containment area of Unit 255 and the interior of the truck wash are RCRA contaminated, and no prior testing will be conducted for confirmation. Both units are used to handle PCB wastes. All PCB spills are cleaned as they occur according to 40 CFR § 761 Subpart G. However, before implementing the "hard surfaces" decontamination methods described in section 1.2.1.1 of this Closure Plan, Attachment 7, all containment surfaces will be visually inspected for indications of PCB contamination, i.e. stains, discolored areas, operator knowledge, operating record review. Areas suspected of being contaminated with PCBs will be identified, recorded, and sampled to determine if the area exceeds PCBs >10 µg/100 cm^2 in accordance with 40 CFR § 761.79 and must be decontaminated in accordance with 40 CFR §761.79. Units 604 and 255, including the walls, floor, and ceiling (if necessary) for Unit 604 and the containment surfaces of Unit 255, will be cleaned as "hard surfaces" in accordance with the Section 1.2.1.1 of this Closure Plan, Attachment 7.

In addition to the wipe sampling necessary to demonstrate PCB decontamination of stained areas in both units, PCB wipe samples will be taken from the containment areas following cleaning, in accordance with 40 CFR § 761.123 Definitions, *Standard Wipe Test* and the following sampling scheme:

Unit 255: Upon completion of waste removal, all containment surfaces will be visually inspected for indications of PCB contamination, i.e. stains, discolored areas, operator knowledge, operating record review. Areas suspected of being contaminated with PCBs will be identified, recorded, and sampled to determine if the area exceeds PCBs >10 µg/100 cm^2 in accordance with 40 CFR § 761.79 and must be decontaminated in accordance with 40 CFR § 761.79. The containment area of Unit 535 will be cleaned as a "hard surface" in accordance with Section 1.8 of this Closure Plan, Attachment 7. In addition, wipe samples will be taken from horizontal floor and sump bottom surfaces. A total of 9 planned wipes will be taken from the secondary containment areas. The sampling points will be taken by establishing diagonal lines from the NW to the SE and from the NE to the SW corners of each containment area. The intersecting point (center) of the lines will be one sampling point. The other sampling points will be located at equal increments from the intersection point (center) to each of the four containment area corners. Each wipe sample will be analyzed separately. Surfaces found to be above the 40 CFR § 761.79 standard will be decontaminated until wipe testing confirms wipe concentrations are below the 40 CFR § 761.79 standard. A sample of the final rinse solution from the containment

area will meet the standards in section 1.2.1.1 and PCBs. Decontamination will be complete when the standard in section 1.2.1.1 is met and the total PCB concentration is 0.5 ppb or less.

Unit 604: Upon completion of waste removal, all containment surfaces will be visually inspected for indications of PCB contamination, i.e. stains, discolored areas, operator knowledge, operating record review. Areas suspected of being contaminated with PCBs will be identified, recorded, and sampled to determine if the area exceeds PCBs >10 µg/100 cm^2 in accordance with 40 CFR § 761.79 and must be decontaminated in accordance with 40 CFR § 761.79. The containment area of Unit 535 will be cleaned as a "hard surface" in accordance with Section 1.2.1.1 of this Closure Plan, Attachment 7. In addition, wipe samples will be taken from horizontal floor and sump bottom surfaces. A total of 21 planned wipes will be taken from the Unit 604 containment area. The sampling points will be taken by establishing diagonal lines from the NW to the SE and from the NE to the SW corners of each containment area. Then the intersecting point (center) of the lines will be one sampling point. The other sampling points will be located at equal increments from the intersection point (center) to each of the two containment area corners. Each wipe sample will be analyzed separately. Surfaces found to be above the 40 CFR 761.79 standard (10µg/100cm^2) will be decontaminated until wipe testing confirms wipe concentrations are below the 40 CFR § 761.79 standard. Samples of the final rinse solution from the containment areas will meet the standards in section 1.2.1.1 and PCBs. Decontamination will be complete when the standard in ~~sectoin~~section 1.2.1.1 is met and the total PCB concentration is 0.5 ppb or less.

For tanks T-4522 and T-4523 in Unit 604, flush the inside surface of each unit thoroughly with a pressure sprayer using clean solvent that will readily dissolve ~~in which~~ the type of waste previously stored ~~readily dissolves~~. Utilize additional steam cleaning/pressure washing and sand blasting as needed to remove residual contamination and vacuum it out until dry. Repeat this step as needed to ~~completely~~ decontaminate the target surface completely. Clean the outer tank surface with detergents.

Wipe test both the inside and outside surfaces and certify the tank as clean if all samples meet Division of Solid and Hazardous Waste and EPA Region VIII requirements. If samples fail to meet the established decontamination standards, the associated surfaces will either be re-cleaned until wipe samples demonstrate successful decontamination or managed as hazardous waste.

Cleaning solution and sandblast residue will be considered as hazardous waste and managed accordingly.

Decontaminated equipment, containment surfaces and buildings may either be removed or left in place.

1.9.5 Laboratory Closure

The majority of the laboratory has been closed in accordance with the closure plan. Only one room of the laboratory has not been closed and it was used to receive, store and prepare waste samples to be shipped to an off-site laboratory for analysis. The related domestic water and

sewage systems will most likely remain in place during the closure period, and for some time thereafter.

The remaining waste receiving laboratory room will be closed as follows: (This excludes the two-story administration building as it is no longer in use. The administration building never managed waste and does not have to undergo closure.)

1. The laboratory furniture will be removed from the building and decontaminated by meeting the "hard surface" decontamination standard where such furniture meets the definition of a hard surface. Furniture not meeting the definition of a hard surface will be disposed of a hazardous waste. Following decontamination, furniture will be disposed of as solid (non-hazardous) waste, salvaged, or placed back into use. Alternatively, ~~I~~if Clive chooses to not decontaminate the furniture at its discretion, the laboratory furniture must be disposed of as hazardous waste.
2. Stains on walls will be identified and decontaminated. The decontamination residue will be disposed as PCB/RCRA wastes for incineration or landfill, as appropriate. Stained areas will have wipe samples taken on them and they will be analyzed separately. Surfaces found to be above the 40 CFR 761.79 standard (10µg/100cm^2) will be decontaminated until wipe testing confirms wipe concentrations are below the 40 CFR § 761.79 standard. The floor of the room will be cleaned to meet the RSL standard for "hard surfaces".
3. All plumbing fixtures will be washed but may otherwise remain in place.

2.0 Closure Cost Estimates

Closure Cost Estimates have been prepared for Clive in accordance with the requirements of Utah Admin. Code R315-264-142. These estimates assume that Clive is closed as detailed in the Closure Plans of this permit. These estimates assume that all wastes at the facility will be disposed of off-site at third party facilities. For purposes of calculations, it is assumed that, at the time of closure, all waste management units at Clive will be at full permitted capacity. Costs are based on labor and materials rates known or estimated as of mid-2018. All costs will be adjusted periodically, as required by the rules.

2.1 Basis for Cost Estimates

The cost estimates for closure of a hazardous waste facility must consider the most expensive scenario for closure. This would occur if the facility were to begin closure while all hazardous waste storage areas were at capacity (refer to Table 1.1).

Closure costs estimates for the facility are based on published prices, where available, actual experience with similar activities at other facilities, or the judgment of company engineering staff. To allow for errors and fluctuations, a contingency of 10% was assumed. All estimates assume that closure is performed by a third-party contractor, and not Clean Harbors' personnel; some costs are based on those charged by Clean Harbors contractors at other facilities, however.

All costs are based on 2018 dollars. The calculations are based on projected facility operations, and the assumed closure period is an estimate. The cost estimates consider only the costs imposed by the handling of hazardous wastes and TSCA-regulated wastes, and it is assumed that all general waste storage capacities are taken up by these wastes. Any non-hazardous wastes handled at the facility will be stored and treated in units which also handle hazardous waste, hence there is no need to consider these separately.

Clive will prepare new closure cost estimates and modify the permit in accordance with ~~XXX~~Condition 1.D.2, whenever a change in the Closure Plan would affect the cost of closure. Clive will annually adjust the latest closure cost estimates by using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its Survey of Current Business. The inflation factor will be calculated by dividing the latest published annual deflator by the deflator for the previous year. The latest closure cost estimate will be multiplied by the inflation factor to determine the adjusted closure cost estimate.

For the purposes of estimating closure costs, it is assumed that all waste and miscellaneous items will be disposed. The waste storage buildings shall be decontaminated and left as constructed.

2.2 Cost Estimates by Waste Management Unit

The closure costs for specific areas are listed below. These estimates are based on assumptions regarding the actual times needed for closure, and the equipment used.

Table 2.1 shows a summary of the Closure Cost Estimates for Clive facility. The total of these amounts in 2019~~98~~ dollars, plus a 20~~10~~% contingency allowance, is $13,670,195~~6,439,037~~; at least this amount (adjusted as necessary for inflation) has been guaranteed through the Financial Assurances described in Section 3.0.

Equipment and labor costs on which the Estimates are based are shown on Table 2.2.

Individual unit closure cost estimates are shown in Table 2.3. Table 2.3 also includes closure cost estimates in 2019~~98~~ dollars for closure of units 105 and 535 for used oil operations. However, these additional cost estimates do not materially add to the required financial assurance as closure under the hazardous rules also satisfies the used oil closure requirements. In the event that either or both of these units close hazardous waste operations, but continue used oil operations, the facility would be required to secure the necessary financial assurance to satisfy the used oil closure estimates.

Table 2.1 Clean Harbors Clive Closure Cost Summary	
Facility Area/ Waste Management Unit	**Estimated Cost to Close**
Thaw Shed (Unit 105)	$191,139.40
Rail to Truck Transload (Unit 255)	$20,574.40
Containerized Bulk Solids Storage (Unit 106)	$6,740,238.57
106 West	$3,937,512.07
Rail /Truck Transfer Bay (Unit 535)	$83,688.76
Truck Wash (Unit 604)/ Laboratory	$162,734.55
Soils Sampling and Analysis	$286,904.05
Miscellaneous Other Costs	$73,000.00
Labor Supervision	$15,000.00
Independent Certifying Engineer	$25,000.00
Subtotal	$11,535,791.80
20% Contingency	$2,307,158.36
Total in 2019 Dollars	$13,842,950.16

Table 2.2
Clean Harbors Clive
Per unit costs

Labor Item	Cost per unit	Unit	Basis
Avg RS Means	$77.38	hour	2019 data
Supervisor	$60.00	hour	
Clerk	$14.00	hour	
Guard	$15.00	hour	
Facility Management	$1,500.00	week	
Equipment Item			
Steam Cleaner	$40.00	day	
Crane	$1,000.00	day	
Heavy Equipment	$25,000.00	lump sum	
Analysis			
Water Characterization	$270.00	each	
PCB solids/wipes	$100.00	each	
Priority Pollutants	$1,161.60	each	
Disposal			
Debris Incineration	$0.64	pound	UDEQ data
Solids incineration <3000 BTU/#	$0.33	pound	UDEQ data
Liquids incineration	$0.22	pound	UDEQ data
Water incineration	$0.16	pound	UDEQ data
PCB water incineration	$0.21	pound	UDEQ data
PCB water treatment	$0.22	gallon	UDEQ data
Water landfill	$0.01	pound	UDEQ data
Drum waste incineration - RCRA	$0.50	pound	UDEQ data
Drum waste incineration - TSCA	$0.60	pound	UDEQ data
RCRA waste landfill	$190.00	ton	UDEQ data
Non-RCRA landfill	$60.00	yd^3	UDEQ data
Miscellaneous			

Survey	$5,000.00	lump sum	
Closure Certification	$40,000.00	lump sum	
Transportation			
Incineration	$500.00	each	
RCRA landfill	$500.00	each	
Non-RCRA landfill	$500.00	each	
Water			
Water	$0.01	gallon	
Transportation	$0.03	gallon	
Miscellaneous	$0.05	gallon	
Total	$0.08	gallon	

Table 2.3 - Cost Estimates by Unit

Unit 105

Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Inventory Disposal (PCB bulk solids)	60000	gallons	Incineration	Aragonite	8.3	#/gal	498000	pounds	$0.33	$164,340.00
Inventory Transportation	12.45	trips		Aragonite	40000	#/trip			$500.00	$6,225.00
Decontamination Rinsate Disposal	8000	gallons		Aragonite	8.3	#/gal	66400	pounds	$0.16	$10,624.00
Water Cost	8000	gallons							$0.08	$660.00
Rinsate Transportation	1.66			Aragonite	40000	#/trip			$500.00	$830.00
Labor - Operators	10	days		Contractor	$77.38	hr	8	hr/day		$6,190.40
Wipe sample analysis	20	each							$100.00	$2,000.00
Water analysis	1	each							$270.00	$270.00
Total										$191,139.40

Table 2.3 - Cost Estimates by Unit

Unit 255

Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Decontamination Rinsate Disposal	8000	gallons	Incineration	Aragonite	8.3	#/gal	66400	pounds	$0.16	$10,624.00
Water Cost	8000	gallons							$0.08	$660.00
Rinsate Transportation	1.66			Aragonite	40000	#/trip			$500.00	$830.00
Labor - Operators	10	days		Contractor	$77.38	hr	8	hr/day		$6,190.40
Wipe sample analysis	20	each							$100.00	$2,000.00
Water analysis	1	each							$270.00	$270.00
Total										$20,574.40

Table 2.3 - Cost Estimates by Unit
Unit 106 West

Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Inventory Disposal (PCB bulk solids)	1373423	gallons	Incineration	Aragonite	8.3	#/gal	11399411	pounds	$0.33	$3,761,805.60
Inventory Transportation	284.9853	trips		Aragonite	40000	#/trip			$500.00	$142,492.64
Decontamination Rinsate Disposal	8000	gallons		Aragonite	8.3	#/gal	66400	pounds	$0.16	$10,624.00
Water Cost	8000	gallons							$0.08	$660.00
Rinsate Transportation	1.66			Aragonite	40000	#/trip			$500.00	$830.00
Labor - Operators	21	days		Contractor	$77.38	hr	8	hr/day		$12,999.84
Water sample analysis	30	each							$270.00	$8,100.00
Total										$3,937,512.07

Table 2.3 - Cost Estimates by Unit
Unit 106

Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Inventory Disposal (PCB bulk solids)	2357384	gallons	Incineration	Aragonite	8.3	#/gal	19566287	pounds	$0.33	$6,456,874.78
Inventory Transportation	489.1572	trips		Aragonite	40000	#/trip			$500.00	$244,578.59
Decontamination Rinsate Disposal	8000	gallons		Aragonite	8.3	#/gal	66400	pounds	$0.16	$10,624.00
Water Cost	8000	gallons							$0.08	$660.00
Rinsate Transportation	1.66			Aragonite	40000	#/trip			$500.00	$830.00
Labor - Operators	30	days		Contractor	$77.38	hr	8	hr/day		$18,571.20
Water sample analysis	30	each							$270.00	$8,100.00
Total										$6,740,238.57

Table 2.3 - Cost Estimates by Unit Unit 535										
Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Inventory Disposal (PCB bulk)	23560	gallons	Incineration	Aragonite	8.3	#/gal	195548	pounds	$0.33	$64,530.84
Inventory Transportation	4.8887	trips		Aragonite	40000	#/trip			$500.00	$2,444.35
Decontamination Rinsate Disposal	1188	gallons		Aragonite	8.3	#/gal	9860.4	pounds	$0.16	$1,577.66
Water Cost	1188	gallons							$0.08	$98.01
Rinsate Transportation	0.24651			Aragonite	40000	#/trip			$500.00	$123.26
Labor - Operators	16	days		Contractor	$77.38	hr	8	hr/day		$9,904.64
Wipe sample analysis	42	each							$100.00	$4,200.00
Water analysis	3	each							$270.00	$810.00
Total										$83,688.76

Table 2.3 - Cost Estimates by Unit Unit 604										
Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Inventory Disposal	40,000	gallons	Incineration	Aragonite	8.3	#/gal	332000	pounds	$ 0.33	$109,560.00
Inventory Transportation	8.3	trips			40000	#/trip			$ 500.00	$4,150.00
Decontamination Rinsate Disposal	15,000	gallons	Incineration	Aragonite	8.3	#/gal	124500	pounds	$0.16	$19,920.00
Water Cost	15,000	gallons							$0.08	$1,237.50
Rinsate Transportation	3.1125			Aragonite	40000	#/trip			$500.00	$1,556.25
Labor - Operators	20	days		Contractor	$77.38	hr	8	hr/day		$12,380.80
Wipe sample analysis	72	each							$100.00	$7,200.00
Water analysis	9	each							$270.00	$2,430.00
Equipment Disposal	40000	pounds	landfill	Grassy Mt	steel pipe		20	tons	$190.00	$3,800.00
Equipment Transportation	1			Grassy Mt	40000	#/trip			$500.00	$500.00
Total										$162,734.55

Table 2.3 - Cost Estimates by Unit Soil Sampling										
Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Supervision	160	hours		Contractor	1 month				$60.00	$9,600.00
Surveying	1	each		Contractor					$5,000.00	$5,000.00
Sampling Labor	120	hours		Contractor	15 days				$77.38	$9,285.60
Soil Analysis - phase 1	42	samples							$650.60	$27,325.20
Soil Analysis - phase 2	611	samples							$385.75	$235,693.25
Total										$286,904.05

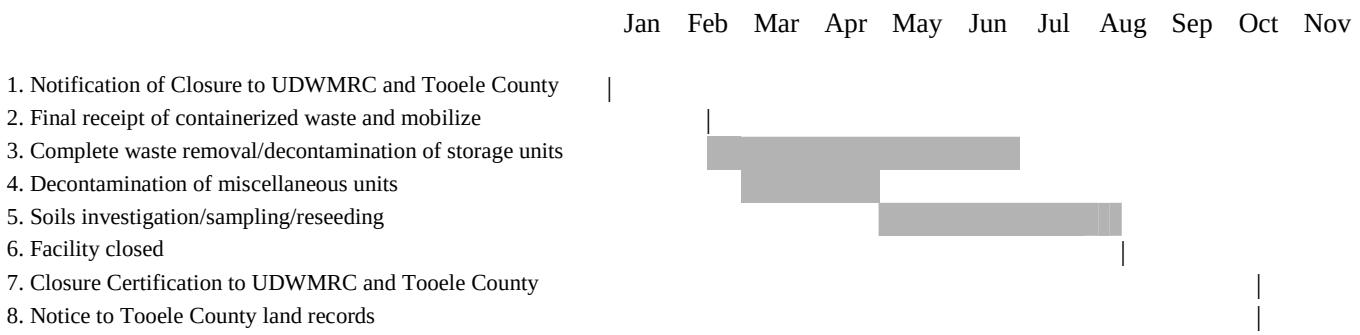
Table 2.3 - Cost Estimates by Unit Miscellaneous Costs										
Closure Activity	Quantity	Unit	Disposal/ Treatment Option	Facility	Assumptions	Unit	Quantity	Unit	Cost/Unit	Total Costs
Electricity	6	months		Utah Power					$8,000.00	$48,000.00
Heavy Equipment Rental	1	each		Contractor					$25,000.00	$25,000.00
Total										$73,000.00

2.3 Schedule for Closure

As indicated in Section 1.6, the total time for closure of Clive (including submittal of closure certification) is estimated at 9.5 months. Assuming that the UDWMRC is first notified of closure on January 1st, certification of closure is anticipated on or about October 15th of that same year.

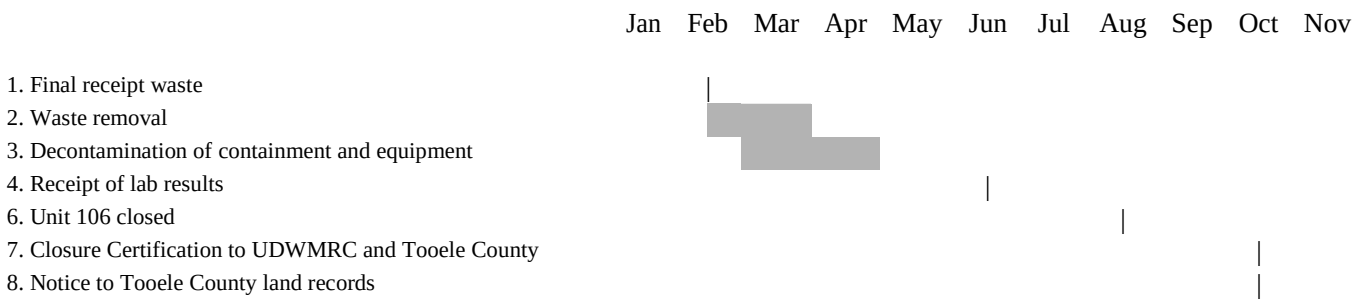
Overall Closure Schedule

Clive Facility



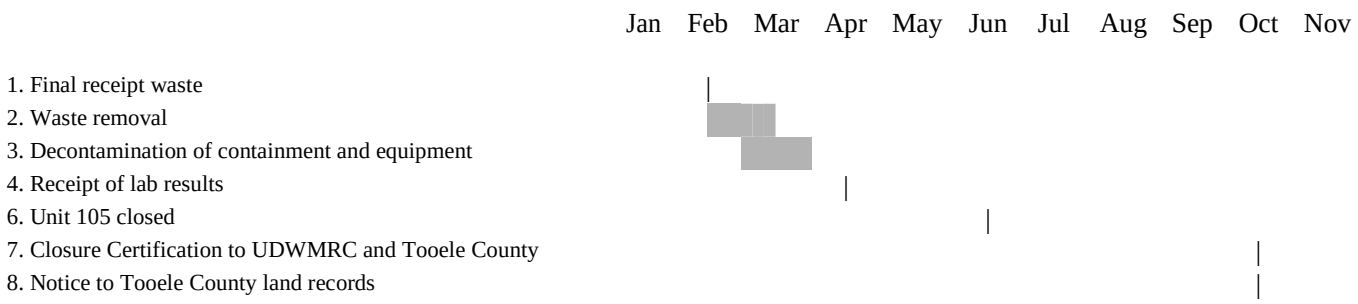
Bulk Container Storage, Unit 106

Closure Schedule



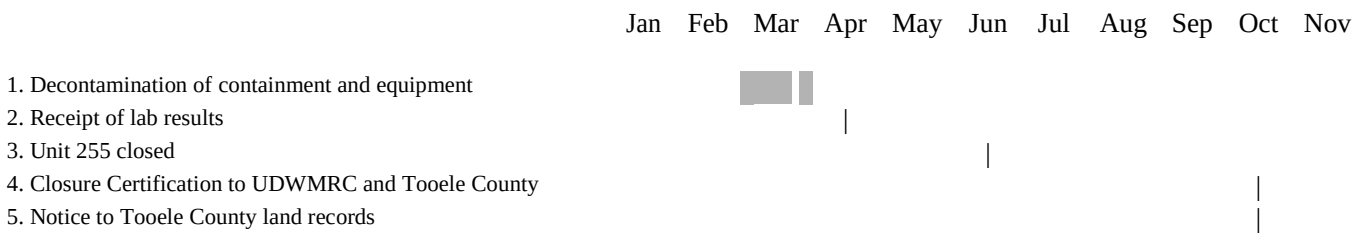
Thaw Shed, Unit 105

Closure Schedule



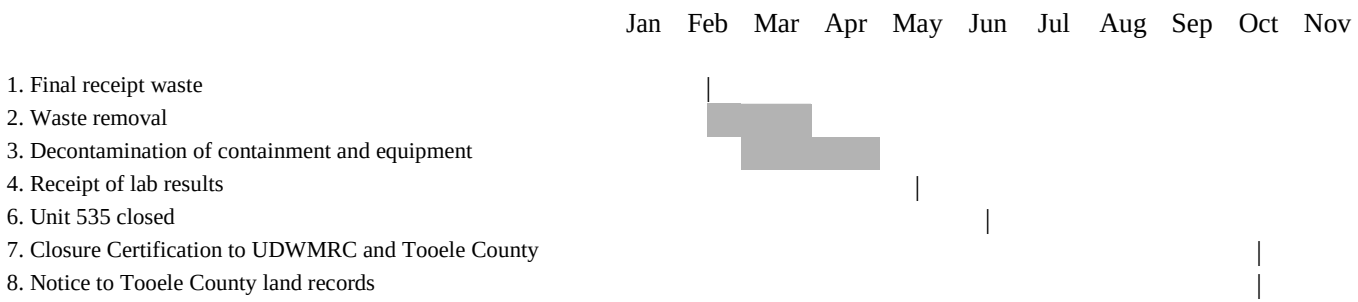
Unit 255

Closure Schedule



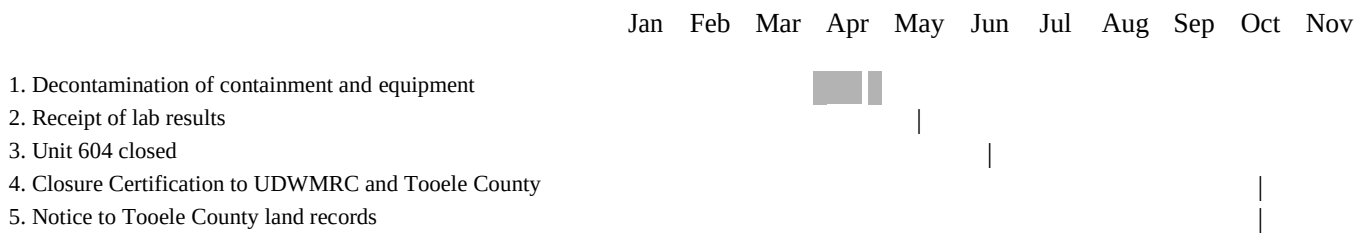
Unit 535

Closure Schedule



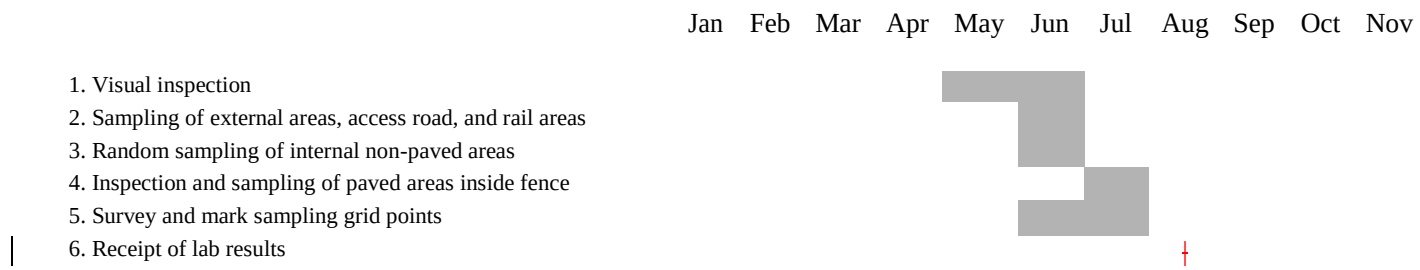
Unit 604

Closure Schedule



Soil Sampling

Closure Schedule



3.0 Financial Assurance

3.1 Financial Assurance for Closure

Clean Harbors Clive, LLC, as the owner/operator of the Clive facility, is required to provide assurances that there will be funds available to close the facility at some time in the future. The purpose of these assurances is to guarantee that closure can be performed by a third party, if for some reason Clean Harbors is unable to do so itself at a future point in time when the cost would be maximized. As specified by Section 2.2 of this attachment, the minimum dollar amount to be guaranteed, in 2001 dollars, is $6,481,593. This figure will be updated at least annually in response to inflation, and as often as needed to reflect changes in Clean Harbors Clive facility.

Clive currently uses Closure Insurance as the financial assurance mechanism for the Clive facility. The current closure insurance policy, policy number PLC PEC004203103, is provided by Indian Harbor Insurance Company. The current financial assurance documentation is maintained at the office of the Division of Waste Management and Radiation Control. Clive shall remain in compliance with the applicable provisions of the regulations for the financial assurance mechanism used for closure.

3.2 Financial Assurances for Post-Closure

As there are no land-disposal units at Clive, there is no requirement for any Post-Closure care, hence no need for Post-Closure Financial Assurance.

3.3 Liability Requirements

Clean Harbors Clive facility maintains liability insurance for sudden accidental occurrences, as required by the rules cited and Condition 2.P. of the Permit. Currently, liability insurance for the Clive facility is provided by Indian Harbor Company, policy number PEC004203903. The certificate of insurance for the required liability insurance as specified by R315-264-147 is maintained on file at the office of the Division of Waste Management and Radiation Control.

APPENDIX A

BUILDING AND EQUIPMENT SAMPLING PLAN

CLEAN HARBORS CLIVE, LLC

CLIVE, UTAH

APPENDIX A

BUILDING AND EQUIPMENT SAMPLING PLAN

CLEAN HARBORS CLIVE, LLC

CLIVE, UTAH

1.0 Introduction

This Building and Equipment Sampling Plan has been developed to describe the sampling of rinse waters. The rinse waters result from decontamination of the various waste management units and pieces of machinery and equipment at Clive as provided for in this closure plan. This is one of the methods provided to establish that the item in question has been sufficiently decontaminated that it may be declared as "closed" under UDWMRC authority, as well as RCRA, TSCA and HSWA, and be released from regulation by these programs. A series of samples will be taken of the rinse waters resulting from the cleaning of various items and structures, over the closure period. Rinse waters must meet the standards established 1.2.1.1.

This Building and Equipment Sampling Plan is intended to outline the sampling methods and procedures to be used, and analytical protocols. Any proposed changes to this Plan must be prepared and submitted to the Division of Waste Management and Radiation Control for approval, prior to actual sampling in accordance with Condition I.D.2 of the permit.

It is presumed that any spills of waste which occurred during the operation of Clive will be cleaned up at the time the spill occurred. This Plan may be used to determine whether such spills have been totally removed and if decontamination of equipment has been successful.

2.0 Rationale

This Building and Equipment Sampling Plan is intended to provide for the representative sampling of rinse water produced during the decontamination of specific items at Clive. If Clive demonstrates the structure or equipment has been decontaminated in accordance with this sampling plan and the standards of the Closure Plan and certified by Clive and an independent professional engineer in accordance with the permit, the structure or equipment may be released from regulation under RCRA and related Utah State law upon approval by the Director.

3.0 Sampling Locations

Samples will be obtained from the immediate area of the item being decontaminated, and will represent only a single class of material or equipment. For example, during the cleaning of the interior of a piece of equipment, the sample will be obtained by catching a grab sample drained from the lowest point of the piece of equipment; for the exterior, however, the sample would be taken from the sump which caught the rinse water as it drained off of the equipment. It is intended that samples represent only a single waste management unit (e.g., a single piece of equipment, or a single container management containment area). When auxiliary equipment such as forklifts from a single management unit, etc., is cleaned, several may be combined in one sample. Further, all hand tools and related small items in a particular waste management unit may be combined in one sample.

All samples taken will be grab samples, intended to represent the entire volume of the final rinse water used to clean an item. The bulk of the rinse water will be allowed to drain from the surfaces of the item being cleaned, and to collect in the sump or other sampling point, prior to sampling, to attempt to assure a representative sample.

Samples will be placed in glass containers which will be placed in iced coolers for storage and transportation to the laboratory in accordance with the chain of custody procedures, minimum holding times and analytical procedures specified in Appendix D.

Samples will be taken from essentially two types of locations: for interior cleaning, the sample will be taken from a drain line or pipe; whereas for exterior cleaning, the sample will be taken from the sump where the rinse water collects. Samples from interior cleaning will be taken, wherever possible, by draining the rinse water directly into the sample container. Where it is not possible to drain the rinse water directly into the sample container, and for rinse waters contained in the sumps, samples will be obtained by a method such as dipping a clean glass jar into the sump, or using a weighted bottle, or similar means. Any of the various methods described in SW-846 and the Waste Analysis Plan may be used. The goal of the sampling will be to obtain a representative sample, free from external contamination, from an area where the rinse naturally collects, and prior to its being vacuumed or pumped into temporary storage for eventual treatment or disposal.

4.0 Time of Sampling

Sampling will occur as soon as possible after the second rinse has been performed, and the bulk of the water has been allowed to drain from the item in question into secondary containment. As the closure of Clive will be a dynamic process, sampling will occur on a continuing basis over the closure period.

Clive will notify the Utah Department of Environmental Quality, Division of Waste Management and Radiation Control (DWMRC) x hours in advance of the anticipated times and dates for the sampling of the rinse water from the decontamination processes. The DWMRC may take split samples of rinse water at their discretion.

5.0 Constituent Analysis

All sample analyses will be conducted in accordance with the standards set by SW-846. QA/QC will be in accordance with Appendix 1, the Quality Assurance Plan, of Attachment 1 (the Waste Analysis Plan) of the Clean Harbors Clive Permit, SW-846, and the WAP. All laboratories that run analysis required by this Plan will be Utah-certified or NELAP-certified for the particular analytical method. Holding times and analytical methods are summarized in Appendix D. Appropriate methods listed in the Clive WAP and/or equivalent EPA Clean Water Act methods may also be used.

6.0 Sampling Procedure

The Sampling Procedure has been developed to result in samples representative of each individual "batch" (waters collected from an individual containment area) of final rinse water generated during the closure of Clive. All sampling will be arranged by the Closure Project Manager, who will coordinate sampling with DWMRC personnel. The sampling activities will be in accordance with the following procedures:

6.1 Planning the Sampling Event

1. Sampling must be anticipated as an on-going task, and not as a single event or short-term task.. The following tasks will be addressed before the actual sampling event:
    1. Sample containers will be prepared and labeled.
    2. The designated personnel will gather all required equipment for the sampling events which may include but not be limited to:
        a. Sampling cups, bailers, or sampling bottles.
        b. Measuring Tape, if needed.
        c. Ground Cloth, if needed to lay equipment on to prevent contamination.
        d. Safety equipment.

e. Sample jars should be labeled to identify the sample number, and type of item or equipment being cleaned, date and time.
f. Sample vehicle: for transportation of the Sampling Team and the soil samples between the closure area and the laboratory. (Not necessarily motorized-may be a cart or dolly.)
g. Field Log Book: Information to be recorded in this book (required) will include, but is not limited to, the following:
    i. Project Title
    ii. Sample Identification Number
    iii. Sample Location
    iv. Sample Type
    v. Sample Description (include any appropriate visual evidence of contamination)
    vi. Date and time
    vii. Sample collector
h. Supply of Kimwipes, deionized water and water bottles to be used for decontaminating sampling equipment between samples.
i. Copy of the Closure Plan, and (Clive WAP).

When the equipment is gathered each piece will be inspected. Any equipment needing repair or replacement of parts will be repaired at this time. All required equipment will be operational on the day of sampling.

2. Actual Sampling Preparation (required)
    1. Field Sampling Equipment -- Equipment will be decontaminated prior to use.
    2. Health and Safety -- Prior to leaving the laboratory, each piece of safety equipment must be checked for fit and applicability.
    3. Sample containers -- Prior to sampling, sample containers will be rechecked to assure that there is a full set. The sampling containers will be carried to the field in pre-iced chests.
    4. Documentation Package -- The following list will be checked for the sampling event to assure proper documentation:
        a. Field Log Book
        b. Sample Forms
        c. Chain-of-Custody forms
        d. Writing tools (pencil, pen and permanent marker)

6.2 Sampling Plan

1. The Sampling Plan for each sampling event will be determined prior to sampling and will be based on the following considerations:
    1. The Sampling Schedule specified by the Closure Project Manager.
    2. Due to the individual nature of the samples being taken, and the nature of the sample site, a designated Sampling Route and Strategy will not be necessary.

6.3 Field Sampling Protocol

1. The samples obtained for analysis during a sampling event will be grab samples. The Sampling Team will return to the laboratory after the samples have been obtained and prepare them for shipping.
    1. Each sample will be securely packaged and the necessary data from the field log book will be transferred to the report sheets and placed in a shipping container.
    2. Appropriate personnel will verify that all analytical request sheets specify the correct analysis, review the Chain-of-Custody forms and sign the sheets before they are placed inside the cooler. Once all the items have been placed with the packaged sample containers, the cooler will be sealed with a custody seal and secured ready for shipment to the laboratory.
    3. The analytical procedure to be performed on the samples will be total concentration parameters referenced in section 1.2.1.

6.4 Certification of Completion

The Sampling Team Leader will inform the Closure Project Manager daily of problems encountered during the sampling event or any deviations from the Sampling Procedures. The Utah Department of Environmental Quality, Division of Waste Management and Radiation Control will also be kept informed on a weekly basis, and certifications of all acceptable sample results (those demonstrating acceptable decontamination) will be submitted when Closure is certified. The certification will contain all relevant data.

APPENDIX B

CONTAMINATED SOILS SAMPLING PLAN

CLEAN HARBORS CLIVE, LLC

CLIVE, UTAH

APPENDIX B

CONTAMINATED SOILS SAMPLING PLAN

CLEAN HARBORS CLIVE, LLC

CLIVE, UTAH

1.0 Introduction

This Contaminated Soils Sampling Plan has been developed to describe the sampling of soils in the vicinity of Clive facility at the time of facility closure. Soil samples will be collected to investigate the possibility of contamination of soils as a result of the operation of the facility. A series of near-surface soil samples are proposed over various parts of Section 36, T1S, R12W, SLB&M, Tooele County, for this purpose. This will be combined with a review of the operating record and a visual examination of the area for obvious staining or deposits which would also indicate contamination.

The soils beneath the waste containment areas will also be evaluated under this Contaminated Soils Sampling Plan if, upon final closure, a review of the operating record or a close examination of the sumps and containment indicates cracking or other deterioration that would be indicative of a leak or loss of integrity. If a leak or loss of integrity in containment is suspected, Clive may collect core samples of the soil and/or concrete to confirm or refute the suspicion of contamination of the subsoils or assume contamination and remove the concrete and soil to the RSLs established in the EPA Standard. If sampling confirms contamination, both concrete and soils will be removed as needed until all contamination is at or below the RSLs" If a unit had been previously certified close in accordance with the permit, the unit was not reactivated prior to closure, and a close examination of the sumps and containment at that time indicated no cracking or other deterioration that would be indicative of a leak or loss of integrity, this exercise does not have to be repeated.

Samples will be analyzed for parameters listed in R315-261-1092 (Appendix VIII), . This Contaminated Soils Sampling Plan is intended to outline the procedure to determine sampling locations, methods and procedures to be used, and analytical parameters.

The Contaminated Soils Sampling Plan concentrates on the sampling of soils in the vicinity of the facilityitself, rail spurs and the haul roads used for waste transport into and out of the facility. A series of samples will be taken and analyzed using a numbered grid pattern, with actual locations determined by random methods. These locations are not specified at this time, to prevent any bias in treatment, but the method for location selection is described.

In accordance with Condition I.D.2, the Director of the Division of Waste Management and Radiation Control , Utah Department of Environmental Quality, must approve any changes to the Contaminated Soils Sampling Plan prior to actual sampling. The permit requires Clive to clean up any spills of waste at the time the spill occurred during the operation of facility. However, to verify that no contamination remains, this sampling program will be conducted.

2.0 Rationale

This Contaminated Soils Sampling Plan is intended to accomplish the goal of providing a reasonable examination of the soils in the vicinity of Clive to detect the presence of certain specified contaminants known to be constituents of hazardous waste. . Sampling points are chosen as specified in section 3.0 of this appendix.. Random sampling will be combined with a thorough visual search of the facility, looking specifically for areas that appear to be contaminated.

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3.0 Sampling Locations

In the selection of sampling locations, the extent of any geographical variation in contaminant levels is unknown. The goal of this Contaminated Soils Sampling Plan is to provide a representative picture of constituent levels in the vicinity of Clive, and to determine if Clive has contributed any contamination. Rather than limiting the Contaminated Soils Sampling Plan to the facility proper, samples will be taken over areas within 300 feet of the facility and the main access road (See Figures I-C-1, I-C-2, I-C-3, I-C-4). Operating units at the Clive facility are concentrated in the Southeast Quarter of Section 36, T1S, R12W, Tooele County. To provide the desired representative picture, three different sample protocols are used: one for the facility proper, and one for the area external to the facility, and one for the area surrounding the main access road and rail area. As described later in this Appendix, each of these three areas will be divided into grids, with each grid node numbered sequentially. Numbering will be re-started for each area. Using random number tables, or similar means, several grid nodes will be randomly chosen for sampling to determine if contamination exists.

Additional samples will be taken if any of these areas are found to be contaminated. All samples will be analyzed independently, and the results compared against the RSLs.

The initial random samples will be taken from the surface to a depth of four inches representing the interval.

In areas where samples cannot be obtained with soil sampling equipment, the sample will be collected as close to the designated location as possible. Changes in sampling location will be documented, including a description of the basis for the changed location.

3.1 Visual Inspection

Facility personnel will visually inspect the roadways, rail spur, sampling areas, unloading areas, and the area within 300 feet of all portions of the facility. Based on these visual observations, any soil surfaces that appear to be contaminated will be excavated and sampled to verify the samples do not exceed RSLs.. Once these standard are verified, the excavation will be backfilled with clean soil.
For areas of Clive that appear to be clean, not contaminated, a simple random sampling strategy with be implemented see (See Figures I C 1, I C 2, I C 3, I C 4).

For areas of Clive that appear to be contaminated, these areas will be sampled, and analyzed for constituents identified in R315-261-1092, Appendix VIII. If concentrations of constituents exceed the RSLs the extent of contamination will be identified and removed. The excavated area will be backfilled with clean material.
Depending upon the size of the area, this approach may be more extensive than necessary. If the area is relatively small, the Closure Project Manager may elect to take a few samples equally spaced throughout the area, as sufficient to represent the visual contamination with coordination DWMRC. This process will be repeated for each depth of soil removal until the sample analyses meet the RSL standard.. If the excavated soil is proven analytically to meet the RSL standard, the uncontaminated soil will be backfilled into any excavated portions. Backfilling should not take place until all samples are at RSL standards.

The discrete samples from which the composite was made will also be retained. Clive may be required to analyze each individual sample, to localize the area of contamination, if determined necessary by the DWMRC.

3.2 Random Samples -- Facility Proper -- Unpaved Areas

Clive proper measures approximately 1200 feet square, although there are a number of irregularities in the facility boundary. A grid will be superimposed over the facility, with spacing of 100 feet by 100 feet, resulting in 169 grid nodes (see Figure I-C-2). Some of these nodes will fall over specific waste management units, while others will fall on parking, drives, or open areas. All nodes falling on waste units or paved areas will be discarded and adjacent location will be chosen and documented; the remainder - those nodes on unpaved areas - will be numbered sequentially. From these, a total of ten nodes will be randomly selected for sampling as described in 7.3 below.

Each grid node selected and sampled will be analyzed for the parameters listed, and the results compared to the RSL standard. If all parameters meet the RSL standard, then the area represented by that sample is declared clean. If the parameters do not meet the RSL standard, then a supplemental grid using 50 foot spacing will be imposed over the suspect grid node, extending one space (50 feet) in all directions. This 100 foot by 100 foot supplemental grid will contain nine grid points; all of these will be sampled and analyzed to determine the areal extent

of contamination. If needed, this grid will be extended laterally until a sample is obtained that meets the RSL standard.

For grid nodes which test "positive," soil will be removed in vertical two foot increments, and the area resampled until that node area meets RSL standard. Again, uncontaminated soils will be backfilled into any excavated area. Contaminated soil will be managed in accordance with the Waste Analysis Plan, Attachment 1 of the permit.

3.3 Random Samples -- Facility Proper -- Paved Areas

For the paved areas of the facility, a thorough visual inspection will be made to check for visible contamination. Any found on concrete will be removed as described in the Closure Plan, Section 1.2.1.1 for "hard surfaces." Contamination on areas paved with asphalt will be excavated. Sampling and analysis will be conducted to confirm that the contamination had been successfully removed. Area where the Cr was spilled during the trial burn needs to be sampled.

3.4 Random Samples -- External to the Facility Proper

As discussed above, Clive measures roughly 1200 feet square, with a number of irregularities in the boundary. Extending this area 300 feet to each side yields an area about 1800 feet square. The grid that was originally superimposed over the facility proper will be extended to the outer area, again using a spacing of 100 feet by 100 feet, resulting in 361 grid nodes (see Figure I-C-3). The 169 nodes of the facility proper will be discarded, as they have already been considered, leaving 192 nodes in a square border surrounding the facility. Certain of these nodes will duplicate those of the Access Road investigation described in Section 3.5, below, and these will be discarded as well.

All remaining grids will be numbered sequentially. Of these grids, 12 will be randomly selected for sampling. As the entire grid is external to the facility and any roads, no grid node will fall on a paved or hard surface. If contamination is found, additional sampling will be conducted in the area in order to determine the extent of the contamination.

Sampling and analysis will proceed as described for Section 3.2, above. Areas found to be contaminated will be excavated and backfilled with clean soil. Contaminated soil will be managed in accordance with the Waste Analysis Plan, Attachment 1 to this permit.

3.5 Random Samples -- Access Roads and Rail Areas -- All Areas

The main access road into Clive, along with the rail switchyard, measures approximately 400 feet wide by 1200 feet long. Again, there are a number of irregularities in the boundary of this area. Extending this area 300 feet to each side, and 300 feet to the Northeast (the Southwest end abuts Clive itself) yields an area 1000 feet wide by 1500 feet long. A grid will be superimposed over this area, with spacing of 100 feet by 100 feet, resulting in 176 grid nodes (see Figure I-C-4). Some of these nodes will fall over on parking, drives, or rail areas. All grids will be numbered

sequentially. Of these grids, ten will be randomly selected for sampling. Any node selected that falls on a paved or hard surface will be moved to the nearest unpaved area, and the sample taken there.

Sampling and analysis will proceed as described for Section 3.2, above. Areas found to be contaminated will be excavated and backfilled with clean soil. All paved areas will be visually inspected as described in Section 3.3, and decontaminated as needed. Contaminated soil will be managed in accordance with the Waste Analysis Plan, Attachment 1 of the permit.

3.6 Random Samples -- Soils Beneath Containment Areas

The containment areas at Clive are designed to totally contain any materials which are spilled or leaked during the operation of the facility. All such areas will be of Portland Cement concrete construction, and will be coated to prevent liquid seepage. However, it is possible that the containment may be compromised by cracking of, or other damage to, the concrete. Such cracking would be especially critical in the sumps which collect rainfall which falls on the area, as well as any spilled material. Although all sumps will be regularly inspected and emptied as part of the facility operations plan, the sumps will not be totally cleaned until closure. Therefore, it is possible that cracks will exist which are not found until closure. If such is the case, then evaluation of the soils beneath the cracked area will be needed.

As described in Section 1.8 of the Closure Plan, all concrete and soil within six inches of a crack where contamination is confirmed or assumed by Clive, will be removed and managed as hazardous waste until the results of the analysis of underlying soils is obtained. Final disposition of these materials will depend upon the results of the analysis. Concrete will be broken for removal by jackhammers or other conventional means, and the broken concrete and soils will be shoveled into drums or gondolas for temporary storage.

The exposed area will then be sampled in accordance with TSCA regulation 40 CFR § 761 Subpart O. This is an EPA sampling method for sampling porous surfaces and is applicable for the sampling of small areas and thus is appropriate for selecting samples from areas which may be no more than one foot wide.

The discrete samples from which the composite was made will also be retained. Clive may elect to analyze each individual sample, to localize the area of contamination.

3.7 Procedures for Soils Removal -- All Areas

As each grid is sampled and analyzed, the analytical results will be compared to the "RSLs". B, any grid with a value exceeding theRSLsis considered contaminated, and the soils represented by that grid will be removed for a depth of two feet. The grid will then be re-sampled and analyzed

as before; if still found to exceed RSLs, another two feet will be removed. This process will continue until the analysis shows that the grid area is below RSL standards.

All excavations will be conducted with side slopes in conformance with OSHA standards. Consequently, the excavation will grow larger laterally as it is deepened, to account for both possible lateral as well as vertical spread of waste constituents. Once all contamination has been removed, the area will be backfilled with soil to the surrounding grade level.

Based upon the analytical results, several options are possible for disposal: disposal in a solid (non-hazardous) waste landfill; disposal in a hazardous waste landfill, in accordance with the Land Disposal Restrictions (LDR); and, treatment (e.g., incineration or stabilization) to meet the LDR standards, prior to disposal. All decisions on disposition of removed soils and concrete will be made after testing in accordance with the Waste Analysis Plan and/or this Closure Plan.

4.0 Time of Sampling

Sampling will occur at two distinct times during closure of Clive. The visual inspection of the entire area will take place at the start of Closure, and any suspicious areas will be investigated concurrently with Closure activities. At least every month, the Closure Project Manager will re-inspect to see if there have been any spills or leaks during Closure. The regular inspections performed in accordance with the operating permit and this closure plan will be continued as scheduled; each unit will be regularly inspected until that unit is finally closed. Finally, after all waste management units are closed at the facility, the Closure Project Manager will make a final visual inspection of the area, again checking for spills occurring during closure. All visual inspection will be documented in the operating record.

After all units at the facility are closed, the random sampling procedures will be instituted. These will take several months, mainly due to the wait for sample analyses. Any areas identified as contaminated will be promptly excavated and backfilled with clean soil.

The Utah Department of Environmental Quality, Division of Waste Management and Radiation Control, will be notified, in writing, of the anticipated time(s) and date(s) for all closure soil sampling event(s) discussed in this Appendix at least 14 days in advance. The UDWMRC will be notified of final schedules for sampling via telephone at least 72 hours in advance. At their discretion, the UDWMRC may take split samples of the soil samples.

5.0 Constituent Analysis

For the purposes of establishing levels of contamination, it is proposed to follow the analytical procedures used for the Background samples, namely to analyze all samples for the total concentration of the 125 "priority pollutants" established by the U.S. EPA.

The variety of constituents listed is extensive enough to provide for the detection of the most predominant and potentially most hazardous constituents that may be in the waste materials received at Clive.

All analyses for which certification is possible will be conducted by a Utah-certified laboratory. All sample analyses will be conducted in accordance with the standards set by SW 846 or equivalent EPA Clean Water Act methods. QA/QC will be in accordance with SW 846 or equivalent EPA Clean Water Act methods, and the procedures/protocol (or Waste Analysis Plan (WAP), Attachment 1 of this permit, if applicable) of the NELAP certified laboratory performing the analysis. Holding times and analytical methods in effect at the time of this submittal are summarized in Appendix D and/or the facility WAP. If there is a difference between the holding times/methods summarized in Appendix D and/or the facility WAP and holding times/methods in effect at the time of sampling for closure, the most current holding times/methods will be used.

6.0 Comparison to Established Background Values

As each set of analyses is completed, the results of each will be examined for any that appears to be an anomaly (a single sample that varies significantly from all others, for instance). Any sample noted will first be re-analyzed to rule out any laboratory error; if the anomaly still exists, the sample will be retaken and analyzed in the same fashion as the original samples in accordance with the Quality Assurance Plan in Appendix A of Attachment 1..

If the anomaly is resolved (which may be the acceptance of the initial value as true and accurate for a given location), then the sample results will be compared against the Background Levels established by the Background Soils Sampling Plan. If the sample value for any parameter is above the Background, then soils must be removed. If all parameters are at or below the Background, then the area is declared as no further action.

The Background Level for all constituents is the Mean value, plus three Standard Deviations. At closure, any area yielding an analytical value below this Background Level for all constituents will be considered as clean, and no further soil removal or decontamination will be necessary.

An exception to the above standard has been established to account for BDL values in the background sampling. For a given constituent, if the Background Level calculated (Mean + 3 sigma) is less than the stated Detection Limit, then the Background Level shall be taken as the Detection Limit. This will prevent establishing Background Levels lower than the analytical methodology can reliably measure.

7.0 Soil Sampling Procedure

The Soil Sampling Procedure has been developed to result in samples representative of the soils at the location to be examined, in the vicinity of the facility. All soil sampling will be

coordinated by the Closure Project Manager. The sampling activities will be in accordance with the following procedures:

7.1 Planning the Sampling Event

1. Pre-event Preparation -- The following tasks will be addressed before the day of the sampling event.

    1. Sample containers will be prepared and labeled. Sample containers for all soils samples will be wide-mouth glass jars with a minimum capacity of approximately one quart or liter. Soils samples (or sub-samples) will have a weight of two to four pounds each. The jar lids will be lined with Teflon (R) seals.

       Sample containers will also be available for water samples, should sampling of ground or surface water become necessary. Samples for metals analysis will be at least 500 ml in volume, and stored in glass jars. Samples for any organics analyses, except as noted below, will be at least one liter in volume and will also be stored in glass jars. Samples for purgeable organics will be placed in three, 40 ml glass vials and filled so that there is zero headspace in the vials. All container lids for water samples shall be lined with Teflon (R) seals.

       No field blanks will be required when sampling of soils occurs. Both field and trip blanks will be prepared and used if it should become necessary to sample ground or surface waters. The requirements of SW-846 will be followed in the preparation and handling of any such blanks.

    2. The designated personnel will gather all required equipment for the sampling event which may include but not be limited to:
        a. Soil-Sampling Hand Spade or Auger, or Mechanized Auger
        b. Soil Sampling Knife
        c. Measuring Tape
        d. Ground Cloth
        e. Safety equipment
        f. Sample jars should be labeled to identify the sample number, depth and type.
        g. Sample vehicle: for transportation of the Sampling Team and the soil samples between the closure area and the laboratory.
        h. Field Log Book: Information to be recorded in this book will include, but is not limited to, the following:
            i. Project Title
            ii. Sample Identification Number
            iii. Sample Location
            iv. Sample Type

v. Sample Description (include any appropriate geologic terms and any visual evidence of contamination)

i. Supply of Kimwipes, deionized water and water bottles to be stored in the laboratory for decontamination.

j. Copy of the Clive Closure Plan and this Appendix.

When the equipment is gathered each piece will be inspected. Any equipment needing repair or replacement of parts will be repaired at this time. All required equipment will be operational on the day of sampling.

2. Day of Sampling Preparation

1. Field Sampling Equipment -- Equipment will be decontaminated prior to use in the field.
2. Health and Safety -- Prior to leaving the laboratory, each piece of safety equipment must be checked for fit and applicability.
3. Sample containers -- Prior to sampling, sample containers will be rechecked to assure that there is a full set. The sampling containers will be carried to the field in pre-iced chests.
4. Documentation Package -- The following list will be checked for the sampling event to assure proper documentation:
   a. Field Log Book
   b. Checklist for sampling protocol
   c. Chain-of-Custody forms
   d. Analytical request form
   e. Writing tools (pencil, pen and permanent marker)
5. Vehicle Loading -- The designated sampling vehicle will be loaded so that each piece of equipment is readily available during soil sampling.
6. Cooler and ice.

7.2 Sampling Plan

1. The plan for the soil sampling event will be determined prior to sampling and will be based on the following considerations:
   1. The Soil Sampling Schedule specified by the Closure Project Manager.
   2. Based upon the procedures specified in this Plan, a designated Sampling Route and Strategy will be formulated to allow a smooth and logical progression of sampling.

7.3. Field Sampling Protocol

1. The samples obtained for analysis during a sampling event will be representative of the top four inches of the soil profile. The Sampling Team will return to the laboratory after the samples have been obtained and prepare them for shipping. Soil samples will be

taken by one of several methods, depending upon equipment availability. Samples may be taken using shovels, trowels, or Shelby push-tubes.

1. As the soil is being removed for sampling, it will be placed upon a clean ground cloth, or placed directly into the sample container.
2. After each sample is obtained from a given location, all tools and instruments that may have come into contact with the soils, as well as the ground cloth, will first be brushed or wiped clean of any loose soils or other obvious contamination. They will then be wiped with disposable toweling, to remove any visible traces of contamination, thoroughly wiped with toweling wetted with deionized water, and finally rinsed with deionized water, to insure that they are decontaminated. Solvent rinses, such as Acetone or Hexane, will not be taken into the field for decontamination purposes, as their presence could affect sample results.
3. Each soil sample will be securely packaged and the necessary data from the field logbook will be transferred to the report sheets and placed in a shipping container.
4. Appropriate personnel will verify that all analytical request sheets specify the correct analysis, review the Chain-of-Custodyforms and sign the sheets before they are placed inside the cooler. Once all the items have been placed in the packaged sample containers, the cooler will be sealed with a custody seal and secured ready for shipment to the laboratory.
5. The analytical procedure to be performed on the samples will be total concentration of the 125 "priority pollutants,"~~,~~ as well as TOC, TOX, Oil and Grease, and cyanides.

7.4 Certification of Completion

The Sampling Team Leader will notify the Closure Project Manager that the scheduled sampling event has been completed. This will include problems encountered during the sampling event or any deviations from the Soil Sampling Procedures. The Utah Department of Environmental Quality, Division of Waste Management and Radiation Control will also be notified of the beginning of each phase of sampling. A report will be submitted within 60 days following the completion of sampling to the UDWMRC, describing any cleanup efforts undertaken and containing the final results.

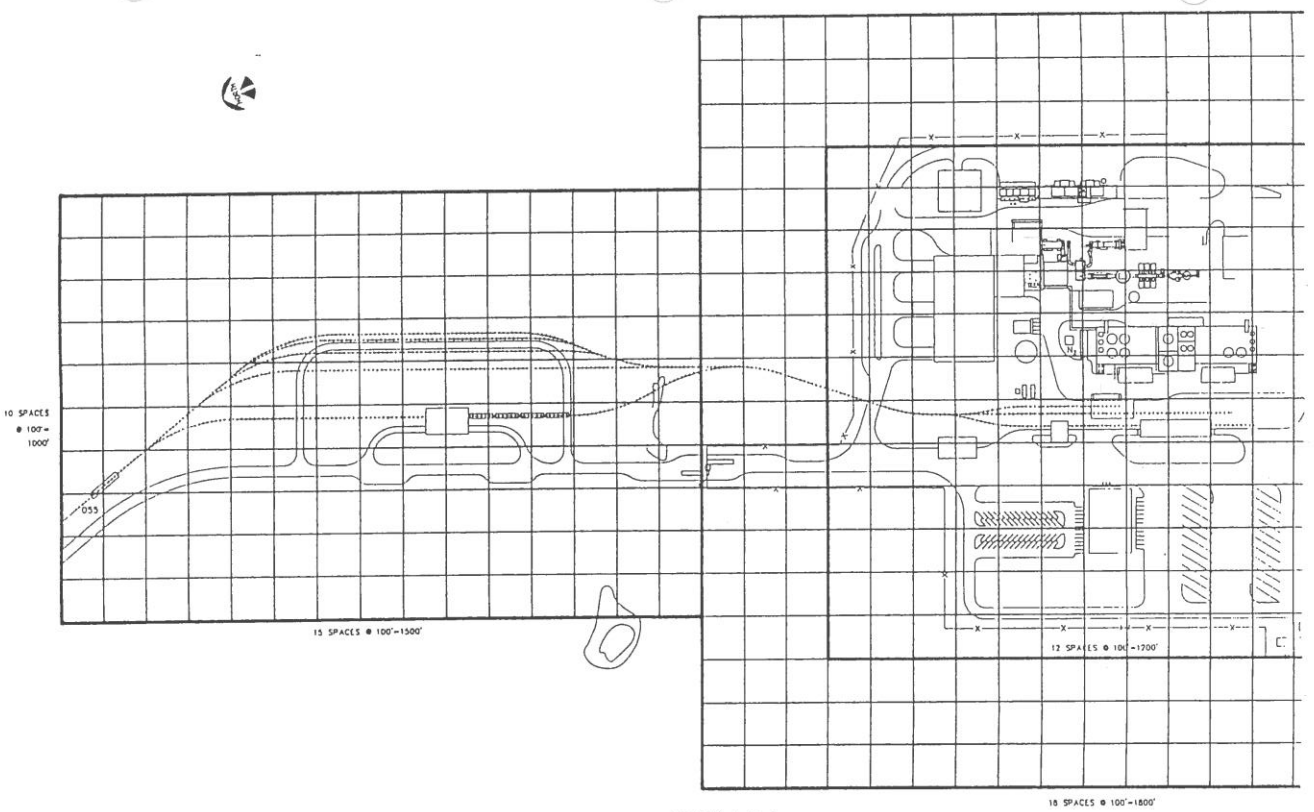

FIGURE I-C-1

OVERALL SOILS SAMPLING GRID (TYP)

CLOSURE OF THE
CLIVE INCINERATION FACILITY

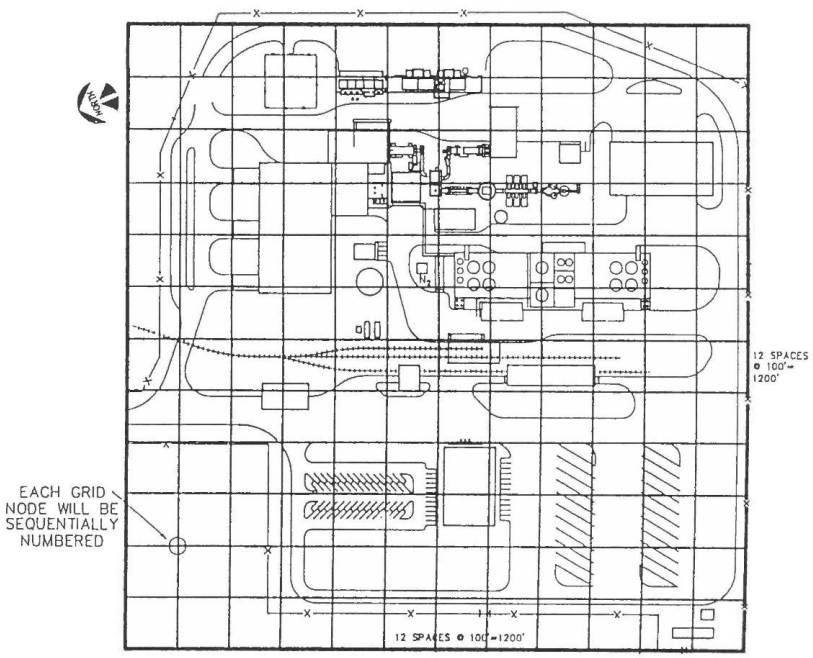

FIGURE I-C-2

SOILS SAMPLING GRID
FACILITY PROPER (TYP)
(REFER TO APPENDIX I-C, SECTION 3.2)
CLOSURE OF THE
CLIVE INCINERATION FACILITY

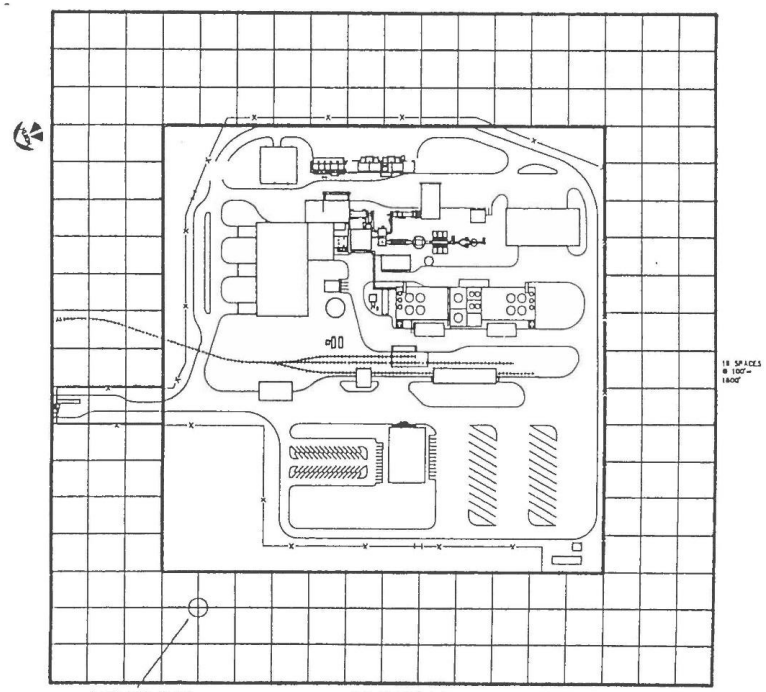

FIGURE I-C-3

SOILS SAMPLING GRID
EXTERNAL TO THE FACILITY PROPER (TYP)
(REFER TO APPENDIX I-C, SECTION 3.4)
CLOSURE OF THE
CLIVE INCINERATION FACILITY

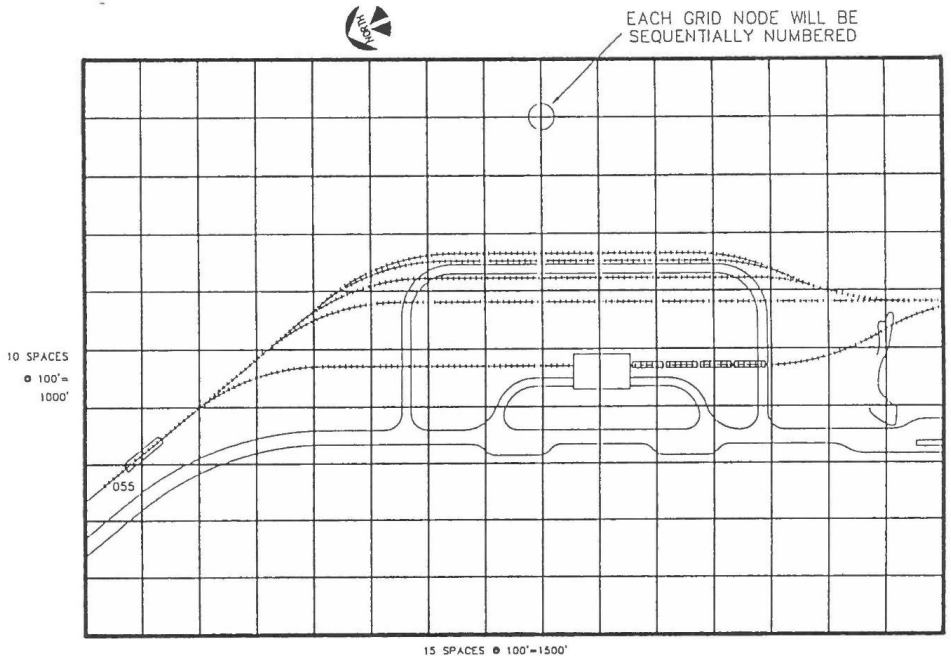

FIGURE I-C-4

SOILS SAMPLING GRID
ACCESS ROADS AND RAIL AREAS (TYP)
(REFER TO APPENDIX I-C, SECTION 3.5)

CLOSURE OF THE
CLIVE INCINERATION FACILITY

APPENDIX C

"PRIORITY POLLUTANTS" LIST

(From 40 CFR Part 122, Appendix D, Tables II and III)

"PRIORITY POLLUTANTS" LIST

From 40 CFR Part 122, Appendix D

TABLE II - ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GS/MS)

Volatiles

1V acrolein	9V chloroethane	17V 1,2-dichloropropane	24V tetrachloroethylene
2V acrylonitrile	10V 2-chloroethylvinyl ether	18V 1,3-dichloropropylene	25V toluene
3V benzene	11V chloroform	19V ethylbenzene	26V 1,2-trans-dichloroethylene
5V bromoform	12V dichlorobromomethane	20V methyl bromide	27V 1,1,1-trichloroethane
6V carbon tetrachloride	14V 1,1-dichloroethane	21V methyl chloride	28V 1,1,2-trichloroethane
7V chlorobenzene	15V 1,2-dichloroethane	22V methylene chloride	29V trichloroethylene
8V chlorodibromomethane	16V 1,1-dichloroethylene	23V 1,1,2,2-tetrachloroethane	31V vinyl chloride

Acid Compounds

1A 2-chlorophenol	4A 4,6-dinitro-o-cresol	7A 4-nitrophenol	10A phenol
2A 2,4-dichlorophenol	5A 2,4-dinitrophenol	8A p-chloro-m-cresol	11A 2,4,6-trichlorophenol
3A 2,4-dimethylphenol	6A 2-nitrophenol	9A pentachlorophenol	

Base/Neutral

1B acenaphthene	13B bis (2-ethylhexyl)phthalate	25B dimethyl phthalate	37B indeno(1,2,3-cd)pyrene
2B acenaphthylene	14B 4-bromophenyl phenyl ether	26B di-n-butyl phthalate	38B isophorone
3B anthracene	15B butylbenzyl phthalate	27B 2,4-dinitrotoluene	39B napthalene
4B benzidine	16B 2-chloronaphthalene	28B 2,6-dinitrotoluene	40B nitrobenzene
5B benzo(a)anthracene	17B 4-chlorophenyl phenyl ether	29B di-n-octyl phthalate	41B N-nitrosodimethylamine
6B benzo(a)pyrene	18B chrysene	30B 1,2-diphenylhydrazine (as azobenzene)	42B N-nitrosodi-n-propylamine
7B 3,4-benzofluoranthene	19B dibenzo(a,h)anthracene	31B fluroranthene	43B N-nitrosodiphenylamine
8B benzo(ghi)perylene	20B 1,2-dichlorobenzene	32B fluorene	44B phenanthrene
9B benzo(k)fluoranthene	21B 1,3-dichlorobenzene	33B hexachlorobenzene	45B pyrene
10B bis(2-chloroethoxy)methane	22B 1,4-dichlorobenzene	34B hexachlorobutadiene	46B 1,2,4-trichlorobenzene
11B bis(2-chloroethyl)ether	23B 3,3´-dichlorobenzidine	35B hexachlorocyclopentadiene	
12B bis(2-chloroisopropyl)ether	24B diethyl phthalate	36B hexachloroethane	

Pesticides

1P aldrin	7P 4,4´-DDT	13P endosulfan sulfate	19P PCB-1254
2P alpha-BHC	8P 4,4´-DDE	14P endrin	20P PCB-1221
3P beta-BHC	9P 4,4´-DDD	15P endrin aldehyde	21P PCB-1232
4P gamma-BHC	10P dieldrin	16P heptachlor	22P PCB-1248
5P delta-BHC	11P alpha-endosulfan	17P heptachlor epoxide	23P PCB-1260
6P chlordane	12P beta-endosulfan	18P PCB-1242	24P PCB-1016
25P toxaphene			

TABLE III - OTHER TOXIC POLLUTANTS (METALS AND CYANIDE) AND TOTAL PHENOLS

Antimony, Total	Chromium, Total	Nickel, Total	Zinc, Total
Arsenic, Total	Copper, Total	Selenium, Total	Cyanide, Total
Beryllium, Total	Lead, Total	Silver, Total	Phenols, Total
Cadmium, Total	Mercury, Total	Thallium, Total	

APPENDIX D

HOLDING TIMES AND ANALYTICAL METHODS

(Summarized from SW-846)

TABLE I

SAMPLE PRESERVATION AND HOLDING TIMES

Parameter	Method[1]	Container	Holding Time
Volatiles	SW 8260B	4 oz G	14 days
Semi-Volatiles (BNA)	SW 8270C	32 oz G*	7days/40 days
Organochloride Pesticides	SW 8081A	32 oz G*	7 days/40days
PCB	SW 8082	32 oz G*	7 days/40 days
Herbicides	SW 8151A	32 oz G*	7 days/40 days
Organophosphorus Pesticides	SW 8141A	32 oz G*	7 days/40 days
Metals (Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn)	SW 6010B	32 oz G**	6 months
Mercury	SW 7471A	32 oz G**	28 days
Cyanide	SW 9010B SW 9014	32 oz G**	N/A
Oil & Grease	SW 9071A	32 oz G**	N/A
Phenols	SW 9065	32 oz G**	N/A

[1] Equivalent EPA Clean Water Act Methods or the SW-846 method for liquids or solids may be used even if not shown on this list.
All containers are glass with Teflon liner in the lid.
* Used for all organic parameters, except Volatiles.
** Used for inorganic analytes.
All samples preserved at 4˚C.

ATTACHMENT 8

WASTE~~CONTAINER~~ MANAGEMENT, PROCESSING AND STORAGE

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Style Definition: Style Bold Centered: No underline, All caps, Space Before: 6 pt, After: 6 pt

~~**Table of Contents**~~

Table of Contents

List of Appendices

~~List of Appendices~~

~~**APPENDIX A CONCRETE COATINGS**~~

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1.0 Containers

1.1 General Container Management

Containers are managed in Units 105, 106, 255, ~~-~~535, and 604. Unit 604 will not be used to manage containers while tanks T-4522 and T-4523 are installed inside the unit for the thin film evaporator system. Each unit serves a different purpose and has varying storage capacities and/or handling functions. Transfer between containers, addition of absorbent, container cleanout, and storage are among the functions of the various units.

Records, maintained at the facility, provide information regarding wastes and document the movement of wastes through the facility from receipt, to storage and handling to shipment off-site. The records can be accessed by a unique identifier assigned to each waste container.

Thaw Unit (Unit 105)

Unit 105 was originally designed to accommodate rail or load bulk loads which require warming the waste to facilitate sampling or management. The building is also used to transfer waste received in roll-offs to smaller containers (< 120 gallons) and to store intermediate bulk containers (<350 gallons) smaller containers. Intermediate Bulk Containers and smaller containers can be double stacked when a pallet is used between the first and second levels. Occasionally, empty tank cars and tank trucks will also be cleaned out in this area. When ~~all of~~all the waste does not drain during the normal course of transferring the material out of the rail tank car, a heel of waste remains. When determined necessary by Clive or the generator, ~~heals~~ heels are also removed utilizing steam in Unit 105.

The building is constructed of structural steel columns, enclosed with siding, and has a supported roof system. The approximate overall dimensions of the building are 43 feet wide, 173 feet long and approximately 24 feet to eave height. The shed is equipped with roll-up doors at each end to accommodate road and rail tankers, and trucks. Drawing 43-10-4-J10 Plan and Sections in Attachment 9 depict the arrangement of this unit.

When necessary during cold weather conditions, the Thaw Unit will be maintained ~~at a~~in a temperature range of ~~typically in the~~ 50 to 80 degrees Fahrenheit range to slowly warm and thaw wastes to the point at which the waste may be safely removed from the container.

All bulk loads will remain closed, while in the unit, except when sampling, inspecting, or transferring waste.

The ventilation system will provide a minimum of one air change per ~~hour, and~~hour and will be exhausted to the atmosphere. The total air volume of the Thaw Unit is approximately 178,600 cubic feet, thus, approximately 2,980 cfm of exhaust is required to achieve one air exchange per hour. The ventilation system will consist of two 4,250 cfm gable mount fans and one 7,500 cfm air make-up fan.

Containerized Bulk Solids Storage Unit (Unit 106)

Clean Harbors Clive, LLC (Clive) has constructed and uses a Containerized Bulk Solids Storage Unit at the facility. This unit, Unit 106, consists of three subunits, designated Subunits 1, 2, and 3.

Large and smaller containers (< 120 gallons) are handled and stored in the Containerized Bulk Solids Storage Unit, Unit 106, only as specified herein, prior to transfer for management at other on-site units or off-site permitted hazardous waste facilities. The waste stored and segregated in this unit is typically containerized solid and sludge type wastes that may contain free liquids. Waste containers handled and stored in the Containerized Bulk Solids Storage Unit include intermodal containers (IMCs), sludge boxes, roll-off bins, van trailers with containers (e.g., 55-gallon drums), tanker trailers, and other large containers. Also, "Sea Line" type containers may be placed in Unit 106. Smaller containers (< 120 gallons) may also be stored in Unit 106 (Subunit 1, enclosed portion only).

The containers may be delivered to Clive by road or rail. Large containers arriving by rail will be off-loaded (e.g., via piggy packer, forklift, etc.) and transferred to Unit 106, the Containerized Bulk Solids Storage Unit for storage. Large containers arriving by road may be unloaded in Unit 106 or in other appropriate Units (such as Thaw Unit 105) and then transferred to Unit 106.

Occasionally, the enclosed portion of Unit 106, Subunit 1 will be used to transfer waste received in roll-offs to smaller containers (e.g., 55 gallon drums) and to store smaller containers.

The Containerized Bulk Solids Storage Unit consists of three rectangular storage areas known as subunits. Secondary containment consists of sloped floors (with perimeter curbs). The layout of Unit 106 is shown on Drawing 43-10-2-D61, sheet 4 in Attachment 9.

Large Containers shall not be stacked more than three high in the enclosed portion of Subunit 1. Triple stacking of large containers may also occur in the unenclosed portion of Subunit 1, Subunit 2, and Subunit 3 provided that the permitted storage capacities of the unenclosed portions of Unit 106 are not exceeded. In addition, no incompatible wastes, as determined by the Waste Analysis Plan, shall be stored within the enclosed portion of Subunit 1, the unenclosed portion of Subunit 1, Subunit 2, and Subunit 3.

Small containers (< 120 gallons) may only be stored in the enclosed portion of Subunit 1 and will not be stacked more than two high.

The dimensions of Subunits 2 and 3 are 43 feet wide by 465 feet long each. The dimensions of Subunit 1 are 43 to 45 feet wide by 465 feet long. As mentioned above, a portion of Subunit 1 is enclosed to allow for the storage of TSCA waste. Hazardous waste may be stored in all areas of all subunits of Unit 106, while storage of TSCA waste is limited to the enclosed portion of Subunit 1.

The secondary containment system for each subunit provides sufficient capacity to contain ten percent of the volume of the containers within the area, in accordance with requirements listed in R315-264-175(b)(3). The portions of Unit 106 not within an enclosure (Subunits 2 and 3 and a portion of Subunit 1) have sufficient additional capacity to also contain a 25-yr, 24-hr storm event (1.9 inches). Secondary containment capacity is provided by curbs and sloped floors. These curbs also serve to prevent the run-on of surface water, as required under R315-264-175(b)(4). Curbs are placed completely around the perimeter of each subunit.

Subunit floors are constructed of reinforced concrete equipped with waterstops and concrete coating, satisfying the requirements of R315-264-175(b)(1). Subunit floors are sloped (1% to 1.5% or greater - see Drawing 43-10-2-D61, sheets 5 and 12 in Attachment 9 for details).

Railcar to Trailer Transload Building (Unit 255)

The Railcar to Trailer Transload Building is used to transfer solid non-hazardous waste, solid hazardous waste and solid PCB-containing waste from rail gondola cars to end dumps and roll-off boxes. Storage is not permitted in Unit 255. Waste transferred into containers suitable for transfer over the road are either put into storage at the Clive facility or sent to the designated treatment, storage, or disposal facility. Unit 255 is located north of the fenced portion of the facility.

Rail/Truck Transfer Bay (Unit 535)

The Rail/Truck Tanker Transfer Unit, Unit 535, is used to transfer wastes from rail tankers to trucks or vice-versa. Occasionally, empty tank cars and tank trucks will also be cleaned out in this area. Drawings 43-53-4-J07, Rail Tanker Unloading Plans and Sections and

43-53-2-J01, Rail Tanker Unloading Unit Details, in Attachment 9, provide details on the design of these units. The location of this unit is shown on Drawing 43-01-1-J02, which is a plan view of the facility. This drawing can be found in Attachment 9.

Truck Wash Bay (Unit 604)

The Truck Wash Bay is used for the management of leaking containers, including the transfer of waste to a container in good condition, prior to shipment to an offsite treatment or disposal facility. It is also used for washing containers and equipment. These container management activities will not take place in Unit 604 while tanks T-4522 and T-4523 are installed inside the unit for thin film evaporator system.

Treatment Container (Unit 707)

The waste to be managed in the Treatment Container, Unit 707, include: RCRA solids/sludges (acceptable waste codes permitted pursuant to Module 2.C. of the Permit), non-hazardous waste, and RCRA-exempt waste. Unit 707 is located at the north end of Subunit 3 of Unit 106 and is not permitted for storing waste.

The Treatment Container is used to solidify/treat and transfer waste from a customer-shipped roll-off container to a roll-off container for storage and transportation from the Clive facility to a treatment, storage, and disposal facility. The Treatment Container is emptied when not being actively used to treat or transfer waste and at the end of each shift. The treatment container will remain covered with a tarp or other suitable cover when not actively being used to manage (placing, mixing and removing) waste. Drawing 64BW-5600-200 in Attachment 9 provides details of the Treatment Container.

Incoming shipments of hazardous wastes will be evaluated for applicability of R315-264-1080 through 1090 controls using information provided on the Waste Profile and sampling results, as required. If roll-offs, or other containers are determined to be subject to R315-264-1080 through 1090 controls, they will be monitored in accordance with the requirements of Condition 3.G. of this Permit.

All waste managed in the Treatment Container shall be documented and incorporated into the operating record, as required by Condition 2.L. The information in the operating record shall include, at a minimum, the unique identifying number assigned to the container of waste placed into the treatment container; the amounts of absorbent and reagents added, and the unique identifier(s) of the box(es) into which the waste is placed. All waste

tracking requirements apply to the waste prior to and following management in the Treatment Container.

1.2 Container Storage

Clean Harbors Clive, LLC stores containers of hazardous waste in the Units 105, 106, 535, and 604. Unit 604 will not be used to store containers while tanks T-4522 and T-4523 are installed inside the unit for the thin film evaporator system. -The requirements of R315-264-170 through 179 and R315-270-15 apply to the Thaw Unit (Unit 105), Containerized Bulk Solids Storage Unit (Unit 106), Rail/Truck Tanker Bay (Unit 535), and the Truck Wash Bay (Unit 604).

The term "container" in this section means any portable device in which material is stored, transported, or otherwise handled. The term "drum" in this section will refer to a container having a capacity of 120 gallons or less.

All container shipments accepted in accordance with the waste acceptance procedures specified in Attachment 1, Waste Analysis Plan, will be placed into permitted storage within 10 days of arriving at the facility. Arrival at the facility occurs when the waste passes through the facility gate. If circumstances dictate that unloading will be delayed beyond this ~~time period~~time, the load will be moved into a permitted storage area. The containers that are not unloaded within 10 days of arrival will be stored in a separate area away from wastes that are in storage. The area will be clearly marked and will be used for no other purpose. An inventory of the waste stored in this area will be maintained and will be part of the operating record.

1.2.1 Description of Containers

Thaw Unit (Unit 105)

Containers which may be stored in Unit 105 include Rail Tank Cars, Road Tanker Trucks, IMC's, sludge boxes, roll-offs, and drums. If a container in the Thaw Unit exhibits severe rusting, or it leaks or otherwise appears to be in poor condition, the container and its contents will be managed in accordance with Condition 3.E.1. Waste stored in the Thaw Unit will be compatible with the container in which it is stored. Waste that is transferred from a container in poor condition will be transferred to a container in good condition and

compatible with the waste. When waste is transferred to replacement containers, all markings and labels will be duplicated or transferred to properly identify the contents of the replacement containers.

Containerized Bulk Solids Storage Unit (Unit 106)

The Containerized Bulk Solids Storage Unit ~~is capable of receiving~~can receive and ~~storing~~ store large containers, such as sludge boxes, roll-off bins, tanker trailers and intermodal containers. In addition, smaller containers (i.e., those with a capacity of 120 gallons or less) may be stored in the enclosed portion of Unit 106, subunit 1. Typical dimensions of the boxes to be stored are 8 feet wide, 20-24 feet long, and approximately 4-9 feet high ("Sea Line" containers may be as long as 33 feet). Containers will be covered to prevent the ingress of precipitation or the egress of waste. The most common material of construction will be carbon steel. Some of the containers may have their carbon steel tops replaced by aluminum, fiberglass, or a tarp to reduce dead weight. Containers accepted for storage in Unit 106 are required to be compatible with the wastes stored within them.

If a container in Unit 106 exhibits severe rusting, irreparable leaks or otherwise appears to be in poor condition, the container and its contents will be managed in accordance with Condition 3.E.1. In addition, waste can be transferred from a container in good condition into another container. When waste is transferred to replacement containers, all markings and labels will be duplicated or transferred to properly identify the contents of the replacement containers.

Rail/Truck Transfer Bay (Unit 535)

The Rail/Truck Tanker Transfer Unit will be used to position a rail tanker of nominally 20,000-gallon capacity, while its contents are unloaded into a road tanker. If a container or transport vehicle in the Rail/Truck Tanker Transfer Unit exhibits severe rusting, or it leaks or otherwise appears to be in poor condition, the contents of the container will be transferred to a container(s) or transport vehicle(s) in good condition. Waste stored in the Rail/Truck Tanker Transfer Unit will be compatible with the container in which it is stored. Waste that is transferred from a container or transport vehicle in poor condition will be transferred to a container or transport vehicle in good condition and compatible with the waste.

Truck Wash Bay (Unit 604)

The Truck Wash Bay will be used to store containers for transfer. Large containers, intermediate bulk containers and smaller containers can be stored in Unit 604.

Intermediate bulk containers and smaller containers can be double stacked when a pallet is used between the first and second levels. No more than four roll-offs (or waste equivalent) will be stored in this unit at the same time. Waste may only be stored in Unit 604 if the equivalent capacity is available and remains available in Unit 106 and if tank T-4522 and T-4523 s are not installed inside the unit for the thin film evaporator ~~-~~system. If a container in Unit 604 exhibits severe rusting, irreparable leaks or otherwise appears to be in poor condition, the container and its contents will be managed in accordance with Condition 3.E.1. When waste is transferred to replacement containers, all markings and labels will be duplicated or transferred to properly identify the contents of the replacement containers.

1.3 Container Management Practices

Thaw Unit (Unit 105)

The maximum permitted capacity of the Thaw Unit is 60,000 gallons, or 8,020 cubic feet. This includes both TSCA and RCRA wastes.

Containers will remain closed except when inspecting, sampling, and transferring waste. Drawing 43-10-4-J10 Thaw Unit Plan & Sections in Attachment 9 identifies aisles along the sides of the building that are four feet four inches wide, and a center aisle over the containment sumps which is six feet wide.

Waste will only be transferred to and/or from containers in Unit 105 in accordance with Condition 3.G of the permit.

Containerized Bulk Solids Storage Unit (Unit 106)

The permitted storage capacity for Unit 106 is 1,847,871 gallons. Subunit 1 has a capacity of 630,240 gallons with 448,440 gallons in the enclosed area and 181,800 gallons in the unenclosed area. Subunit 2 has a capacity of 617,463 gallons and Subunit 3 has a capacity of 600,168 gallons.

In each subunit, there are three rows containing a variable number of containers. A typical storage arrangement within the Containerized Bulk Solids Storage Unit is shown on Drawing 43-10-2-D61, sheet 4 in Attachment 9. A minimum of 2.5 feet of aisle space will be maintained between containers in Unit 106.

If a waste shipment contains incompatible waste, the waste will be placed in a segregated storage area. If it is determined by the waste profile that a container of waste is incompatible with the other wastes stored within the containment system (i.e., the enclosed portion of Subunit 1, the unenclosed portion of Subunit 1, Subunit 2, or Subunit 3), it will be removed within 24 hours and placed in a different subunit storage area containment system with other wastes with which it is compatible. This separation method for wastes requiring segregation is in compliance with R315-264-177(c).

During storage, the containers will be kept closed to prevent dispersion of wastes into the environment. Containers will be opened only for inspections, sampling, and transfer of wastes between containers (e.g., in response to a leaking container). Regularly scheduled inspections of the container storage areas will be conducted to detect open or deteriorating containers, improper storage, liquids in the secondary containment system; or other unsafe conditions as required by R-315-264-15~~8 9.5~~. The frequency of these inspections is outlined in Attachment 3, Inspection Matrix.

Waste will only be transferred to or from containers in Unit 106 in accordance with Condition 3.G of the permit.

All wastes stored in the Containerized Bulk Solids Storage Unit will eventually be transferred to other on-site management units for storage and further processing, or to appropriate off-site facilities. On-site management units that can accept wastes directly from Unit 106 include the Thaw Unit (Unit 105) and the Truck Wash Unit (Unit 604).

The location of containers stored at Unit 106 will be recorded in the operating record by using an alpha-numeric system of coordinates that will identify the storage location of each container. The operating record will be maintained so that it will accurately indicate the waste identification number (unique identifier), the quantity of the waste, and the location of the waste at Unit 106 in accordance with R315-264-73.

A grid system has been defined for Unit 106 and is presented in Drawing 43-10-2-D61, sheet 4 in Attachment 9. The grid is numbered from 1 to 19 and from A to J. Lines painted on the concrete surface indicate the aisle spaces between containers. The painted lines indicating the aisles create a minimum of 2.5 feet of aisle space. This will facilitate the positioning of the containers and allow easy inspection to ensure that the minimum

aisle spacing of 2.5 feet has been met, i.e., as long as the containers do not encroach on the painted lines, the necessary aisle space is being maintained. Intermediate bulk containers and drums stored in the enclosed portion of Subunit 1 will be stored on pallets or equivalent and on a painted grid system placed inside the roll-off container markings. Intermediate Bulk Containers and smaller containers can be double stacked when a pallet is used between the first and second levels.

To identify the stacking arrangement of containers within the area, a letter will be used to indicate if the container is at ground level or stacked on top of another container. The number 1 will designate those containers found at ground level and the number 2 will designate those containers that are stacked on top of one other container (double stacked)., and the number 3 will designate those containers stacked on top of two other containers (triple stacked). An example of a typical location identifier used to identify the location of a container in the area would be 106-C05D; the 106 indicating that the container is stored at Unit 106, the letter C indicating that the container is in column C of the grid, the number 05 indicating that the container is in row 5 of the grid, and the letter D indicating that the container is stacked on top of one other bulk container.

Records are maintained at the facility which allows access to information regarding wastes, and document the movement of wastes through the facility from receipt, to storage and processing, through shipment off-site. The records will be accessed by a unique identifier assigned to each waste container. The unique identifier is provided on a bar-code label that is adhered to each container that is placed into storage.

Rail/Truck Transfer Bay (Unit 535)

A maximum of one rail tanker will be located at the Rail/Truck Tanker Transfer Unit at any given time. Based on containment volume considerations, the maximum RCRA permitted capacity of the Rail/Truck Tanker Transfer Unit is 23,560 gallons. Rail tankers and road ~~tankers will~~tankers will remain closed except when inspecting, sampling, adding or removing wastes. Waste will only be transferred to and/or from tankers and containers in Unit 535 in accordance with Condition 3.G of the permit.

Truck Wash Bay (Unit 604)

Unit 604 can only be used to store containers if tanks T-4522 and T-4523 are not installed inside unit for the thin film evaporator system. A maximum of four roll-off containers may ~~be located in~~be in the Truck Wash Bay at any one time. One roll-off of capacity will be kept available in Unit 106 for each for each roll-off container stored in Unit 604. Containers will remain closed except when inspecting, sampling, adding or removing

wastes. Waste will only be transferred to and/or from containers in Unit 604 in accordance with Condition 3.G of the permit.

The location of containers stored at Unit 604 will be recorded in the operating record by using an alpha-numeric system of coordinates that will identify the storage location and level of each container. The operating record will be maintained so that it will accurately indicate the waste identification number (unique identifier), the quantity of the waste, and the location of the waste at Unit 604 in accordance with R315-264-73.

Treatment Container (Unit 707)

RCRA waste having a volatile organic content ≥500 ppmw will be mixed in a container having emission controls meeting the requirements of Condition 3.G and R315-264-1086(c) and (d).

Waste having a volatile organic content <500 ppmw can be mixed in the container without emission controls. Mixing means the mechanical agitation of the waste for the purpose of solidification or treatment with absorbent or reagent. Treatment of waste will require Clive to comply with R315-262: Standards Applicable to Generators of Hazardous Waste, so that when the waste is shipped off-site, Clive will be the generator of the waste.

All treatment operations will be conducted in a manner that minimizes emissions of volatile organic compounds and dust. To accomplish this, when adding material to a container, the material will be added as close to the bottom of the container, or to the surface of the material already in the container, as possible. Waste and reagent will not be dropped into the container from an elevated height.

Treatment and transfers of waste from the treatment container to the outbound shipping container(s) will be conducted using an excavator, backhoe or other suitable equipment. Treatment of all waste will be conducted within the secondary containment of the permitted unit.

All operations will be conducted in a manner that minimizes spills of waste outside of the containers. Any spills that occur shall be cleaned up immediately after treatment and removal operations have been completed. During the process, all containers will remain properly closed except for when waste is being added, removed, sampled or treated.

Following completion of the treatment operation, the incoming and outgoing shipment containers must be inspected to ensure that there is no residual waste on the outside of the

containers. Any residual waste shall be cleaned ~~off of~~off the container(s) and the container closed before they are stored or offered for transportation. If not shipped offsite within 10 days, the container of treated waste will be stored in a permitted storage unit.

Prior to placing a full outgoing shipment roll-off container into storage or releasing it for transportation, the container must be covered with a tarp or other cover and inspected to ensure that there are no detectable emissions (as defined in Module 3.G. of the Permit) from the cover.

1.4 Secondary Containment System Design and Operation

Thaw Unit (Unit 105)

The secondary containment system of the Thaw Unit has been designed to facilitate sound container management practices and prevent the release of hazard wastes into the environment. Drawings 43-10-4-J10 and 43-10-2-J05 in Attachment 9 provide plan, elevation and section views of the building and the containment system design.

Containerized Bulk Solids Storage Unit (Unit 106)

The secondary containment system of the Containerized Bulk Solids Storage Unit has been designed to facilitate sound container management practices and prevent the release of hazardous wastes into the environment. Plan, elevation and section views of Unit 106 and the containment system design are shown on Drawing 43-10-2-D61, sheets 4 - 8 and 10 - 12 in Attachment 9.

Rail/Truck Transfer Bay (Unit 535)

The secondary containment system of the Rail/Truck Tanker Transfer Unit has been designed to facilitate sound container management practices and prevent the release of hazardous wastes into the environment. Drawings 43-53-4-J07 and 43-53-2-J01 in Attachment 9 provide plan and section views of the bay and the containment system design.

Truck Wash Bay (Unit 604)

The secondary containment system of the Rail/Truck Tanker Transfer Unit has been designed to facilitate sound container management practices and prevent the release of hazard wastes into the environment. Drawings 43-60-2-J04 and 43-60-4-J08 in Attachment 9 provide plan and section views of the bay and the containment system design. A total of 1100 ft^3 of containment capacity is available which is greater than the largest container, 30 yd^3, which may be stored in the unit at any time.

1.4.1 Requirement for the Base or Liner to Contain Liquids

Containment areas are constructed on a minimum of eight inch thick concrete pads reinforced with one or two mats of #4 steel reinforcing bar poured on a compacted fill base. The slabs shall be maintained free of cracks or gaps. All joints contain a continuous water stop to prevent migration of water/liquids past the stop.

A sealant shall be maintained on all concrete surfaces within the containment systems. If liquids are discovered, they shall be removed within 24 hours of detection.

A table listing the technical specifications of each coating group used in the container storage units within the Clive facility is provided in Appendix A, Concrete Coatings.

1.4.2 Containment System Drainage

Thaw Unit (Unit 105)

The floor of the Thaw Unit is sloped at approximately 1/8 inch per foot to four separate sumps. The storage area is completely enclosed to prevent run-on of rain or dispersion of wastes by wind. Wastes will only be placed in the Thaw Unit after review of manifest information to confirm that the wastes are compatible. If subsequent sampling, testing and/or analysis indicate that incompatible wastes are present in the Thaw Unit, such containers of wastes determined to be incompatible will be removed within 24 hours and relocated to an appropriate alternate storage area.

Containerized Bulk Solids Storage Unit (Unit 106)

The floor of each subunit within the Containerized Bulk Solids Storage Unit is sloped (1% to greater than 1.5% - see Drawing 43-10-2-D61 sheets 5 and 12 in Attachment 9 for details) toward the outside perimeter berms. Most containers are equipped with legs that support the body of the containers a minimum of eight inches above ground level. If a container is not equipped with legs (eight ~~inch~~inches minimum), another method will be used to elevate the container. Other methods may include placing railroad ties or grating beneath the container. The elevation of each container, in combination with the drainage provided by the slope of the concrete floor, will satisfy the requirements of R315-264-175(b)(2) by preventing contact between the accumulated liquid and the body of each container.

Truck Wash Bay (Unit 604)

Drawings 43-60-2-J04 and 43-60-4-J08 in Attachment 9 show the details of Truck Wash Bay containment. The tanks shown in the drawing are not in use and the piping from the sumps are blocked where they penetrate the wall on the east side of the bay. The floor is sloped to the sumps.

Rail/Truck Transfer Bay (Unit 535)

The rail side of the Rail/Truck Tanker Transfer Unit is sloped at a nominal 1/4 inch per foot to two sumps each of which is 14 feet long by 3 feet wide by 3 feet 6 inches deep (minimum). The tanker truck side of the Rail/Truck Tanker Transfer Unit is sloped at a nominal 1/2 inch per foot to one sump in the center of the bay which is 14 feet long by 3 feet wide by 3 feet 6 inches deep (minimum).

1.4.3 Removal of Liquids from Containment Systems

The floor of the Unit 106 is sloped (1% to greater than 1.5%) in all container storage areas and access aisles. This slope will facilitate the detection of leaks, causing any liquid which might leak from a container to migrate down the slope to the perimeter areas. Liquid, which accumulates in the secondary containment system will be collected (e.g., vacuum truck, portable pump, etc.) and managed as a hazardous waste.

The floor slope of 1/8 to 1/2 inch per foot provided in all other container storage bays, access corridors and processing areas will facilitate the detection of leaks causing any liquid which might leak from a container to migrate down the slope to a containment sump.

When an inspection reveals liquid within the sump, the source of the leak will be identified. The identification of the location of a leak may be accomplished in ~~a number of~~several ways, using a variety of inspection techniques. Visual inspection of the condition of containers, localized staining or leakage adjacent to a ~~particular drum~~drum, rocking of containers to determine if volume has been lost are techniques which are most likely to be employed to trace the source of a leak. If these measures fail, a sample of the liquid in the sump will be analyzed in accordance with the waste analysis plan for a range of characteristics based upon the possible contents of the containers in the containment area. This process should identify the waste stream that has leaked. All the containers of that waste stream would then be checked for leaks.

Wastes from the leaking container will be transferred into a clean container, or the container and its contents will be transferred into an overpack. Liquid in the sump will be transferred from the sump to a clean container via a portable pump. Other suitable methods using absorbents, vacuum systems, etc. may also be used to manage spills. Any container into which wastes are transferred will be appropriately labeled as to the type of waste stored in it and managed in the same manner as was specified for the container from which the waste originated. In the unlikely event that the waste cannot be traced back to a specific container or group of containers, a sample will be analyzed to permit proper definition of the management protocol necessary for the waste. Minor leakage which does not flow to a sump will be absorbed, collected and placed in an appropriately labeled container.

1.4.4 Control of Run-On

The storage areas are completely enclosed within the Thaw Unit and Truck Wash Bay to prevent ingress of wind borne rain or dispersion of wastes by wind. The Thaw Unit also has an ~~eight inch~~eight-inch perimeter curb. Rainwater from the roofs of these storage units is brought to grade level by a system of roof drains. Site grading around the ~~buildings diverts~~buildings diverts water away from them.

The Rail/Truck Transfer Bay is surrounded by concrete berms which prevent run-on into the containment areas.

Likewise, in Unit 106, each subunit is completely surrounded by perimeter curbs that prevent surface water run-on into the containment areas (see Drawing 43-10-2-D61, sheets 5 - 8, 10 - 12 in Attachment 9 for curb details). The unenclosed containment areas have been designed to accommodate the amount of rainfall that would accumulate from a 25-year, 24-hour storm event (1.9 inches) plus 10% of the volume of containers stored as required by R315-264-175(b)(3). Therefore, run-on is prevented and/or controlled as required by R315-264-175(b)(4).

1.5 Special Requirements for Incompatible wastes

Thaw Unit 105

When incoming containers are received at Unit 105, the containers will be placed into storage so that any incompatible wastes, as described on the manifests and determined through incoming load procedures, are not placed within the same containment system. Four separate sump systems are provided to contain leaks from containers in Unit 105.

Should one or more containers subsequently be determined to be incompatible with the other wastes stored in a common secondary containment system, the container(s) of incompatible waste will be relocated to another secondary containment system storing compatible wastes. The criteria for determining where a ~~particular waste~~waste is stored are based upon considerations of compatibility and storage area capacity.

A storage area will be cleaned if a spill has been reported or evidence of a spill is found when removing containers from the storage area. Decontamination procedures specified in the Closure Plan will be employed in cleaning up spills. Equipment normally employed during cleanups includes brooms, shovels, absorbents, pumps, detergents and wash water.

Containerized Bulk Solids Storage Unit (Unit 106) and Truck Wash Bay (Unit 604)

When received at Unit 106 or 604, incoming containers will be placed in storage so that incompatible wastes, as described by the manifests and determined by incoming load procedures, will not be placed within the same containment system. Should one or more containers subsequently be determined to be incompatible with the other wastes stored in a common secondary containment system, the container(s) of incompatible waste will be relocated within 24 hours to another secondary containment system containing compatible wastes. The criteria for deciding where ~~particular wastes~~wastes are stored will be based upon considerations of compatibility and storage area capacity. Storage areas will be used interchangeably.

A storage area will be cleaned if a spill has been reported or evidence of a spill is found when removing containers from the storage area. Decontamination procedures will be employed in cleaning up spills. Equipment normally employed during cleanups includes brooms, shovels, absorbents, pumps, detergents and wash water.

Rail/Truck Transfer Bay (Unit 535)

In this Unit, wastes will be unloaded from the rail tanker into a road tanker. Only one container will ~~be located in~~be in the Rail/Truck Tanker Transfer Unit at any one time so incompatibility with another waste within the unit will not be an issue.

2.0 Tank Management

2.1 Truck Wash Bay (Unit 604)

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Two feed tanks, T-4522 and T4523, are located inside building 604 in order to receive caustic solvent waste (CSW). The pH of the CSW will be brought below a pH of 12 and fed to a Thin Film Evaporator. The feed tanks are nominally 17,850-gallon atmospheric double walled flat bottom tanks constructed of carbon steel and loaded through a top nozzle. CSW is typically shipped by rail in 21,000-gallon nominal rail cars. These CSW rail cars will be off loaded near Building 604 as depicted in drawing D-604-M-002 over a spill pan that will drain to Building 604.

2.1.1 Receiving process

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A sample is taken from the railcar and tested for pH according to procedures outlined in Attachment 1 – Waste Analysis Plan. The results determine the amount of acid needed to neutralize the waste to a pH less than 12. Once the paperwork is approved, the rail car wheels are chocked and grounded, an unloading hose is connected from the bottom of the rail car to the suction of Unloading Pump P-4521, and the vent on the rail car is opened.

Sulfuric acid is added to the waste in-line during the transfer from the rail car to the frac tank(s) using a chemical feed pump. The flow rate for the chemical feed pump is selected based on lab analysis. The destination tank for the load is selected by the operator based on the liquid level in the tanks and which tank is being used for processing. The liquid level is noted in the log sheets, the valves between the Unloading Pump P-4521 and the selected Feed Tank are opened, then the valves between the rail car and Unloading Pump are opened and the Pump is energized. Simultaneously, valves are opened between the sulfuric acid tote tank and Chemical Feed Pump P-4533 and from the Chemical Feed Pump to the suction of Unloading Pump, 4521. Pump P-4533 is energized.

During loading the Feed Tank is grounded and provided with a non-contact ultrasonic type level indicator which reads locally and at the Operator Control Panel. The Feed Tanks are provided with pressure/vacuum conservation vents set at +16oz/in^2 pressure and -0.4 oz/in^2 vacuum. When the internal pressure of the tank increases above 16 oz/in^2, the pressure vent opens and releases vapor to atmosphere. Similarly, when the tank pressure drops below 0.4 oz/in^2 vacuum, the vacuum vent opens and allows atmospheric air to enter the tank and equalize the pressure. Between – 0.4 oz in^2 and +16 oz/in^2, the tank vents are closed.

When the Rail Car is emptied, the Unloading Pump and Chemical Feed Pump are de-energized, valves are closed, the hose disconnected and drained, and the Rail Car vent is sealed.

2.1.2 Thin Film Evaporator Treatment Process

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The Thin Film Evaporator (TFE) is a vertical thin film evaporator designed to separate low boiling compounds from high boiling compounds. The Evaporator is comprised of a vertical shell with an external steam jacket. Feed enters the TFE tangentially at the top of the heated shell. A vertical agitator is mounted in the shell with top and bottom bearings. The agitator has a blade to wipe liquid against the heated surface of the TFE as it flows downward by gravity. Lower boiling liquids evaporate and exit the TFE through a top nozzle while higher boiling liquids drain by gravity through the bottom nozzle.

The steam jacketed shell of the TFE provides heat to the process. The goal is to evaporate the majority of the lighter boiling compounds in the waste. A Preheater is provided to heat the feed before it enters the TFE. The Preheater is a shell and tube heat exchanger. Steam in the exchanger heats and vaporizes a portion of the feed.

Vapor from the TFE passes into the bottom of a Column and flows upward through the packing. The contact of vapor and liquid in the column acts to vaporize low boiling compounds in the liquid and condense higher boiling compounds in the vapor creating a

cleaner cut between the overhead vapor and liquid from the TFE. Liquid from the Column drains into the TFE where it flows down the heated surface.

Overhead vapor from the Column is condensed. A portion of the condensed vapor is returned to the top of the column and the remainder is pumped to storage tanks.

Hot liquids from the bottom of the TFE drain by gravity into a small tank. These bottoms are cooled and pumped to storage tanks as product. ~~CSW waste caustic solvent waste (CSW) is typically shipped by rail in 21,000 gallon nominal rail cars. These CSW rail cars will be off loaded near Building 604 as depicted in drawing D-604-M-002 over a spill pan that will drain to Building 604.~~

~~The two RCRA permitted receiving double walled frac tanks are located inside Building 604. A sample is taken from the railcar and tested to determine the amount of acid needed to neutralize the waste to a pH less than 12. Once the paperwork is approved, the rail car wheels are chocked, grounded, an unloading hose is connected from the bottom of the rail car to the suction of Unloading Pump P-4521, and the vent on the rail car is opened. Sulfuric acid is added to the waste in-line during the transfer from the rail car to the frac tank(s) using a chemical feed pump.~~

~~Two Feed Tanks T-4522 and T-4523 are provided to receive CSW waste for processing. The tanks are nominally 17,850 gallon atmospheric double walled flat bottom tanks constructed of carbon steel. The flow rate for the chemical feed pump is selected based on lab analysis. The destination tank for the load is selected by the operator based on the liquid level in the tanks and which tank is being used for processing. The liquid level is noted in the log sheets, the valves between the Unloading Pump P-4521 and the Feed Tank are opened, then the valves between the rail car and Unloading Pump are opened and the Pump is energized. Simultaneously valves are opened between the sulfuric acid tote tank and Chemical Feed Pump P-4533 and from the Chemical Feed Pump to the suction of Unloading Pump, 4521. Pump P-4533 is energized.~~

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~~The Feed Tanks are loaded through a top nozzle. The tank is grounded and provided with a non-contact ultrasonic type level indicator which reads locally and at the Operator Control Panel. The Feed Tanks are provided with pressure/vacuum conservation vents set at +16oz/in^2 pressure and -0.4 oz/in^2 vacuum. When the internal pressure of the tank increases above 16 oz/in^2, the pressure vent opens and releases vapor to atmosphere. Similarly, when the tank pressure drops below 0.4 oz/in^2 vacuum, the vacuum vent opens and allows atmospheric air to enter the tank and equalize the pressure. Between -0.4 oz in^2 and +16 oz/in^2, the tank vents are closed.~~

~~When the Rail Car is emptied, the Unloading Pump and Chemical Feed Pump are deenergized, valves are closed, the hose disconnected and drained, and the Rail Car vent is sealed.~~

2.2 Compliance with New Tank System Regulations

A written assessment required per R315-264-192 is found in Appendix B. These tanks will be placed on the existing secondary containment in Unit 604.

2.2.1 Containment and Detection of Releases

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Secondary containment is provided with the double wall frac tanks. The interstitial space between the two walls will be inspected for any sign of a release per R315-264-193.d.1, a liner external to the tank. The double wall tanks are compliant with R315-264-193.e.3

This design will contain 100% of the tank capacity. Placement inside the enclosed Unit 604 prevents any run-on or precipitation.

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2.2.2 General Operating Requirements

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Operators will be in the proximity anytime waste is placed into or removed from these tanks to prevent spills. Valves will be closed before disconnecting any flexible hose. Operators will verify frac tank(s) freeboard before energizing the pump to fill, preventing overfill.

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2.2.3 Tank Systems Inspections

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Attachment 3 (Inspections) has been updated to include these tank systems.

2.2.4 Response to Leaks or Spills

If a leak or spill is detected from the tank system, it will be cleaned per Attachment 6, the Contingency Plan. The source of the leak or spill will be determined and if the system integrity is not damaged it will be returned to service.

2.2.5 Closure and Post Closure

Attachment 7 (Closure Plan) has been updated to close these two tank systems.

2.2.6 Special Requirements for Ignitable or Reactive Wastes

Ignitable or reactive wastes will not be placed in these tanks.

2.2.7 Special Requirements for Incompatible Wastes

Incompatible wastes will not be placed in these tanks.

2.2.8 Air Emission Standards

Air emissions from these tanks will be negligible and are regulated by UDEQ Division of Air Quality.

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APPENDIX A

CONCRETE COATINGS

APPENDIX A

CONCRETE COATINGS

The concrete coating systems at the Clive facility consist of four types. Each type is selected to provide the appropriate level of protection against chemical penetration and abrasion for all concrete secondary containment surfaces within Clive. The types are differentiated by the configuration of the surface to which they will be applied. These four types are designated as Type I, II, III and IV. A general, functional specification for each system is provided below.

Type I: Coatings for horizontal surfaces outside of sumps and trenches. These coatings are designed for high volumes of abrasive traffic as well as for excellent chemical resistance.

Type II: Coatings for sumps and trenches. These coatings provide a very high degree of chemical resistance. These coatings may also be used for coating joints in the concrete outside of sumps and trenches.

Type III: Coatings for vertical surfaces outside of sumps and trenches. These coatings are similar to Type I coatings, except that they have a somewhat lesser degree of abrasion resistance.

Type IV: Coatings for expansion joints, construction joints, corner fillets, and repairing cracks. These coatings are more elastic than most of the other coatings to provide a seal while accommodating slight movements of the concrete. Type IV coating is only used where slab movement is experienced or anticipated.

The following coating system specification establishes the minimum standards for each system. A coating system that meets or exceeds these standards may be substituted.

Type I: Horizontal Surfaces

- Tnemec Series 66 Hi-Build Epoxoline (12 mils minimum) topped by Tnemec Series 71 Endura-Shield (2.5 mils minimum) or,
- Sentry Semstone 140 (30 mils minimum) topped by Semstone 245 (10 mils minimum) or,
- Rust-Oleum CPS Lite Overkote (30 mils minimum) topped by Overkote Plus (10 mils minimum) or,
- ¼ inch of Koch TECHNI-PLUS EP 60 SL

Type II: Sumps & Trenches

- Tnemec Series 66 Hi-Build Epoxoline (12 mils minimum) or,
- Sentry Semstone 245 (50 mils minimum) topped by Semstone 245 (60 mils minimum) or,
- Rust-Oleum Overflex (60 mils minimum) topped by Overkote Plus (125 mils minimum)

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Type III: Vertical Surfaces

- Tnemec Series 66 Hi-Build Epoxoline (12 mils minimum) or,
- Sentry Semstone 140 (30 mils minimum) topped by Semstone 245 (10 mils minimum) or,
- Rust-Oleum CPS Lite Overkote (30 mils minimum) topped by Overkote Plus (10 mils minimum) or,
- ⅛ inch Koch TECHNI-PLUS EP SL

Type IV: Expansion & Construction Joints, Crack Repair

- Tnemec Series 66 Hi-Build Epoxiline (12 mils minimum) topped by Tnemec Series 71 Endura-Shield (2.5 mils minimum) or,
- Sentry Semstone 805 (50 mils minimum) with Semstone 805 coating fabric strip immersed in Semstone 805 (10 mils minimum) topped with SPX 5100 (10 mils minimum) or,
- Rust-Oleum Overflex (60 mils minimum) with woven roving fiberglass strip topped by Overkote Plus (125 mils minimum)

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APPENDIX B

TANK WRITTEN ASSESSMENT

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APPENDIX B

TANK WRITTEN ASSESSMENT

Tank Assessment and Certification

CleanHarbors
ENVIRONMENTAL SERVICES®

J. William Caldwell, P.E.
Vice President, Technology &
Cost Management

Clean Harbors Environmental Services, Inc.
42 Longwater Drive
Norwell, MA 02061

781.792.5216
Mobile 781.241.7396
Fax 781.792.5904
caldwell.bill@cleanharbors.com
www.cleanharbors.com

October 10, 2019

Clean Harbors Aragonite LLC,
Clive, Utah
Attention: Mike Crisenbery

Dear Mike:
Below is a revised tank assessment (with the regulatory citations) for the existing Frac Tanks T-4522 and T-4523 that are proposed for use in Building 604 at the Clive, Utah facility.

TANK ASSESSMENT

Except as otherwise provided in Section R315-264-190, owners and operators of facilities that use tanks to store or treat hazardous waste shall provide the following additional information:

(a) A written assessment that is reviewed and certified by a qualified Professional Engineer as to the structural integrity and suitability for handling hazardous waste of each tank system, as required under Sections R315-264-191 and 192;

(b) Dimensions and capacity of each tank;

Two frac tanks will be used for neutralization of a D002 hazardous waste. The tanks are nominally 17,850-gallon mobile units constructed of carbon steel. Typical specifications are listed below.

- 1/4" Steel plate tank construction
- 4" top fill line
- Manways located on top
- 4" drains and front inlet/outlet
- P/V vent 16 oz pressure, 0.4 oz vac setting
- Guard rails around top
- Stairway at rear
- Level gauge – Ball float style, 2-8" ss floats

(c) Description of feed systems, safety cutoff, bypass systems, and pressure controls, e.g., vents;

The destination tank for the load is selected by the operator based on the liquid level in the Frac tanks. Neutralization will be done in-line while pumping to these tanks. Once treatment is complete, the waste will be non-hazardous and not regulated by RCRA. These tanks are vented to atmosphere.

(d) A diagram of piping, instrumentation, and process flow for each tank system;

See enclosed drawing D-604-M-01. Flexible hoses will be used and are not depicted on the drawing.

(e) A description of materials and equipment used to provide external corrosion protection, as required under Subsection R315-264-192(a)(3)(ii);

Frac tanks are painted and will be located within Building 604 secondary containment. This building is covered so the tanks will be protected from precipitation.

(f) For new tank systems, a detailed description of how the tank system(s) will be installed in compliance with Subsections R315-264-192(b), (c), (d), and (e);

These frac tanks are existing and have been tested. They will be placed inside Building 604 to prevent any damage.

(g) Detailed plans and description of how the secondary containment system for each tank system is or will be designed, constructed, and operated to meet the requirements of Subsections R315-264-193(a), (b), (c), (d), (e), and (f);

The tanks are Double Wall (Baker Style) Tanks. The interstitial spacing between the inner tank wall and outer skin provide the necessary secondary containment. Interstitial capped drains are located at each bottom corner of the tank for leak detection.

(h) For tank systems for which a variance from the requirements of Section R315-264-193 is sought, as provided by Subsection R315-264-193(g):

Not applicable

(1) Detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous waste or hazardous constituents into the ground water or surface water during the life of the facility, or

(2) A detailed assessment of the substantial present or potential hazards posed to human health or the environment should a release enter the environment.

(i) Description of controls and practices to prevent spills and overflows, as required under Subsection R315-264-194(b); and

Operators will pump the hazardous waste into one of two frac tanks that have sufficient capacity based on existing capacity verified by reading the level gauges. Rail car unloading will be performed over a spill pan that drains into Building 604. Flexible hose connects will be used over a spill pan or existing secondary containment.

(j) For tank systems in which ignitable, reactive, or incompatible wastes are to be stored or treated, a description of how operating procedures and tank system and facility design will achieve compliance with the requirements of Sections R315-264-198 and 199.

Not applicable.

(k) Information on air emission control equipment as required in Section R315-270-27.

Emissions are de minimis as confirmed with UDEQ Air Quality. Air emission controls are not required based on BACT analysis as confirmed with Tad Anderson.

R315-264-191 (existing systems)

(a) For each existing tank system that does not have secondary containment meeting the requirements of Section R315-264-193, the owner or operator shall determine that the tank system is not leaking or is otherwise fit for use. Except as provided in Subsection R315-264-191(c), the owner or operator shall obtain and keep on file at the facility a written assessment reviewed and certified by a qualified Professional Engineer, in accordance with Subsection R315-270-11(d), that attests to the tank system's integrity.

Not applicable. Tanks are double walled providing their own secondary containment.

(b) This assessment shall determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment shall consider the following:

(1) Design standard(s), if available, according to which the tank and ancillary equipment were constructed;

(2) Hazardous characteristics of the waste(s) that have been and will be handled;

(3) Existing corrosion protection measures;

(4) Documented age of the tank system, if available (otherwise, an estimate of the age); and

(5) Results of a leak test, internal inspection, or other tank integrity examination such that:

(i) For non-enterable underground tanks, the assessment shall include a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects, and

(ii) For other than non-enterable underground tanks and for ancillary equipment, this assessment shall include either a leak test, as described above, or other integrity examination that is certified by a qualified Professional Engineer in accordance with Subsection R315-270-11(d), that addresses cracks, leaks, corrosion, and erosion.

Note: The practices described in the American Petroleum Institute (API) Publication, Guide for Inspection of Refinery Equipment, Chapter XIII, "Atmospheric and Low-Pressure Storage Tanks," 4th edition, 1981, may be used, where applicable, as guidelines in conducting other than a leak test.

(c) Tank systems that store or treat materials that become hazardous wastes subsequent to July 14, 1986, shall conduct this assessment within 12 months after the date that the waste becomes a hazardous waste.

(d) If, as a result of the assessment conducted in accordance with Subsection R315-264-191(a), a tank system is found to be leaking or unfit for use, the owner or operator shall comply with the requirements of Section R315-264-196.

I, John W. Caldwell have evaluated the existing tank assessment as required above for the two frac tanks discussed in this document and attest they are fit for use.