ATTACHMENT 8

WASTE MANAGEMENT, PROCESSING, AND STORAGE

Contents

List of Appendices

1.0 CONTAINERS

1.1 General Container Management

Containers are managed in Units 101, 102, 105, 106, 255, 535, 604, and Unit 33. Unit 707 is a container that may be used to treat waste. 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.

The enclosed portion of Unit 106 Subunit 1 can be used to store hazardous waste and/or operate a shredding operation for non-hazardous waste. The shredder is not permitted to process hazardous waste. Areas in Unit 106 Subunit 1 where hazardous wastes are stored are subject to the requirements of this attachment.

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

1.1.1 Truck to Truck Transfer (Unit 101)

Unit 101 functions as a 10-day transfer facility and hazardous waste storage for intermediate bulk containers (<350 gallons, but ≥120 gallons), and small containers (<120 gallons). The definitions of these containers apply throughout this attachment.

Wastes managed in Unit 101 arrive at Clive by truck, typically in a van trailer. The containers arriving in the vansare removed from the arriving vans, inventoried, sorted, and either placed in Unit 101 for storage or placed on other vans for shipment to other Clean Harbors facilities for management. Trailers in the docks may also be used for container storage. Containers will be arranged in accordance with the drawing D-034CL-M-2000 in Appendix 9.

1.1.2 Warehouse Building (Unit 102)

The wastes stored in Unit 102 includes hazardous waste as allowed by permit module 2.C, non-hazardous waste, and RCRA exempt waste. Most of the containers will hold wastes for processing in Unit 101 Bay G. Containers will be arranged in accordance with the drawing D-034CL-M-2001 in Appendix 9.

1.1.3 Thaw Unit (Unit 105)

Unit 105 was originally designed to accommodate rail or truck 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, but ≥120 gallons) and 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 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 are removed in Unit 105 utilizing steam and other means.

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.

During cold weather, the Thaw Unit will be maintained at a temperature between 50- and 80-degrees Fahrenheit as necessary to slowly warm and thaw wastes enough to safely remove them from the container. Alternatively, a radiant heater may be used.

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

1.1.4 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, intermediate, and smaller containers 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, intermediate bulk containers (totes and flex bins), and other large containers. Also, "Sea Line" type containers may be placed in Unit 106. Intermediate bulk containers and smaller containers 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.

The enclosed portion of Unit 106, Subunit 1 may 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.

Intermediate bulk containers (< 350 gallons) and small containers (< 120 gallons) may only be stored in the enclosed portion of Subunit 1 and will not be stacked more than two high. When stacked two high the upper level will be on pallets.

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.

A non-hazardous waste shredding operation is also located in the enclosed portion of Unit 106 Subunit 1. Non-hazardous waste arrives via truck. It is unloaded into Unit 106 using the dock attached to the building, visually inspected to ensure no hazardous waste is comingled, staged, and then placed into the shredder. Once shredded, the material falls into the mix pan where absorbent may be added and mixed in to solidify any liquids. An excavator loads the mixture into a roll-off and the material is sent off-site for final disposal.

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).

1.1.5 Unit 106 West

The area to the west of Unit 106 is referred to as Unit 106 West. This area may be used on a temporary basis only after receiving approval from the DWMRC. Only large containers with solids are allowed to be stored in this area. Inspection requirements are the same as for unit 106 except for those associated with secondary containment. The locations of the containers will be identified with an alpha-numeric grid system. Maximum capacity of this area is 170 40-yard boxes.

1.1.6 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 within ten days of arrival. Unit 255 is located north of the fenced portion of the facility.

1.1.7 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.

1.1.8 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. Intermediate bulk containers (IBCs) and small containers can be stored in Unit 604 if compliance with this attachment is met.

1.1.9 Unit 33

Unit 33 is metal with concrete floors and houses a fluorescent lamp recycling system. A drawing of the building and the footprint of the system is provided in Attachment 9.

1.1.10 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.

1.1.11 Temporary Storage Pad

The Temporary Storage Pad (TSP), which is surrounded by a berm, is located to the south of the former Administration Building. All permitted waste types are stored on this pad for up to ten days in a variety of containers. Typically, gondolas, roll-off boxes, road tankers and vans trailers are stored on the TSP. An inventory is maintained for the waste temporarily stored on the pad. The inventory includes the container or trailer number, the date the container or trailer arrived at the facility and the date the unit left the pad.

Waste stored on the pad usually is placed into a permitted storage unit prior to being shipped off site.

1.2 Container Storage

Clean Harbors Clive, LLC stores containers of hazardous waste in Units 101, 102, 105, 106, 535, and 604. Containers with fluorescent lamps for recycling may be stored in Unit 33 or in trailers. 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. “Intermediate bulk container refers to a container that is ≥ 120 gallons but < 350 gallons and can store either liquids or solids.

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 (for containers going into storage) occurs when the waste passes through the facility main gate or rail gate. If circumstances dictate that unloading will be delayed beyond this time period, 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

1.2.1.1 *Drum Transfer Building (Unit 101)*

Containers that may be stored in Unit 101 include intermediate bulk containers and drums. If a container exhibits severe rusting, if it leaks, or if it otherwise appears to be in poor condition, the container and its contents will be managed in accordance with Permit Condition 3.E.1. Waste stored in Unit 101 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.

1.2.1.2 *Warehouse Building (Unit 102)*

Containers that may be stored in Unit 102 include intermediate bulk containers and drums. If a container exhibits severe rusting, if it leaks, or if it otherwise appears to be in poor condition, the container and its contents will be managed in accordance with Permit Condition 3.E.1. Waste stored in Unit 102 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.

1.2.1.3 *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, intermediate bulk containers 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.

1.2.1.4 *Containerized Bulk Solids Storage Unit (Unit 106)*

The Containerized Bulk Solids Storage Unit can receive and storing large containers, such as sludge boxes, roll-off bins, tanker trailers and intermodal containers. In addition, intermediate bulk containers (<350 gallons) and 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 in good condition. 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.

Both hazardous waste and non-hazardous waste may be stored in Unit 106 Subunit 1. Only non-hazardous waste may be shredded.

1.2.1.5 *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.

1.2.1.6 *Truck Wash Bay (Unit 604)*

The Truck Wash Bay will be used to store containers for transfer and storage. 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. 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

1.3.1 Drum Transfer Building (Unit 101)

The maximum permitted capacity of Unit 101 and Docks is 75,240 gallons. This includes both TSCA and RCRA wastes. The storage arrangement of the containers can be found on D-034CL-M-2000. Containers must be stored on pallets with 2.5 foot spacing and may be stacked two high. All containers must remain closed while in the unit except during sampling, inspection, or waste transfer. Proper segregation of incompatible waste must be maintained.

Waste will only be transferred to and from containers in Unit 101 in accordance with Condition 3.G. of the Permit.

1.3.2 Warehouse Building (Unit 102)

The maximum permitted capacity of Unit 102 is 46,200 gallons. This includes both TSCA and RCRA wastes. Containers will be arranged in accordance with the drawing D-034CL-M_2001 in Appendix 9. Containers must be stored on pallets with 2.5 foot spacing and may be stacked two high. All containers must remain closed while in the unit except during sampling or inspection. Proper segregation of incompatible waste must be maintained.

1.3.3 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.

1.3.4 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-315-264-174. The frequency of these inspections is specified in Attachment 3, Inspections.

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 in 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., if 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 number 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 the container on the ground (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-C05-2; 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 number 2 indicating that the container is stacked on top of one other bulk container.

Drawing D-034CL-M1010 (Attachment 9) shows the layout of equipment and storage locations in Unit 106 Subunit 1 when the non-hazardous waste shredder is in use.

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.

1.3.5 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 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.

1.3.6 Truck Wash Bay (Unit 604)

A maximum of four roll-off containers may 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. Intermediate bulk containers and smaller containers can be store in Unit 604 and 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.

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 in Unit 604 in accordance with R315-264-73.

1.3.7 Treatment Container (Unit 707)

Waste having a volatile organic content <500 parts per million by weight (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 the container(s) and the container(s) closed before they are stored or offered for transportation. If not shipped offsite within 10 days, the container(s) 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.

1.3.8 Unit 33

Containers of universal waste lamps and/or hazardous waste lamps may be stored in Unit 33 or in trail prior to recycling in the Balcan unit(s). Containers must remain closed unless adding or removing waste.

1.4 Secondary Containment System Design and Operation

1.4.1 Drum Transfer Building (101)

The secondary containment system located in Unit 101 has been designed to facilitate sound container management practices and prevent the release of hazardous waste into the environment. Drawing D-034CL-M-101 in Attachment 9 provides the plan, elevation and section views of the building, and the containment system design.

1.4.2 Warehouse Building (Unit 102)

The secondary containment system located in Unit 102 has been designed to facilitate sound container management practices and prevent the release of hazardous waste into the environment. Drawing D-034CL-M-102 in Attachment 9 provides the plan, elevation and section views of the building, and the containment system design.

1.4.3 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.

1.4.4 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 Drawings 43-10-2-D61, sheets 4 - 8 and 10 - 12 in Attachment 9.

1.4.5 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.

1.4.6 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 1,100 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.

1.5 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.

The technical specifications of each coating group used in the container storage units within the Clive facility is provided in Appendix A of this attachment.

1.6 Containment System Drainage

1.6.1 Drum Transfer Building (Unit 101)

Bays A, B, and C can contain a total containment of 26,301 gallons. Each bay has eight sumps. Six of the sumps measure 5 feet 6 inches x 3 feet 6 inches x 3 feet and can contain 431.8 gallons each. The other two sumps measure 2 feet x 2 feet x 2 feet and can hold 59.5 gallons each. The floor slope provides 9,174 gallons of containment and the high point to the berm can contain an additional 26,385 gallons.

Bays D, E, and F can contain a total of 25,476 gallons. Each bay has eight sumps. Six of the sumps measure 5 feet 6 inches x 3 feet 6 inches x 3 feet and can contain 431.8 gallons each. The other two sumps measure 2 feet x 2 feet x 2 feet and can hold 59.5 gallons each. The floor slope provides 9,174 gallons of containment and the high point to the berm can contain an additional 25,560 gallons. This is less than Bays A, B, and C because containers, concrete walkways, and other structures displace approximately 11,968 gallons.

Drawing D-034CL-M-101 in Attachment 9 illustrates the containment system in Unit 101. The berm in this cell of the building is at least eight inches high. The floor slopes to each of the eight containment sumps at a measure of ¼ inch depth per foot distance. Four of the sumps have dimensions of 2 feet x 2 feet x 2 feet that each hold 60 gallons. The other four sumps have dimensions of 3 feet x 5 feet 6 inches x 3 feet 8 inches and each hold 453 gallons. This yields a total containment volume of 2,052 gallons.

Each dock can contain 4,438 gallons. Each dock has a trench measuring 20’ x 3’ x 3’ 4” that can contain 1,496 gallons. The floor slope can contain an additional 2,992 gallons.

1.6.2 Warehouse Building (Unit 102)

Drawing D-034CL-M-102 in Attachment 9 illustrates the containment system in Unit 102. The berm in this building is at least eight inches high. There are two trenches that lead to two sumps. The trenches themselves are 18 inches wide by 62 feet 6 inches and slope ¼ inch per foot of distance. Each trench starts at 10 inches depth and grades to a depth of 24 inches as the trench leads into the connected sump. Each of these trenches contain 993 gallons. The connected sump is 42 inches x 42 inches x 42 inches and holds 321 gallons. Total containment from trenches and sumps equals 2,628 gallons.

1.6.3 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 and profile 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.

1.6.4 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 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.

1.6.5 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 sump. The floor is sloped to the sumps.

1.6.6 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).

1.7 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 ways, using a variety of inspection techniques. Visual inspection of the condition of containers, localized staining or leakage adjacent to a particular 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 container. 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.

1.8 Control of Run-On

The storage areas are completely enclosed within Unit 101, 105, the Thaw Unit and Unit 604, Truck Wash Bay, to prevent ingress of wind-borne rain or dispersion of wastes by wind. The Thaw Unit also has an 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 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 and the containment located outside Building 101, each subunit/area is completely surrounded by perimeter curbs or barriers that prevent surface water run-on into the containment areas (see Drawings 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).

1.9 Special Requirements for Incompatible wastes

1.9.1 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 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 Attachment 7, the Closure Plan, will be employed in cleaning up spills. Equipment normally employed during cleanups includes brooms, shovels, absorbents, pumps, detergents, and wash water.

1.9.2 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 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 specified in Attachment 7, the Closure Plan, will be employed in cleaning up spills. Equipment normally employed during cleanups includes brooms, shovels, absorbents, pumps, detergents and wash water.

1.9.3 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 in the Rail/Truck Tanker Transfer Unit at any one time so incompatibility with another waste within the unit will not be an issue.

Decontamination procedures specified in Attachment 7, the Closure Plan, will be employed in cleaning up spills. Equipment normally employed during cleanups includes brooms, shovels, absorbents, pumps, detergents, and wash water.

2.0 UNIT 33 - FLUORESCENT LAMP RECYCLING

Unit 33 houses a Balcan MP6000 Lamp Recycling System and a Balcan Raptor Unit. The Balcan MP6000 crushes fluorescent tubes and bulbs while the Balcan Raptor processes only shatter shield fluorescent bulbs. The doors of the lamp processing building are closed while the units are operating.

2.1 Balcan MP6000

The Balcan MP6000 Lamp Recycling System is fully automated and self-contained. Material can be placed in the unit via the Tube Conveyor or the Container Tilter.

2.1.1 Tube Conveyor

The Tube Conveyor receives whole tubes and bulbs and transports them to the Crusher, where they are crushed and conveyed to the Rumbler for separation. The Rumbler agitates the debris and allows the resultant mercury-bearing phosphor powder to be drawn off by the Air Extraction Filter Unit. From the Rumbler, the debris passes over a magnet that separates the glass from the metal components, which are conveyed to separate collection bins.

2.1.2 Container Tilter

The Container Tilter accepts all types of whole and crushed lamps in metal drums and cardboard containers. Drums and/or containers are positioned on the Tilter, then lifted and tilted 120 degrees to empty the bulbs into a secondary separator. From the separator they are conveyed to the Crusher and then processed through the Rumbler as described above.

2.2 Balcan Raptor

The Balcan Raptor Unit is a separate system designed specifically to process shatter shield fluorescent bulbs before feeding them through the Balcan MP6000. The unit consists of a feed tray for whole fluorescent bulbs, a cutter, crusher, vibrating grid, and air extraction system. Whole bulbs are cut into approximately six-inch lengths before being passed into a crusher where the glass is broken. The vibrating grid separates the plastic tubes from the crushed glass and the phosphor powder which drops by gravity into a metal drum. Some of the metal end caps are also collected with the glass, but many stay with the plastic shatter shield because the sleeve is shrink-wrapped around the cap. The plastic tubes exit the separation unit and are collected in a bin for disposal. The accumulated glass, phosphor dust, and metal caps can be moved to the Container Tilter on the Balcan MP6000 for final separation and collection.

2.3 Air filtration

The entire Balcan MP6000 system is operated under negative pressure. Mercury-bearing phosphor powder and vapor from the contents of the lamps are collected and passed through ducting to the Air Extraction Filter where the powder is separated and dropped into a container for off-site processing. The exhaust from the Air Extraction Filter passes through activated carbon beds to remove any mercury vapors before discharge to the atmosphere. Similarly, the Balcan Raptor has an air extraction system that keeps the components under negative pressure. Exhaust from the Raptor passes through an activated carbon bed to remove any mercury vapors before it passes through the extraction fan and into the atmosphere.

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)

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 Epoxoline (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)