ATTACHMENT 5

PREPARDNESS AND PREVENTION

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1.1 Safety and Emergency Equipment Requirements and Inspections

The inspection schedule for facility safety and emergency equipment is provided in the Inspection Matrix found in Attachment 3, Inspections. Inspection schedules for equipment specifically used for the management of waste in the container storage areas and the storage areas themselves are also included in Attachment 3, Inspections.

1.1.1 Internal Communications

Communication inside Clive is achieved through a telephone system or cell phones. Telephones are located or cell phones provided so that each employee has immediate access to one from his/her workstation. From each telephone or cell phone an employee can call any other telephone at Clive, and can be connected to an outside phone line.

1.1.2 External Communications

External facility communications are available through the local landline and by cell phone. Local (Salt Lake City or Tooele City) and long-distance telephone connections are available. Incoming calls are transferred to the telephones located throughout the facility, as necessary.

1.1.3 Emergency Equipment

Portable fire extinguishers, fire control equipment, spill control equipment and decontamination equipment are available at the facility. The locations of emergency equipment for the facility are provided on drawings and are located in the Contingency Plan, Attachment 6, of this Permit. The Emergency Equipment List is located in Section 4.0 of this attachment.

1.1.4 Water for Fire Control

Water for fire fighting is stored in a tank and distributed through a pipe network.

The fire water flow meets NFPA 30, Table D-4-6.2.1 requirements and is based on 0.3 gallons per minute per square foot over an area of 2,550 square feet plus a hose stream flow of 500 gallons per minute. This flow rate is 1,265 gallons per minute. NFPA 30 requires that this minimum flow rate be sustainable for two hours and that the volume expended be replenished within eight hours. The volume required for the fire water supply is 151,800 gallons.

The water storage tank provided at Clive has a capacity greater than 685,000 gallons. This volume which is verified daily, allows for an adequate fire water reserve.

There are two fire pumps at the Clive facility; both meet the NFPA 20 requirements. Each of the pumps has an internal combustion engine drive and is rated to supply adequate volumes of water

at sufficient pressure to effectively respond to fires. A description of other fire fighting equipment at Clive is located in Section 4.0 of this attachment.

1.2 Aisle Space Requirement

A system of interior facility roads is available for moving and positioning emergency response vehicles. Building interiors, containment systems, and waste handling areas also have access aisles to move and position hand held and portable emergency response equipment. Adequate aisle space will be maintained to allow unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of the facility. A minimum aisle space of two and one-half feet will be maintained at the Clive facility.

2.0 Preventive Procedures, Structures, and Equipment

Various procedures, structures, and equipment have been incorporated into the design and operating procedures of the facility to minimize hazards to human health and the environment. Examples of procedures, structures and equipment utilized to prevent hazards include the following:

- A list of emergency equipment and a description of the emergency procedures are provided in this plan and in the Contingency Plan, Attachment 6 of this Permit. Both plans will be available at the facility at all times.

- Special precautions will be taken to prevent accidental ignition or reaction of ignitable wastes or the mixing of incompatible wastes. See Section 3.0 of this attachment.

- Forklifts and hand trucks will aid in the safe transport of cargo.

- Applicable procedures provided in American Petroleum Institute Publication 2009, *Safe Practices in Gas and Electric Cutting and Welding in Refineries, Gasoline Plants, Cycling Plants, and Petrochemical Plants*, Fourth Edition, March 1982, will be observed during repairs performed near ignitable materials.

2.1 Unloading Operations

Various procedures, structures, and equipment have been incorporated into the loading and unloading operations to prevent environmental and health hazards including the following:

- Facility operations personnel will receive training on proper unloading and loading procedures. This training will include instruction on machinery operation, safety equipment, waste identification, and processing procedures. Employees will be required to comply with OSHA regulations regarding operations, such as the restrictions on the

number of riders allowed on a powered industrial truck, the placement of wheel chocks for trailers before the trailer is entered, etc.

- All waste loading, unloading, and storage will be performed within containment areas. The containment areas are constructed of concrete and consist of a floor slab with either curbs or walls. The concrete surface of the containment is coated with a sealant and sloped to sumps to accommodate the collection and removal of liquids that might accumulate from leaks or spills.

- Any metal bulk liquid container of ignitable material will be grounded by means of a heavy clamp and cable before loading or unloading. Prior to loading or unloading a bulk liquid container, the operator will visually check that valves are in the correct position (either open or closed depending on the valve function), hoses are secure, and any needed hose connection plugs and caps are in place. Immediately following the loading or unloading of a bulk liquid container, the operator will visually check that valves are in the correct position and any needed hose connection plugs and caps are in place.

- Bulk solid and sludge containers arrive by truck or rail transport. The containers include sludge boxes, intermediate bulk containers, intermodal containers, end-dump trucks, and railroad gondolas. Bulk solids in railroad gondolas are unloaded using a backhoe or trackhoe in the Bulk Materials Building, Unit 255.

- Smaller capacity containers including drums or cartons are unloaded from and loaded into truck trailers in Unit 101, the Container Management Building. Unit 101 is operated as a ten-day transfer facility. These truck trailers are loaded or unloaded using an industrial truck or hand truck. These smaller capacity containers will typically be 55-gallon drums, although larger and smaller containers will also be loaded and unloaded.

2.2 Run-off

The facility has secondary containment systems to prevent migration of liquids from waste handling areas to other areas of the facility, or to the environment. This liquid could be precipitation from storm events; or spills and leaks of hazardous waste. The surface of the containment systems is coated with a sealant and sloped toward one or more sumps to allow collection and removal of any accumulated liquids. The accumulated liquid is sampled, analyzed, and handled in accordance with the Waste Analysis Plan. Containment systems not protected from precipitation by a building (Unit 106, outdoor portion of Subunit 1, Subunit 2 and Subunit 3) have been designed to accommodate the precipitation from a 25-year, 24-hour storm event (1.9 inches) plus 10% of the capacity by volume. Storm water from precipitation falling outside of the containment areas described above will be controlled to prevent run-on of the storm water into a waste management unit.

All spills of hazardous waste will be promptly controlled and removed to prevent spread of contaminants. The spilled material and any absorbent used will be collected and placed into appropriate containers and managed as a hazardous waste.

2.3 Water Supplies

Operation of Clive will require two types of water: (1) potable water, and (2) plant water. Potable water will be used for personnel decontamination, eye-wash stations, and safety showers. Plant water will be used for equipment decontamination, fire fighting, etc. The plant water will be stored in the Fire Water Storage Tank. The potable water will be stored in a separate water storage tank adjacent to the office building and in Unit 061.

Potable and plant water will be distributed throughout the facility by separate water delivery systems. Backflow preventers will be used, if necessary, to prevent contamination of the water in a delivery system by hazardous waste.

2.4 Equipment and Power Failure

There are no critical units at Clive for which electric power is required in an emergency.

The equipment used to manage hazardous waste at Clive is generally powered by diesel or internal combustion (IC) engines.
No hazardous waste management units are critical. The fire water system is critical, but it is provided with IC engine drives. Therefore, no emergency power systems are required at Clive.

2.5 Personnel Protection Equipment

Personnel protection equipment available at the facility includes the following:

- Self-contained breathing apparatus (SCBA). A number of devices consisting of a portable cylinder of compressed breathing air, pressure regulator, hose, full-face mask, and carrying harness are available. Personnel can use the SCBA's to enter an area where smoke or gases make the ambient atmosphere dangerous to breathe. Each SCBA can supply approximately one-half hour of air. The SCBA's are available at either Building 604 or Building 101. Clean Harbors Field Services may provide their own PPE, including SCBAs. All PPE must be approved for use in accordance with OSHA regulations.

- Negative Pressure Respirator (NPR). There are two types of NPRs, full face and half face. They are both equipped with fittings to which contaminant-specific cartridges are attached. Each employee will be issued an NPR and cartridges as necessary appropriate for his/her work area. Employees and their respirator are quantitatively fit tested annually. Respirators will be used and maintained according to manufacturer’s specifications.

- Protective clothing. Employees working at Clive are issued hard hats, protective coveralls, waterproof safety boots, specialized gloves, and hearing protection on a routine basis, as necessary.

Minimum personnel protection equipment for all people within Clive and in or around hazardous waste management units (i.e.; employees and visitors) will be a hard hat steel-toed shoes and eye protection. This minimum protection level will not apply to personnel within passenger vehicles or any other office space within the facility in which the risk of a head or eye injury does not exceed normal office work risks. Personnel protection equipment for employees performing tasks within the waste management units may exceed this minimum protection level.

3.0 Ignitable or Reactive Waste

3.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste and Mixing of Incompatible Wastes

Precautions are taken at the facility during storage, transportation, and handling to prevent the accidental ignition or reaction of waste and mixing of incompatible wastes. These precautions are intended to prevent unwanted heat, pressure, fire, explosion, toxic gases or fumes which could result in damage to the structural integrity of any portion of the facility or cause a threat to human health or the environment. The precautions will include:

- Ignitable waste will be protected from open ignition sources such as open flames, metal welding and cutting, hot surfaces, frictional heat, smoking, and sparks (static, electrical or mechanical). When welding or conducting a procedure that involves risk near ignitable waste a hot work permit is required. Bulk liquid containers (tank trailers, railroad tanks and transport tanks) of ignitable material will also be grounded with a cable and clamp between the container and the ground prior to loading or unloading.

- Ignitable and reactive waste will be protected from spontaneous ignition from heat producing chemical reactions by segregating incompatible waste streams.

- Buildings which enclose waste handling operations will be ventilated as described in Attachment 8, Container Management, of this Permit to prevent an accumulation of toxic mists, fumes, dusts, or gases; or flammable fumes or gases.

- Incompatibility of wastes are determined in accordance with the procedures outlined in the Waste Analysis Plan, Attachment 1 of this Permit.

3.2 Management of Ignitable or Reactive Wastes in Containers

Ignitable or reactive wastes in containers may be solid, sludge or liquid. Management of ignitable or reactive wastes in containers will include the following:

- Large and small containers of ignitable and reactive solid or sludge waste will be unloaded at Unit 105, Unit 106, Unit 535, or Unit 604. Each is located in excess of fifty feet from the facility boundary.

3.3 Management of Incompatible Wastes in Containers

Management of incompatible wastes in containers will include the following precautions:

- Incompatibility between two wastes or a waste and a container will be determined from published scientific or engineering literature, laboratory tests, or previous experience, and in accordance with the Waste Analysis Plan, Attachment 1 of this Permit.

- The U.S. Department of Transportation regulations require that shipments of waste in a trailer be compatible. These containers will be unloaded into a common containment area for incoming load analysis in accordance with the Waste Analysis Plan, Attachment 1, 3.1.2. This does not apply to the waste transferred in the Container Management Building (Unit 101), which is a ten-day transfer facility. If subsequent identification of the waste during the incoming load analysis reveals the existence of incompatible wastes in a common containment area, the container holding the incompatible waste will be removed during the shift and placed in an appropriate containment area. Attachment 8, Container Management, of this Permit provides a description of the container management procedures.

- Incompatible wastes will not be placed in the same container. Wastes added to containers must be compatible with the contents of the container and the container itself as determined by the Waste Analysis Plan, Attachment 1 of this Permit.

- The Thaw Unit (105) and Rail/Truck Transfer Bay (535) are located at least 50 feet from the facility boundary.

4.0 Emergency Equipment

The following is a list of the emergency equipment, spill control equipment, communication systems, and decontamination equipment which may be utilized at the facility.

- Internal facility communications systems. Communications inside the Clive facility are achieved through a telephone system, cell phones and CB radios From each telephone an employee can call any other telephone in the Clive facility and can be connected to an outside phone line. All employees have immediate access to one of the communication devices at all times while on site at the facility.

- External facility communications systems. The Clive facility is connected to the local telephone system and cell phone networks.

- Overpack drums. An overpack drum is a container large enough to hold a standard 55-gallon drum. Overpack drums are available at the facility and are used to hold smaller containers which are damaged or leaking.

- Absorbent agents. Absorbent agents are dry powders, granular materials, mats or pads, etc., which can reduce or stop the spread of spilled liquids and allow the spilled material to be recovered as a solid. These agents will be available at all waste management units. The Clive facility may, at its discretion, place absorbents at various other locations as well.

- Fire water system. The fire water system consists of a water tank, pump, water pipes, hose stations, monitors, hydrants, and building sprinkler systems. The water tank has a capacity of 685,230 gallons of water with 371,166 gallons held as a minimum for fire fighting (more than a 120 minute supply at 2500 gallons per minute). The fire water pumps are rated to provide the required volume at a pressure high enough to operate foam equipment. This system is tested annually by a licensed fire suppression contractor.

- Fire extinguishers. Fire extinguishers of various sizes from 2½ to 50 pounds, rated for Class A, B, and C fires, are located throughout the Clive facility. Fire extinguishers for Class D (combustible metals such as magnesium or sodium) fires are also available. These fire extinguishers are operated by pulling a pin and squeezing the handle lever while directing a short hose or the extinguisher nozzle at the burning surface.

- Vacuum truck. There will be at least one vacuum truck at the Clive facility for removing liquids from the various sumps throughout the facility. If solids need to be picked up, conventional equipment such as brooms, shovels, vacuums, frontend loaders, etc. will be used.
- Safety shower and eye wash stations. There are several locations where a supply of water will be available through shower heads and bubblers for employees to flood themselves with water if they are sprayed with a hazardous substance. These stations operate by simple pull handles and foot peddles. At least one safety shower and eye wash station will be located in or near each waste management area when the unit is in operation and staffed. Portable units may be used in these locations in lieu of hard piped units.

- Self-contained breathing apparatus (SCBA). A number of devices consisting of a portable cylinder of compressed breathing air, pressure regulator, hose, full-face mask, and carrying harness are available. Response personnel can use the SCBAs to enter an area where smoke or gases make the ambient atmosphere dangerous to breathe. Each SCBA can supply approximately one-half hour of air.

- Negative Pressure Respirator (NPR). There are two types of NPRs, full face and half face. They are both equipped with fittings to which air contaminant-specific cartridges are attached. Air to be inhaled by the wearer is filtered through the cartridge and the specific contaminants are removed. Each employee will be issued a mask and cartridges appropriate for his work area. When the mask is issued, if the model or size of the mask

changes, and at least annually, the mask will be fit-tested on the employee. Cartridges for other contaminants and both styles of masks will be available to employees as necessary.

- First aid kits. A first aid kit is located in the main office building. The contents of the first aid kit is attached to the inside of the lid.

- Protective clothing. Employees working at the Clive facility will be issued hard hats, safety footwear and safety glasses. Other protective clothing is provided based on the requirements of the area or job function being performed.

- Portable pumps. Portable pumps will be available, or can be obtained, for removing liquids from sumps. The type of pump may include centrifugal, diaphragm, piston (trash pump), submersible, etc. Gasoline, air or electricity may be used to power these pumps.

- Hand tools. Brooms, buckets and absorbent materials, or equivalents, will be maintained on site. These may be used in spill control and decontamination activities.

- Spill kit. Shovels, brooms, and absorbent materials will be kept in or near each waste management area. These may be used in spill control and decontamination activities.