Proposed Operations and Safety Plan
Deir Allah Municipal Dumpsite
Deir Allah Municipality
PROPOSED OPERATIONS AND SAFETY PLAN
DEIR ALLAH MUNICIPAL DUMPSITE

DEIR ALLAH MUNICIPALITY

August 2019
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1 Introduction

1.0 Overview

The United States Environmental Protection Agency (US EPA), funded by the United States Department of State, is assisting the Ministry of Environment of the Hashemite Kingdom of Jordan (Ministry of Environment) and the Municipality of Deir Allah (the Municipality) with the management of its current municipal solid waste (MSW) dumpsite. The Deir Allah Dumpsite does not have a lining system, monitoring, or other engineered measures to control adverse effects on the environment, public health or safety.

US EPA, with its grantee, Battelle Memorial Institute, and sub-grantee, EcoPeace, developed this Operations and Safety Plan in consultation with the Ministry of Environment, the Municipality of Deir Allah and Deir Allah Dumpsite personnel, with the goal of improving existing environmental conditions, operations, and management of MSW disposed at the existing dumpsite. Over the past year, the project team met with the Municipality, site operators and other stakeholders to gather information to complete this plan. In addition, the team conducted field visits to the site in 2018 and 2019.

This plan describes the Deir Allah Dumpsite and presents procedures for improved safety and operations based on assumed near-term technical and financial resources. Recommendations for improvement of existing dumpsite conditions and operations area provided in this plan in the following areas:

Section 2. Facility Features (entrance, roadways, equipment)
Section 3. Disposal Methods (waste dumping, spreading, compaction, cover)
Section 4. Operations (environmental controls, handling procedures, special wastes)
Section 5. Recordkeeping (training, monitoring, documentation)
Section 6. Waste Characterization (acceptable/unacceptable wastes)
Section 7. Contingency Plan (emergency procedures, safety)

Implementation of the management practices above at the site will improve safety conditions for workers and the public using the dumpsite as well as enhance overall protection of the environment. However, given that there is no engineered liner to protect groundwater nor environmental controls for collection of leachate or diversion of storm water run-off, this Deir Allah Dumpsite cannot be considered an engineered landfill meeting applicable engineering or environmental standards.

All dumpsite personnel should be familiar with safety requirements and procedures contained in this plan, which will be kept on site. The operations and safety plan will be reviewed periodically and amended as needed.
1.1 Background

Deir Allah is an agricultural area with rugged topography in the east and a fertile agricultural plain reaching the Jordan River in the west. The area consists of rural communities where the people mainly work in agriculture, cultivation of fruits, vegetable production, sheep grazing and governmental and private works. Deir Allah town has an extended area of 242 km² located in the province “Al-Balqa Governorate”. Deir Allah division has two separate municipalities; Deir Allah Municipality and Maadi Municipality, which serve more than 85,000 (63,000 in Deir Allah and 22,000 in Maadi residents (2018) in the region. The boundaries of Deir Allah are the Jordan River on the western and northern side, and the mountains and highlands on the eastern side.

The municipalities in Deir Allah are responsible for collecting municipal solid waste (MSW) on daily basis using their own vehicles/staff and transferring the collected waste to the Deir Allah Dumpsite located in southern Twal near Fannush village, about 15 km south of Deir Allah town. No medical or hazardous liquid waste can be dumped at the site.

The Deir Allah Dumpsite was constructed in 1998 on an area of 364 dunums for disposal of municipal solid waste (MSW). The nearest village is about 4 km far away. The Deir Allah Dumpsite is currently owned and managed by the Joint Services Council (JSC) under the umbrella of the Ministry of Local Administration. Since 1998, the site has been receiving waste from multiple areas in the Jordan Valley.

In accordance with current laws, municipalities provide the following services:

- **Sweeping and cleaning services** (pre-collection). Local workers collect and store wastes in waste containers for collection vehicles. Sweeping services are provided only for main streets in towns and intersections during one 8-hour shift per day.

- **MSW collection services (collection)**. Collection is carried out by many types of collection vehicles with different capacities of (4, 8, 16 m³). Currently, there is only one trailer (50 m³) used by Al-Shuna al-Wosta municipality for transferring waste from a transfer station to Deir Allah Dumpsite. The collection vehicles collect the waste via a random routing system that serves residential areas and main streets. In normal conditions, each vehicle performs 1-2 trips per day.

- **Waste transfer**. There is no transfer station in Deir Allah. Each trip to the dumpsite requires an average trip of 15 km. In Al-Shuna al-Wosta, collection vehicles dispose of MSW at a transfer station.

Next to Deir Allah Dumpsite, there is a non-functional composting plant. The plant was established and operated in Deir Allah District since 1997. The project started as a pilot for producing compost from animal manure. While the land is owned by Deir Allah Municipality, the plant was owned and operated by Fertile Valley Association, a non-government organization (NGO). The production capacity of this plant was about 35 tons/day. The cost of production of each ton ranged from 35 to 40 JD. The final compost products were targeted for local market throughout the Jordan valley and other farming activities in the highlands. The price of each ton varied due to the quality of produced compost as well as the requirements of the clients and ranged between 45-60 JD. The profit margin was around 15-20% for each ton of compost sold.
Current Challenges

Deir Allah Dumpsite does not utilize proper landflling practices such as a lining system or engineered measures to control adverse effects on the environment, public health or safety.

1.2 Objective

This operations and safety plan describes the facility and presents procedures for improved safety and operations based on assumed near-term technical and financial resources of the Deir Allah Dumpsite. This plan was prepared based on the observed dumpsite operations during visits in early 2019. All dumpsite personnel should be familiar with safety requirements and procedures contained in this plan. A copy of this plan will be kept on site and made available to all personnel.

1.3 Revisions

The operations and safety plan will be reviewed periodically and amended as needed.

2 Facility Description

2.1 Facility Information

2.1.1 Facility Name

The dumpsite facility name is Deir Allah Dumpsite.

2.1.2 Facility Location

A map showing the location of the Deir Allah Dumpsite is found in Attachment A. The geographic site coordinates are 32° 7' 23.9" N, 35° 33' 58" E. A pin at that entrance of the site can be accessed at the following link: https://maps.app.goo.gl/MMh4W6xjFnJ9NZ8u8.

2.2 Facility Features

Attachment A presents the dumpsite facility features as discussed in the following sections and throughout this plan.

2.2.1 Hours of Operation

The working hours are from 8 am to 3 pm daily during Sunday to Thursday. Friday and Saturday are the weekend during which the facility is closed. Site staff might work on Saturday in special cases or during emergencies.

2.2.2 Entrance/Facilities Area

The entrance consists of the following:

- Main gate (see Attachment B, photo 1)
- Administration building (see Attachment B, photo 2)
- Utility services (see Attachment B, photo 3)
- Future location of public convenience area
2.2.2.1 **Administration Building**
The administration building is located on the main access road. It is called the Joint Service Council (مركز الخدمات المشتركة) Building. The building has offices, a storage room, restrooms, and kitchen. See Attachment B, Photo 2.

2.2.2.2 **Utility Services**
All machinery is parked in this area during non-working hours. It is fenced and has electrical gate and control from a guard room. There is a shaded area for the machinery and a ramp for cleaning/maintenance (see Attachment B, photo 4). The main access road has an asphalt layer, but it is in poor condition.

2.2.3 **Roadways and Traffic Routing**
The speed limit at the entrance road (See Attachment B, photo 5) should not exceed 30km/hr. There should be signs along the entrance road provide notice of speed limit. Dumpsite personnel are responsible for enforcing the speed limit on the entrance and access roads. Spotters at the working faces direct trucks to dumping and turn-around areas. Any significant settlement of the access and haul roads will be repaired by re-grading the road or by placing gravel or fill on the settled area. During dumpsite operations, active roads will be kept passable in adverse weather.

2.2.4 **Signage**
There should be entrance signs located near the entrance gate to the dumpsite showing the site name, ownership, the operating hours, and give examples of unacceptable waste for disposal, warning signs prohibiting trespassing should be located around the boundary of the dumpsite property.

2.2.5 **Site Lighting**
Lighting should be provided around all major buildings and at the fueling area.

2.2.6 **Equipment**
The following sections describe the equipment used at the dumpsite and the maintenance required for them.

2.2.6.1 **Operations**
The following equipment is commonly used at the dumpsite.

2.2.6.1.1 **Bulldozer**
Two bulldozers are used as the primary equipment for placement and spreading of refuse. Bulldozers are also used for site preparation and finishing, road building, excavation, movement of cover and excavated material, and other required earthwork tasks. Bulldozers are designed for all-weather operations. One Caterpillar 973 bulldozer (see Attachment B, photo 6) in poor condition and Komatsu D65PX (see Attachment B, photo 7) bulldozer in the good condition are used at the dumpsite.

2.2.6.1.2 **Compactor**.
There are no compactors on site.

2.2.6.1.3 **Heavy Equipment.**

The following machines are used at the site:

1. Caterpillar 950 wheel loader
2. Komatsu WA420 wheel loader
3. Hitachi backhoe

2.2.6.1.4 **Pickup Trucks and Van.**

Four pickup trucks are used at the dumpsite facility for miscellaneous activities. Three for the management and one is used for transportation of employees to and from work areas and the maintenance and fueling.

2.2.6.1.5 **Trucks.**

Two trucks are at the site; Nissan and Isuzu.

2.2.6.1.6 **Water tanks**

Isuzu 12m³ to bring water to the site for the domestic uses.

2.2.6.1.7 **Spraying machines**

Two spraying machines are mounted on tractors (Massy Ferguson 385 and John Deere). The tractors and sprayers are used to apply pesticides and control flies (see Attachment B, photo 8).

2.2.6.2 **Inspections and Maintenance.**

In general, inspection take place one time per week for cleaning and oiling. Cleaning of air filter for the machines took place every day. Equipment maintenance is on an as-needed basis.

2.2.6.3 **Personnel**

The following personnel are involved in the site and are employed by the Joint Service Council. The number of actual operations personnel present on site at any given time is dependent upon the level of activity occurring at the site:

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Director</td>
<td>1</td>
</tr>
<tr>
<td>Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td>Senior Accounting Clerk</td>
<td>1</td>
</tr>
<tr>
<td>Operations Supervisor</td>
<td>1</td>
</tr>
<tr>
<td>Crew Leader</td>
<td>1</td>
</tr>
<tr>
<td>Security Guard</td>
<td>3</td>
</tr>
<tr>
<td>Equipment Operator</td>
<td>10</td>
</tr>
</tbody>
</table>

**TOTAL:** 18
Figure 2.1 presents an organizational chart for the dumpsite staff. The following are duties of the dumpsite staff.

**2.2.6.3.1 Executive Director. Eng. Mahmoud Al Nsour م. محمود النسور**

The Executive Director (Director) has overall responsibility for dumpsite operations and has authority over all staff. The Director is responsible for compliance with all regulations and with the Operations and Safety Plan, implementation of safety and training programs, and financial administration of the dumpsite operation. Other duties include overall supervision of personnel and procurement. The Director also serves as the liaison between the disposal facility and regulatory authorities, and between the dumpsite and the public by conducting tours and being available to answer questions from visitors. The position is part time.

**2.2.6.3.2 Controller. Eng Basil Abadi باسل العبادي**

The Controller performs a variety of accounting functions related to accounts receivable, accounts payable and payroll. The controller, with the aid of the Senior Accounting Clerk, works with personnel on various items and issues, sets up new customer accounts, maintains customer account files, and prepares monthly dumpsite customer invoices. The Controller also prepares accounts receivable deposits, delivers deposits to the bank, and ensures customer accounts are current. The Controller acts as the liaison between the outside auditor and the dumpsite during its annual audit. The Controller also acts as the benefits coordinator. The Controller reports directly to the Director.

The Controller also performs the responsibilities of the Operations Manager. The Operations Manager has primary responsibility for direction and supervision of daily dumpsite personnel and activities. Other duties include coordination of emergency response procedures and supervision of record keeping procedures. The Operations Manager also coordinates inspections and repair of
dumpsite facilities. The Operations Manager directs the following activities of the dumpsite maintenance department:

- Directs the maintenance, repair, purchase, and disposal of dumpsite vehicles and equipment;
- Conducts daily reviews of equipment availability and needs at the dumpsite and coordinates equipment inspections and servicing;
- Supervises maintenance personnel;
- Responsible for equipment management, program administration and budget preparation.

The Operations Manager reports directly to the Director.

2.2.6.3.3 Operations Supervisor. Ali Al Demaidat

The Operations Supervisor supervises equipment operators, spotters, and litter patrol. The Operations Supervisor is also responsible for road maintenance on and off site. The Operations Supervisor consults with the Operations Manager on daily cell locations and participates in random load inspections. He also investigates, completes, and follows up on all employee work related injuries, illnesses, and reportable accidents involving company property. The Operations Supervisor performs the Operations Manager’s duties when the Operations Manager is not on site. The Operations Supervisor reports directly to the Operations Manager.

A mechanic performs all routine maintenance and repairs on equipment at the facility. The mechanic reports directly to the Operations Manager.

2.2.6.3.4 Equipment Operator.

Equipment Operators are responsible for spreading and compacting incoming solid waste and cover materials, as well as performing earthwork and earth fill activities. Equipment Operators identify and report to the Operations Supervisor incoming waste loads suspected to contain unacceptable or hazardous wastes. Equipment Operators are responsible for keeping equipment clean. They also report all equipment problems to the mechanic or the Operations Supervisor. This position is responsible for fueling equipment and repairing or replacing tires on dumpsite vehicles. Equipment Operators report directly to the Operations Supervisor.

2.2.6.3.5 Laborer / Security Guard

Security Guards / Laborers act as traffic control in the waste unloading area and identify and report immediately to the Operations Supervisor incoming waste loads suspected to contain unacceptable or hazardous wastes. Laborers work at the working face or perform litter control throughout the facility and off-site. Laborers report directly to the Operations Supervisor.

The security guards perform the following duties at the dumpsite:

- Patrol the dumpsite and facilities;
- Discourage salvaging and illegal dumping; and
- Assist in directing traffic and assist laborers as needed.
Security guards report directly to the Site Manager. There are three work shifts for Security Guards.
3 Disposal Method

This section describes disposal methods used at the dumpsite. Descriptions of excavation, stockpiles, filling progression, and waste placement, compaction, and cover procedures are provided.

3.1 Filling Method and Procedure

3.1.1 Type of Facility
The dumpsite will be operated by the area fill method in which lifts of waste are progressively placed over an area of the dumpsite (see Attachment B, photo 9) and covered with daily cover at the end of the work day.

3.1.2 Typical Cell Construction
Solid waste will be placed in compacted lifts approximately two feet thick creating cells approximately ten feet deep. Each day, the waste and working face will be covered with at least six inches of earthen material creating discrete cells which comprise the lift. This process will continue above previous lifts until the final elevation is reached.

3.2 Disposal Working Face Details and Conditions

3.2.1 Waste Spreading and Compaction
Refuse will be unloaded at the working face which will be confined to as small an area as possible without causing unsafe traffic conditions. Loads will be directed by spotters to areas of the working face to permit disposal and compaction with an organized effort. Systematically placing loads in small areas reduces work as well as the effort to compact the waste. It also limits the area subject to precipitation and wind.

Bulldozers will spread the waste piles and bulldozers repeatedly pass over the waste thereby compacting the waste. The bulldozers are equipped with blades for spreading the waste. The waste will be unloaded at the bottom of an advancing lift. Waste will be placed in such a manner as to create a series of approximately horizontal lifts; each with a compacted height of approximately ten feet and working face slope of approximately 4H:1V. Within each lift, waste will be spread by bulldozers into layers approximately two to three feet in loose thickness and then passed over several times with dumpsite compactors. This process should be continuous with the bulldozers and compactors working and compacting the working face. Waste will be spread after unloading to reduce blowing litter and to keep the unloading area open for additional loads. To limit the potential for bridging of the surrounding refuse, large or bulky wastes will be placed at the bottom of the advancing lift and thoroughly crushed by compaction equipment.

Filling will proceed to reach final lift grade as soon as practicable. Consideration will be given to allowing for natural settlement of the refuse and retaining an area for use during inclement weather. Intermediate sideslopes resulting from filling will be constructed at approximately a 4H:1V slope to limit the surface area exposed to precipitation and provide for stability of the waste mass.
Subsection 2.2.6 presents a discussion of the equipment used for spreading and compacting solid waste received at the dumpsite.

3.2.2 Covering the Waste

3.2.2.1 Daily Cover.
A 6-inch (15 cm) layer of earthen material or equivalent will be placed over compacted waste at the end of each operating day. No refuse will be left exposed at the end of the operating day. The soil cover will be placed in one lift and compacted to limit rutting and erosion, to reduce the blowing of waste materials, and to control vectors. The daily cover material will be excavated from on-site areas or future phases.

Under certain circumstances, alternative daily covers such as chipped green waste, foams, and slurries may be used to reduce the thickness of daily cover and thereby increase the capacity of the dumpsite. An alternative daily cover is acceptable if it is capable of controlling disease vectors, fires, odors, blowing litter, and scavenging without being a threat to human health and the environment.

3.2.2.2 Intermediate Cover.
A 12-inch (30 cm) compacted soil layer will be placed over areas of compacted waste on which additional waste will not be placed for 180 days or more. Areas on which waste will be placed within 180 days will be covered with the six-inch (15 cm) layer of daily cover as previously described. A thicker layer of soil will be placed over these areas if significant rutting of the soil layer occurs or waste becomes exposed and increases windblown litter or attracts vectors. The intermediate cover will be maintained by filling in or regarding low spots or ruts. The soil will be placed in one lift and compacted to promote surface water runoff, reduce the quantity of water percolating into the waste, and control vectors. Intermediate cover material will be excavated from on-site areas or obtained from suitable off-site sources.

3.2.2.3 On-Site Soil Cover Sources.
Daily and intermediate cover soil will be obtained from on-site borrow areas. These borrow areas are from excavation of phases of the dumpsite or detention basins. It will be removed by backhoes and wheel loaders which transport the soil to the working face. Alternately, a soil stockpile (see Attachment B, photo 10) may be maintained near the active disposal area for daily and intermediate cover. Soil stockpiles should be limited in height so as not to reduce visibility and should be sloped at 4H:1V or less.

3.3 Capacity of Dumpsite
The dumpsite capacity should be periodically evaluated by the Site Environmental Engineer and/or an independent consultant and revised as necessary.

3.4 Dumpsite Phasing
The future expansion will be conducted in multiple phases to meet the disposal capacity and minimize the work face area.
3.5 Maintenance of Protective Soil Layer

Protective soil layers, if any, will be maintained before and during waste placement. Equipment operations on this layer and on the side slopes will be limited to a low ground pressure tracks or equipment with equivalent bearing pressure. Turning of the equipment and abrupt stops will be kept to a minimum to keep the tracks from displacing the soil and damaging the underlying geosynthetics, if any. Rubber-tired trucks or construction equipment operating on the bottom, and the low ground pressure equipment operating on the side slopes, over the protective soil layer will be limited to 10 mph. Damage to the protective soil layer due to erosion or sloughing will be repaired immediately.

3.6 Final Grade

The final grading of the dumpsite is designed to meet two criteria. First, to tie into existing grade at the edge of the dumpsite footprint. Second, to achieve positive drainage after dumpsite settlement. Waste that forms the outer dumpsite side slopes will be covered with at least one foot (30 cm) of intermediate cover soil. A perimeter trench around the dumpsite and within the lined portion of the dumpsite will be maintained to allow for grading and installation of the final cover at the perimeter and to contain run-off that may have encountered solid waste.
4 Operating Activities

This section presents descriptions of operating activities, including nuisance, drainage, erosion, and leachate control activities.

4.1 Setback

The dumpsite was designed and constructed with a minimum 50-foot (15 meters) buffer between the edge of the dumpsite and the roadways outside the dumpsite property, if any. No waste will be disposed outside of the designated areas.

4.2 Traffic Control

A sign at the entrance should display the site name, operating hours, examples of unacceptable materials for disposal, and other information. Parking for visitor and employee vehicles is located near the administration building.

4.2.1 Public

Self-haul vehicles will be directed to an area away from commercial traffic near the active face. A spotter at the active face will direct the vehicles and inspect for hazardous or unacceptable wastes. After unloading, vehicles will be directed to the outbound scale.

4.3 Litter Control

A litter collection program helps reduce fire hazards, enhances the appearance of the dumpsite site, and controls vectors. To reduce the quantity of blowing litter, refuse will be spread, compacted, and covered daily. On-site and off-site trash and windblown litter will be controlled by assigning laborers to collect scattered litter. Whenever possible, litter will be collected at the end of each working day and either placed in the working face and covered with soil that day or stored in covered containers for periodic disposal.

The Director or Operations Manager will generally inspect the site and access roads at the end of each operating day to observe that litter has been picked up. Portable screens, fences or piles of daily cover soil will be placed around the working face of the dumpsite when necessary. To limit problems with vectors, the material collected on the screens will also be removed daily.

4.4 Dust Control

Dust control measures at the dumpsite will include prompt and careful movement of cover materials, limitation of earthwork activities during windy periods, and proper maintenance of roads. Further, haul vehicles will be encouraged to maintain low travel speeds in the vicinity of the site to reduce fugitive dust.

Water trucks will be used as necessary to limit fugitive dust concentrations from unpaved site roads, soil stockpiles, active borrow areas, and reclaimed surfaces.

Stormwater run-off collected in the detention basin may be used for dust control by pumping into the water trucks after the sediment has settled. Leachate may also be used for dust control in a similar manner except that its use will be limited to areas within the lined dumpsite with a liner.
4.5 Disease Vector Control

Vectors that create nuisance conditions and health hazards at dumpsite sites include flies, rodents, and mosquitoes or other animals, including insects, capable of transmitting disease to humans.

Flies and rodents are most effectively controlled by the efficient spreading, compaction, and covering of incoming waste. Daily cover discourages propagation of flies and rodents. Highly putrescible wastes will be covered immediately upon placement and compaction in the working face. Compaction of waste limits potential harborage for rodents. Maintenance and grading of drainage channels reduces the potential for standing water and limits the mosquito population. No bins containing solid waste will be left overnight but will be emptied at the end of the day regardless of how full they are.

When additional techniques such as reproductive controls and insecticides or rodenticides are necessary, they will be protective of human health and the environment. Tractors with sprayers will be utilized to control vectors.

4.6 Odor Control

Odors may be generated at dumpsites by the wastes accepted and by the decomposition of the buried wastes. Odors can be reduced by the prompt placement of daily, intermediate, and final cover. Immediate cover, lime, or other approved chemicals may be applied over loads containing dead animals, manure, or other odorous loads. Lime or chemicals applied will be protective of human health and the environment. If dead animals are accepted, they will be buried in a pit constructed near the active face and immediately covered.

4.7 Fire Control

 Procedures to discourage fires at the site include inspection of incoming loads for fires or smoldering waste, placement and compaction of soil cover over the disposed waste, and maintenance of dumpsite equipment. Incoming waste loads will be inspected for smoldering or burning material. Any hot or burning material will immediately be extinguished with a fire extinguisher or by covering with soil. Water may also be used if the previous two methods prove insufficient.

Neither smoking nor an open flame will be allowed near the working face or in enclosed spaces. Smoking is allowed in authorized areas only. Dumpsite vehicles and equipment will be regularly inspected and maintained to prevent sparks or leaking flammable liquids. Daily cover material will be maintained in the fill area to assist fire-fighting activities. Dumpsite personnel will be trained in proper firefighting procedures and the identification of subsurface fires. Signs of such subsurface fires may include sudden or rapid settlement of fill or smoke emissions from the fill.

Fire extinguishers and other firefighting equipment will be regularly inspected and maintained. Fire extinguishers will be carried on all dumpsite heavy equipment located at the working face.

In the event of a fire, the Director and Operations Manager will be notified and will be responsible for determining the appropriate emergency response. The procedures found in the Contingency Plan (Section 7.2) will be followed. All personnel not actively engaged in fighting the fire will move away from the fire and wait for instructions from the Operations Manager.
vicinity of the fire will be kept free of vehicles which may interfere with the firefighting equipment. Any members of the public that are present will be directed to leave the dumpsite. If possible, without causing further injuries, injured persons will be removed immediately from the site for treatment.

The use of fire extinguishers, covering the burning waste with soil, or spraying the burning waste with water are generally acceptable means of controlling dumpsite fires. However, the first two methods are preferred due to the possibility of creating leachate by the addition of water to the dumpsite. In addition, depending on the type of fire, water may not be the safest or most effective means of fighting the fire and could intensify the fire. After the fire is extinguished, the cell containing the burning waste will be excavated and the material spread out in an isolated area. Once it is determined that there is no more burning waste, the waste will be placed in a cell, compacted, and covered with six inches of cover material.

Subsection 7.2 further describes contingency plans for response to buried and exposed refuse fires.

4.8 **Access Control**

Security guards work to control public access and to limit unauthorized dumping, salvaging, or trespassing. The dumpsite entrance gate must be locked during non-operating hours. All fences shall be regularly inspected by dumpsite personnel. Repairs shall be made as soon as possible. Litter and debris shall be removed from the fence as needed.

Suitable access roads shall be provided to facilitate dumpsite operations under adverse weather conditions. Access will also be controlled by security guards both day and night. The security guards will patrol the facility and help discourage illegal dumping. Security incidents will be recorded.

4.9 **Surface Water Management**

The surface water management system consists of three primary components:

- Dumpsite perimeter containment berm
- Site drainage ditches
- Detention basin

Surface water run-off shall be managed at the dumpsite to limit the amount of leachate generated. Leachate is either liquid that filters through the waste to the leachate collection system or run-off that travels across the surface of any exposed waste. Clean run-off is water that travels across the intermediate cover soil, final cover, perimeter and diversion berms, access and haul roads, existing soils, and future phases. Leachate shall be collected and pumped to the storage tank/pond. Clean run-off shall be routed to a detention basin. Any area on the site that ponds water shall be regraded or filled in to provide positive drainage toward the drainage ditches or the detention basins.

4.10 **Noise Control**

Ear protection shall be available to employees.
4.11 *Bird Control*

Daily landfill cover limits food sources for birds. In addition, confinement of landfill operations to a relatively small working face discourages bird infestation. If birds become a problem, techniques such as installation of portable overhead cables or use of distress calls to frighten the birds may be utilized.

4.12 *Adverse Weather Conditions*

4.12.1 High Winds

During periods of high wind, special precautions shall be taken to keep blowing dust and litter under control. If possible, filling could be performed at lower elevations during extremely windy weather.

Water can be applied to haul roads and the area of open working face will be limited and well compacted. If the winds become strong enough to endanger haul trucks while dumping their loads, the landfill will not accept them or will allow them to dump in an area sheltered from the wind. The Director has the authority to cease disposal operations during high wind conditions. In the event of a shutdown, a notice will be posted at the site entrance, directing haulers to alternate disposal locations. Also, landfill personnel shall inform major haulers of the shutdown and its expected duration.

4.12.2 Wet Weather

Roads must be kept passable and the working face kept accessible in wet weather. If roads become unpassable, temporary disposal locations shall be made available for the trucks to dump elsewhere within the lined active phase. Slopes and cover shall be maintained in order to reduce the potential for exposing underlying waste by stormwater runoff. The Director has the authority to cease disposal operations during wet weather. In the event of a shutdown, a notice must be posted at the site entrance, directing haulers to alternate disposal locations. Also, landfill personnel must inform major haulers to the shutdown and its expected duration.

4.13 *Special Handling Procedures*

4.13.1 Metals

Metals capable of being recycled received at the landfill must be stockpiled for recycling.

4.13.2 Large Appliances

Large appliances must not be accepted at the facility. Small appliances will be accepted and stockpiled for recycling.

4.13.3 Tires

Tires must be discouraged and removed from the active face and placed in a storage area to be shipped off for recycling. Tire should not be combusted at or near the landfill to reduce the risk of fires.
4.13.4 Lead Acid Batteries
Lead acid batteries must not be accepted at the landfill. The public must be directed to return batteries to the supplier. Lead acid batteries found in the landfill must be removed from the landfill, properly stored, and taken to a battery recycler. Lead acid batteries must be stored on an impervious surface, “no smoking” sign clearly posted in the area and a fire extinguisher readily available.

4.14 Restricted Activities
This section describes restricted activities at the landfill. Restricted activities are defined here as waste disposal activities that are prohibited or are required to meet special disposal requirements.

4.14.1 Open Burning
Open burning of waste materials must be prohibited at the landfill. Subsections 4.7 and 7.2 describes firefighting procedures to be undertaken in the event of a fire.

4.14.2 Liquid Waste Disposal
Liquid waste disposal must be prohibited at the landfill. Also, mixing of bulk liquid waste with solid waste in the landfill will not be permitted. No septic waste will be accepted.
5 Recordkeeping

This chapter describes recordkeeping procedures for the facility. Records must be kept on demonstrations, design documents, plans, training procedures of landfill personnel, load and site inspections, scale house activities, incoming waste streams, operating procedures, environmental monitoring results, fires, hazardous waste identified at the landfill, cost estimates, and financial documentation. All records must be maintained in a single location at or near the landfill facility, and at the office of the Joint Council Services, for the duration of the landfill operating life, including the post-closure care period.

5.1 Training Procedures

Records of training procedures undertaken, and personnel trained, will be kept and should describe curricula or provisions for training landfill personnel in the following activities:

- Hazardous waste identification;
- Solid waste disposal operations; and
- Emergency response.

Individual records for each landfill employee must be kept that indicate the activities in which the employee has been trained. These records must be signed by the supervising training officer as each training unit is completed.

5.2 Facility and Load Inspections

5.2.1 Facility Inspections

Inspections log must be used by landfill personnel to record various components of the landfill facility.

5.2.2 Load Inspections

The load checking personnel will record the following information during the inspection:

- Date;
- Time;
- Hauling firm or vehicle owner’s name, address, and telephone number;
- Waste generator or source of waste, if known;
- Driver’s name; and
- Vehicle’s license plate number.

All inspections will be documented and signed by the Security Guard or Operations Supervisor. The inspector(s) and the driver of the vehicle will also sign the inspection form. A load inspection report form will be used for each load that is closely inspected.
5.3 **Facility Operations**

5.3.1 **Waste Acceptance Activities**
Records are kept on the number of vehicles entering the landfill daily and the weight of waste received. The recordkeeping system at the landfill includes use a written logbook located in the administrative building that documents all vehicles entering the landfill. Estimated gross and tare weights are recorded for those vehicles for which their tare weights.

In addition to the gross and tare weights, the following information is recorded in the computer:

- Vehicle identification, size and type;
- Account number for charge customers;
- Weigh master and scale used;
- Date and time;
- Origin and destination of waste;
- Waste type; and
- Fee

Total tonnage of waste received during the course of each year will be used in conjunction with fill volume calculations to periodically assess the remaining disposal capacity of the landfill.

5.3.2 **Equipment Maintenance**
Equipment maintenance logs should be kept for each major piece of equipment owned and operated by the landfill. These logs are maintained by the Operations Manager and Mechanic.

5.4 **Environmental Monitoring**
Monitoring records for the site monitoring systems include field logbooks, copies of sampling results, and copies of chain-of-custody forms. These records will contain the following information:

- Identification of wells and sampling points monitored;
- Date of monitoring;
- Individual with lead role in monitoring; and
- Monitoring activities.

5.5 **Emergency Conditions**
An emergency conditions record must be completed for every significant incident such as fire, explosion, personal injury, or exposure to hazardous or toxic materials. These records will be used to help avoid or manage future emergencies.
6 Waste Characterization

This section presents the characterization of the waste stream for the landfill in terms of service area, accepted or prohibited wastes, waste properties, and handling procedures for special wastes.

6.1 Service Area
The landfill accepts municipal solid wastes from surrounding communities.

6.2 Acceptable and Unacceptable Wastes
The landfill facility accepts the following waste types:

- Municipal solid waste (garbage, trash, and other waste from households or commercial/industrial facilities)
- Yard waste (grass, leaves, trees, etc.)

The following types of waste are not accepted for disposal in the landfill:

- Large metals items (recycled)
- Large appliances (recycled)
- Liquid waste
- Tires
- Lead-acid batteries
- Hazardous waste
- Red-bagged medical waste

These wastes will be accepted by the landfill only with the written approval of the Director in advance.
7 Contingency Plan
This section describes contingency activities to address unforeseen circumstances which may occur at the landfill.

7.1 Release of Hazardous Wastes
The landfill does not accept hazardous wastes; thus, any appearance of these wastes at the landfill site comprises a contingency. Once a hazardous waste has been identified, caution must be taken to protect the safety of the landfill personnel, public, and the environment. The following response and handling procedures will be conducted by the landfill personnel if hazardous waste is found in the working face or in a load that was dumped for inspection:

- Approach the waste cautiously from up wind;
- Attempt to identify the substance from a distance based on identifying container markings and physical characteristics, e.g., solid, liquid, or gas; smoking or smoldering;
- Secure and isolate the potential danger area by roping off the area and allowing no one near it except emergency personnel;
- Redirect incoming loads to another working face, upwind of the suspected release.
- Notify the appropriate authority to request a hazardous material response team to determine the waste characteristics and appropriate response;
- Remain on the scene until the waste is properly removed from the landfill.
- Thoroughly clean the area in which the hazardous or unacceptable wastes were found. Cleaning agents and contaminants may have collected in containers for disposal off-site; and
- Attempt to determine the generator or hauler of the hazardous waste and initiate action to recover handling, transportation, and disposal costs when the responsible party is determined.

Haulers who have been found attempting to deliver hazardous wastes to the landfill will be subject to interrogation or inspections during future trips. At the discretion of the Director, repeat offenders will be banned from continued use of the landfill.

It may be necessary to temporarily store the wastes at the landfill. In this case, the wastes should be protected against the elements (rain, wind, etc.), secured against tampering or unauthorized removal, and isolated from other wastes and activities.

In order to continue operation of the landfill during the removal of the hazardous waste, waste will be placed away from the contingency activities. Another working face will be established if necessary.

7.2 Fire
In the event of a fire at the landfill facility, the City Fire Department will be summoned. The closest fire department is located approximately 4 miles from the landfill.
7.2.1 Exposed Fire
Should a fire occur in any of the structures or areas of the landfill facility, landfill personnel will call the Fire Department. Meanwhile, the Director will proceed with the following actions if the character of the fire does not endanger personnel safety.

- Should the fire be localized in a fill area, the equipment operators will proceed to excavate the burning refuse to separate it from the rest of the fill, and proceed to cover it with on-site soil or extinguish the fire with fire extinguishers. Only if considered necessary, water from on-site water truck will be used.
- Should the fire be localized to a buffer zone surrounding the fill area, the equipment operators will excavate the necessary fire breaks to keep the fire from reaching any fill area and will water down the area between the fire break and the refuse area using on-site water truck.
- Should the fire be localized to an on-site structure, the Director will direct the use of on-site fire extinguishers, water truck, or fire hoses to control the fire as much as possible, will construct fire breaks, and water the areas surrounding the fire.

Upon arrival at the site, Fire Department will be in charge of the necessary actions and, on their completion, will report the conditions at the site. The Director will conduct a field investigation to determine the origin and extent of the damages to the containment and other structures, its impact on the landfill operations, temporary and permanent repairs and changes in operations considered necessary to reduce the potential for similar occurrences.

Excavating burning or smoldering waste is a dangerous procedure and caution must be taken. Water will be sprayed on those parts of operating machinery that come into contact with hot wastes. After all burning waste has been excavated and fires have been extinguished, the waste will be landfilled according to usual procedure. Burned waste will not be disposed until certified as completely extinguished by a Fire Department representative. The area where the burned waste is landfilled will be monitored for several working days to verify that the fire has not restarted.

7.2.2 Buried Refuse Fire
A buried refuse fire can result from several sources, including a burning or smoldering load that was landfilled or from air intrusion into the landfill. Entrained air or air infiltration causes the buried refuse to decompose, producing carbon dioxide, water vapor, residual nitrogen, carbon monoxide, and heat. The following phenomena may indicate that air has mixed with buried refuse and a fire has started:

- Significant settlement in a limited area;
- Surface cracks with smoke emission; and/or
- Surface cracking in a radial pattern.

If a buried refuse fire is suspected, the Director will be notified. The landfill cover will then be visually inspected to find any obvious sources of air entering the landfill, such as surface cracks or settled areas. Cracks in the cover will be monitored for the presence of landfill gas and carbon
monoxide to protect personnel and to determine the extent of the refuse fire. If landfill gas is present or suspected, personnel will be required to wear respiratory protection. The burning waste will be excavated (if feasible) and spread out in an isolated area or otherwise isolated from the rest of the buried waste. Fire extinguishers, covering the burning waste with soil, and spraying the burning waste with water are all acceptable means of extinguishing the fire. After it has been determined that the fire is out, the waste will be placed in a cell and covered with six inches of cover material. Large underground fires will need to be extinguished through the benefit of consultation with professionals in that field.

7.3 Personnel Safety

While adherence to the recommendations presented in this plan does not guarantee the safety of people on the site, these recommendations can lead to a safer working environment.

7.3.1 Facilities Safety Procedures

7.3.1.1 General.

Each employee will contribute to safety of the work environment by periodically analyzing jobs, work areas, and procedures from a safety standpoint so that potentially hazardous conditions will be recognized and avoided. When a hazard is noted, immediate corrective action will be taken. Where appropriate, warning signs will be posted, safety devices installed, and safety procedures established. Periodic safety inspections by outside staff personnel will help identify correctable hazards.

Personnel working at the landfill will be trained in safety and emergency response procedures and in the proper use of safety equipment. Personnel are recommended to receive and have current training in first aid and cardiopulmonary resuscitation (CPR) or equivalent program. Personnel working at the landfill will also receive the necessary training which will include worker training, labeling of hazardous materials used in the workplace and material safety data sheets.

All equipment will be maintained in good working order. Hard hats, safety glasses, safety shoes, and gloves will be worn around mobile equipment. Hard-hats are not required in enclosed cabs of equipment. All mobile equipment will operate with audible back-up signals and will contain fire extinguishers or suppression systems and first-aid kits. Landfill personnel involved in traffic control will wear high visibility safety vests.

7.3.1.2 Maintenance Area.

Numerous safety conditions will be observed in the operation of the maintenance shop, including adhering to the following safety procedures:

- All welding gas bottles will be secured with chains to either a bottle cart or a bulkhead. All gas bottles without regulators will have steel protective covers over the bottle stem;
- Vehicles being maintained or repaired, as well as parked vehicles, will have their tires blocked;
- When personnel are working under any vehicle, jack stands will be used to secure the vehicle; and
- Oil spills will be removed immediately using oil absorbents.

### 7.3.1.3 Facility Buildings.

The following safety requirements will be met by personnel working in the facilities building:

- No unauthorized persons will be allowed in the office, or other facility structures without being escorted by, or having permission of, authorized personnel; and
- Manufacturer’s safety recommendations for all equipment will be followed.

### 7.3.2 Working Face

Landfill personnel assigned to the working face will follow these safety requirements:

- Equipment operators will maintain regular contact with the office, immediately notifying the Director of any emergencies that occur at the working face;
- Equipment operators will visually inspect solid waste for unacceptable and hazardous materials; and
- Drivers will be directed to unload and leave the working face in a safe and expedient manner.

### 7.3.3 Ambulance and Hospital Availability

A 911 service is available at the landfill site. City ambulance and hospital services will be utilized when necessary for persons injured at the landfill.

### 7.3.4 Communications

Contact between landfill personnel and outside individuals and agencies will be typically maintained through the use of telephone services. Communications at the landfill will be maintained through the use of cell phones.

### 7.4 Emergency Coordinators

Table 10-1 presents various contacts for emergencies that may arise at the landfill. A copy of the operations plan will be available to all of the contacts listed in Table 10-1 to familiarize them with the layout of the facility, properties of the waste accepted, and operating practices.

The Director will maintain and post a list of personnel to be contacted for all emergencies. This Emergency Call List will be updated regularly and provided to the City Fire and Police Departments. One of the landfill personnel listed on the Emergency Call List will contact the regulatory agency when an event occurs that requires emergency response measures or implementation of a contingency action in response to an endangerment to the public health or environment.
7.5 **Emergency Equipment**

Emergency equipment provided at the landfill site will include a light tower, and fire extinguishers and first aid kits carried on all mobile equipment and located in all facility buildings. Also, the water truck may be used to extinguish fires that may occur. See Subsections 4.7 and 7.2 for additional information on fire control.

7.6 **Equipment Failure**

In the event of equipment failure, three procedures will be followed. First, remaining on-site equipment will be reallocated to continue with normal landfill operations. Second, short-term replacement landfill equipment will be acquired through rental or lease. Third, long-term replacement equipment will be provided through other City operations or through purchase. Failed equipment will be repaired as soon as practicable and returned to operation.

7.7 **Facility Shutdown**

The landfill is designed for all-weather access and portions of the site will be developed for use during inclement weather. In the unlikely event of facility shutdown, a notice will be posted near the site entrance, directing haulers to alternate disposal locations. Additionally, landfill personnel will inform major haulers of the shutdown and its expected duration.

7.8 **Evacuation Plan**

In case of excessive landfill gas concentrations are detected in facility structures or fire in landfill facilities or a hazardous waste incident personnel will be evacuated to a reasonably remote location from the fire. If the fire occurs in conjunction with finding evidence of landfill gas migration, all landfill personnel will be evacuated from the landfill facility.

If an evacuation of the entire landfill facility is necessary, the following actions will be initiated by the Director, Operations Manager, or Operations Supervisor:

- An alarm will be given through the communications system;
- Access and haul roads will be cleared of obstructions;
- Personnel and public will exit the property using the landfill entrance road; and
- Emergency response agencies will be notified.
Attachment A - Site Location & Diagram for Deir Allah Dumpsite
Attachment B – Site Photographs
Site: Deir Allah Dumpsite
Photograph No.: 1
Direction: South
Subject: Main Gate

Date: 05/21/2019
Photographer: A. Sultan

Site: Deir Allah Dumpsite
Photograph No.: 2
Direction: South
Subject: Administration Building

Date: 05/21/2019
Photographer: A. Sultan
Site: Deir Allah Dumpsite
Photograph No.: 3
Direction: Southwest
Subject: Utility Services Building

Date: 05/21/2019
Photographer: A. Sultan

Site: Deir Allah Dumpsite
Photograph No.: 4
Direction: South
Subject: Cleaning & Maintenance Ramp

Date: 05/21/2019
Photographer: A. Sultan
Site: Deir Allah Dumpsite
Photograph No.: 5
Direction: North
Subject: Access Road to dump area

Date: 05/21/2019
Photographer: A. Sultan

Site: Deir Allah Dumpsite
Photograph No.: 6
Direction: East
Subject: CAT 973 bulldozer

Date: 05/21/2019
Photographer: A. Sultan
Site: Deir Allah Dumpsite
Photograph No.: 7
Direction: East
Subject: Komatsu 65PX bulldozer

Date: 05/21/2019
Photographer: A. Sultan

Site: Deir Allah Dumpsite
Photograph No.: 8
Direction: South
Subject: Tractor w/ spray unit

Date: 05/21/2019
Photographer: A. Sultan
Site: Deir Allah Dumpsite
Photograph No.: 9
Date: 06/19/2019
Direction: Southwest
Photographer: P. Ruesch
Subject: Typical daily dumping area

Site: Deir Allah Dumpsite
Photograph No.: 10
Date: 06/19/2019
Direction: Southwest
Photographer: P. Ruesch
Subject: Daily cover soil piles staged adjacent to dumping area