

Delaware Recyclable Products, Inc.  
Industrial Waste Landfill  
Permit Modification Application

Geosyntec Consultants  
PERMIT MODIFICATION APPLICATION  
Vertical Expansion

PART V

OPERATION AND MAINTENANCE  
PLAN



**DELAWARE RECYCLABLE PRODUCTS, INC.**

246 Marsh Lane  
New Castle, Delaware 19720

*Prepared for*

**PERMIT MODIFICATION  
APPLICATION  
PART V – OPERATION AND  
MAINTENANCE PLAN**

*for*

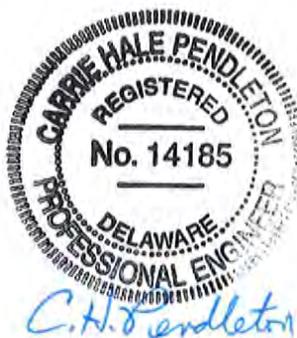
**DRPI Industrial Landfill  
New Castle, Delaware**

*Prepared by*

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Geosyntec Project No.: ME1571



March 2019

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- Appendix V-A: Contingency Plan
- Appendix V-B: Sample Record Keeping Forms (Forms A through F)
- Appendix V-C: Tipper Operating Instructions and Site Safety Policy for Tipper Operations
- Appendix V-D: DRPI LFG Odor Control System
- Appendix V-E: Leachate Pretreatment Facility Operations Manual and Wastewater Discharge Permit
- Appendix V-F: Stormwater Plan

## **1 INTRODUCTION**

### **1.1 Terms of Reference**

The purpose of this report is to present procedures and methods for the operation and maintenance of the facilities related to the Delaware Recyclable Products, Inc. (DRPI) Landfill in New Castle County, Delaware. The facility is located at 246 Marsh Lane in New Castle, Delaware. This Operation and Maintenance (O&M) Plan was prepared for DRPI to address the requirements of the Delaware Department of Natural Resources and Environmental Control (DNREC) Regulations Governing Solid Waste (DRGSW) 1301, §4.2.1.3 and §6.9. The information presented in this plan is intended for use by personnel who operate and maintain DRPI Landfill.

This O&M Plan was prepared by Geosyntec Consultants Inc. of Columbia, Maryland in October 2004. The draft guidance document *Plan of Operation – A Preparation Guide for Delaware Industrial Waste Facilities*, prepared by the DNREC was referenced for preparation of the initial plan. The O&M Plan was revised in August 2009 and October 2012 (Revisions 1 and 2) by Geosyntec, and again by Golder Associates Inc. (Golder) in October 2014 as part of the 2014 Permit Renewal Application, and April 2015, as part of the Cell 6-2 footprint reduction (Revisions 3 and 4, respectively). This update by Geosyntec is Revision 5 and incorporates previous updates and updated regulatory references, in addition to the capping limits and sequence associated with the current permit application for a vertical expansion. All other sections of the document remain unchanged.

### **1.2 Project Background**

DRPI Landfill was previously operated as a sand and gravel pit from about 1954 until 1982. DRPI Landfill was initially permitted in 1982 and began disposal operations in 1985. The landfill was permitted and developed as an industrial waste landfill and was developed in six phases, identified as Cells 1 through 6, for a total landfill footprint of approximately 146 acres. Currently, disposal operations at the DRPI Landfill are primarily within the Cells 1-3 overlay liner area. This O&M Plan was developed as part of the permit modification application for vertical expansion for the entire facility. The locations of major features of DRPI Landfill are shown on **Figure V-1**.

### **1.3 Regulatory Requirements and the Organization of this Plan**

This O&M Plan is organized in a manner that allows straightforward implementation during operation of the DRPI Landfill, as well as meeting DRGSW requirements. This Plan is organized as follows:

- Section 2 presents general site operating information;

- Section 3 describes landfill operating procedures (DRGSW §6.9);
- Section 4 describes safety procedures (DRGSW §6.9.2.8); and
- Section 5 describes record keeping and reporting procedures (DRGSW §6.9.3. and DRGSW §6.9.4.).

The appendices to this O&M Plan consist of the following:

- Appendix V-A: Contingency Plan (DRGSW §4.2.1.3.5);
- Appendix V-B: Sample Record Keeping Forms;
- Appendix V-C: Tipper Operating Instructions and Site Safety Policy for Tipper Operations;
- Appendix V-D: DRPI LFG Odor Control System;
- Appendix V-E: Leachate Pretreatment Facility Operation Manual and Wastewater Discharge Permit; and
- Appendix V-F: Stormwater Plan.

## **2 GENERAL REQUIREMENTS**

### **2.1 Ownership and Operation**

DRPI owns and operates the DRPI Landfill as a subsidiary to its parent corporation, Waste Management (WM). The overall responsibility for the operation of the DRPI Landfill is upon the DRPI District Manager, to whom all other site staff and contractors will report.

### **2.2 Hours of Operation**

The DRPI Landfill is operated five days per week. The hours of operation are between 6:30 a.m. and 5:30 p.m., Monday through Friday. The DRPI Landfill will be open to accept dry industrial waste between 6:30 a.m. and 4:00 p.m. and will work as late as necessary to properly place, compact, and cover received waste. The DRPI Landfill is typically closed on the following holidays: (i) New Year's Day; (ii) Memorial Day, (iii) Independence Day, (iv) Labor Day, (v) Thanksgiving Day; and (vi) Christmas Day, but reserves the right to be open for business in the event of extreme weather, natural disaster, or other event that necessitates the facility be open, with 24-hour advance notification to DNREC.

### **2.3 Volume of Waste**

The amount of industrial waste disposed at DRPI Landfill in recent years is as follows:

<b>Year</b>	<b>Tons</b>
2008	252,953
2009	230,623
2010	265,549
2011	288,099
2012	308,216
2013	276,150
2014	275,559
2015	248,428
2016	269,917
2017	363,078

As shown in the data, waste volumes received at the DRPI Landfill have averaged approximately 286,600 tons per year over the past five years. Waste volumes in 2017 represent approximately 1,420 tons per day based on 255 operating days per year. This waste volume is expected to remain

stable over the long-term at the DRPI Landfill. DRPI has a maximum daily tonnage limit of 2,400 tons per day.

Based on information provided by DRPI, the long-term bulk density (waste plus cover soils) for future operations at DRPI Landfill is assumed to be approximately 1,300 pounds per cubic yard (lbs/yd<sup>3</sup>; 0.65 tons/yd<sup>3</sup>). The total disposal volume remaining as of January 17, 2018 at DRPI was approximately 1.8 million yd<sup>3</sup>, representing approximately three years of disposal capacity at the 2018 disposal rates. Based on the topographic survey from December 2017 and the vertical expansion to 190-ft peak with the proposed vertical expansion grading plan, there is roughly 8.4 million yd<sup>3</sup> disposal space, representing approximately 21 years of disposal capacity.

## **2.4 Types of Waste**

DRPI is an industrial landfill that cannot accept any garbage or household waste. The types of waste that are accepted are described below.

### **2.4.1 Acceptable Waste**

Acceptable waste for the DRPI Landfill includes construction/demolition debris (C/D debris), vegetative wastes from land clearing and landscaping, and dry wastes. Specific examples of acceptable wastes include:

- Wood
- Pressure Treated Lumber
- Brick
- Concrete
- Asphalt
- Rock
- Rubble
- Metal
- Clean Empty Drums
- Rubber
- Glass
- Plastic
- Construction Debris
- Asphalt Shingles
- Other Non-Asbestos Roofing Materials
- Carpet and Rugs
- Furniture
- Mattresses
- Box Springs
- Paper
- Cardboard
- Vegetative Matter
- Yard Waste
- Landscaping Waste
- Logs
- Tree Trimmings
- Leaves
- Crockery
- Dry Wall
- Uncontaminated Machinery Components

Additionally, the DRPI Landfill may accept the following special wastes with prior DNREC approval:

- Contaminated soils (total petroleum hydrocarbon limit up to 1,000 ppm)
- Other industrial wastes.

## **2.4.2 Recyclables**

DRPI can accept the following recyclable materials:

- Tree Stumps and Large Limbs
- Leaves
- Crushed Asphalt, Concrete and Bricks
- Metal
- Cardboard
- Wood
- Plastic

## **2.4.3 Unacceptable Waste**

Unacceptable wastes include putrescible wastes, liquid wastes, and hazardous wastes that are categorized as “hazardous wastes” by the United States Environmental Protection Agency (USEPA) or DNREC. Specific examples of unacceptable wastes for the DRPI Landfill include the following:

- |                                 |  |
|---------------------------------|--|
| • Hazardous Waste               | • Putrescible Wastes   |
| • Asbestos                      | • Liquid   |
| • Creosote Treated Materials    | • Wastewater Treatment Sludge  |
| • Regulated Infectious Waste    | • Whole Tires  |
| • Licensed Radioactive Material | • Medical Waste  |
| • Electrical Transformers       | • White Goods (freezers, Freon-containing goods, refrigerators, air conditioners, washers, dryers, stoves) |
| • Municipal Solid Waste         |  |
| • Municipal Solid Waste Ash     |  |

## **2.5 Site Security**

The DRPI Landfill is secured by a combination of fencing, locking gates, and natural and manmade barriers (e.g., inundated wetlands). Access to the site will be continuously controlled through the measures listed above, and only DRPI personnel have keys to the facility. DRPI is responsible for

opening the gates at the beginning of the workday and locking them at the conclusion of the workday.

All visitors or customers must use the main access road to gain entrance to the site. They are required to either stop at the scalehouse station to have their vehicles weighed and checked in, or to register in a “visitor log”, which is maintained at DRPI’s administrative office.

## **2.6 Personnel**

### **2.6.1 Introduction**

DRPI employs a sufficient and experienced work force that is capable of operating the DRPI Landfill in accordance with the requirements of DRGSW § 6.9.2.6, this O&M Plan, the conditions of the DNREC Permit, and applicable State and Federal regulations.

In this section, the duties of the personnel who will operate the facility are described.

### **2.6.2 Staffing**

An organization chart for landfill personnel is presented on **Figure V-2**. The minimum staff typically needed to adequately operate the waste disposal and leachate management operations of the landfill and their responsibilities are as follows:

- Facility Manager (minimum one), who may also be the District Manager, will: (i) manage all landfill operations; (ii) oversee any construction at the site; (iii) manage the scale operators and office assistant; and (iv) ensure that the landfill is operating in compliance with the terms and conditions of the permit;
- Equipment Operators, the number of whom will be based on daily intake with a minimum of three, will operate the equipment listed in Section 3.1.1 for the purposes of waste placement and site maintenance;
- Scale Operator (minimum one), who will record the weights and physical condition (e.g., covered, leaking, etc.) of all waste hauling vehicles entering the site;
- Primary Emergency Coordinator (minimum one, who may also be the Facility Manager), who will fulfill the role described in **Appendix V-A** (i.e., Contingency Plan) of this O&M Plan;
- Water Truck Driver (minimum one), who may be one of the three equipment operators; and

- Licensed Wastewater Operator (minimum one), who may be one of the three equipment operators.

In addition, additional full- or part-time personnel (e.g., laborers, litter pickers, office staff, operations specialists, technicians, etc.) may be needed during periods of construction, during routine cleaning of the facility, during special projects, or due to incoming waste tonnage equipment or administrative needs. During landfill construction events, several contractors may be present on site at any given time. The number of personnel employed by the contractor will vary based on the particular requirements of each project.

### **2.6.3 Training**

#### 2.6.3.1 Introduction

Training will include initial orientation, job performance, emergency response, health and safety, and first aid training. As applicable, contractors will also be required to perform applicable training for its employees in a manner consistent with this O&M Plan. These aspects of training are described below. Employees who may be required to handle potentially harmful materials will be taught procedures for materials handling, spill prevention and clean-up, material compatibility, and applicable right-to-know requirements. Records of training of employees will be kept by the Facility Manager.

DRPI employees will be trained through the Waste Management training program, which is given immediately following hiring. This initial training, as described below, primarily covers job performance; however, emergency response actions are also covered. Safety meetings will be held periodically for employees of DRPI. Basic safety measures, emergency response procedures, and changes to facility operations will be reviewed at these site safety meetings.

#### *Initial Orientation*

Each employee will attend mandatory waste screening training within 60 days of being hired. During training, which will be performed by the Facility Manager or designee, new employees will be introduced to the unique operational issues associated with the DRPI Landfill site. Additionally, all employees participate in weekly safety meetings and monthly environmental training. All other initial training shall be completed within 180 days of hiring.

As appropriate, the employee's specific job performance training will address:

- worker safety and health for specific features of employee's job;
- use and limitations of safety equipment;

- landfill operations;
- equipment maintenance;
- potential hazards and adverse environmental impacts associated with handling industrial waste;
- monitoring of incoming waste materials;
- identification of unacceptable wastes;
- proper handling and procedures for all waste types, including suspected hazardous substances;
- fire prevention and safety procedures;
- emergency response procedures and the emergency contingency plan; and
- record keeping for inspections, maintenance, and tests.

As necessary, equipment supply companies will be required to provide training to DRPI personnel based on individual purchase contract requirements. Classroom or field training will be conducted by qualified personnel. All equipment operators will undergo such training prior to operating equipment at the DRPI Landfill.

#### *Emergency Response*

Each employee will receive training regarding responses to emergency situations and descriptions of emergency contingencies. During the training session, the Contingency Plan (presented in **Appendix V-A** to this O&M Plan) will be reviewed. Each emergency condition that is identified in the contingency plan will be described and appropriate response actions will be described.

#### *Health and Safety*

Each employee will receive health and safety training as described in Section 4. The site also holds weekly on-site safety meetings and monthly environmental training.

#### 2.6.3.2 Documented Training

Documented training will include; as appropriate, the following:

- landfill operator training; and
- health and safety training, as required by OSHA and presented in 29 CFR §1910.

Documentation of completed training will be maintained at the DRPI Landfill for three years.

Staff also maintain current automated external defibrillator (AED) and cardiopulmonary resuscitation (CPR) training.

### *First Aid*

First-aid kits are located and maintained in the administrative building, the scalehouse, the pump house and the maintenance building. Emergency 911 services available at the DRPI Landfill include ambulance, fire, and police services.

## **2.7 Communications Equipment**

Communications will be maintained using telephones and radios (i.e., transmitter/receivers) at the site. Telephones (landlines) exist at the administrative, the maintenance building and scale buildings. DRPI will maintain radios, which allow communications between the landfill office, scale house, maintenance building, and the field. In addition, the Facility Manager will carry a mobile telephone so that he/she may be contacted if they are away from DRPI Landfill during business hours.

### **3 LANDFILL OPERATION**

#### **3.1 Equipment**

##### **3.1.1 Types and Quantities**

Equipment used to operate DRPI Landfill will be selected based on: (i) the current quantity of waste managed at the site; (ii) the quantity of soil that is used for cover; and (iii) the need for routine maintenance operations. DRPI utilizes adequate numbers of types of equipment to ensure operation of the DRPI Landfill in accordance with the requirements of DRGSW § 6.9.2.7.

To operate and maintain the site, DRPI plans to employ the following equipment at the landfill:

- one steel-wheeled compactor(s) (CAT 826 or equivalent) for waste compaction;
- bulldozer(s) (minimum 1) for general earthwork;
- bucket loader, for general earthwork and re-loading rejected materials;
- two articulated dump trucks (Volvo A30 or equivalent)
- water tank truck for dust control;
- portable pumps and hand tools for miscellaneous site drainage and maintenance work; and
- one trailer tipper (as needed), to facilitate dumping of transfer trailers (see **Appendix V-C**).

Equipment types and manufacturers may change at DRPI's discretion. However, additional equipment may be added dependent on tonnage requirements. Site equipment will be routinely cleaned and maintained in accordance with the manufacturer's recommendations to allow for proper operation and maintenance of the facility.

##### **3.1.2 Maintenance**

DRPI and/or equipment maintenance contractors will maintain all of its landfill equipment in good working order, will clean the equipment periodically, and will have suitable standby equipment available to provide continuous operation of the DRPI Landfill in compliance with the conditions of the permit. Maintenance will be performed in accordance with the equipment manufacturer's recommendations and/or DRPI policy.

A maintenance building is available for storage of equipment and materials and repair of equipment. The maintenance building also has a washroom and sanitary facilities for DRPI personnel.

## **3.2 Site Access**

### **3.2.1 Description**

Access to the site will be through the landfill entrance area gate. The location of the entrance area is identified on **Figure V-1**. On-site roads will be established and maintained in a safe manner to provide access to the work areas of the site.

A sign indicating the facility name, owner, and hours and days of operation will be posted and maintained at the site. Additional signs will include general landfill usage rules and regulations and identify common examples of acceptable and unacceptable wastes. Safety and traffic control signs will be placed along the entrance road of the site and as needed throughout the facility to mark potential hazard areas and to direct waste hauling vehicles to the active landfill disposal area.

### **3.2.2 Traffic Routing and Control**

Traffic will be routed and controlled in a manner that maintains an orderly flow of vehicles to minimize accidents and to avoid delays in unloading time. All incoming traffic will be directed to the truck scales for weighing. Incoming and outgoing vehicle movement will be controlled by DRPI personnel at the scalehouse. Signs may be used to ensure that, once refuse trucks leave the scale area, the vehicles are directed to the working face of the landfill. All contractors at the site will be responsible for preventing their operations from adversely impacting the efficiency of waste management activities.

Access to the site is designed to require all vehicles to pass by the scale located near the northwest corner of the property prior to accessing the working face. Access to the site from the southeast (near the site entrance off Marsh Lane) will be restricted by a locking gate and a fence. Access to the working face during filling for the vertical expansion and during final cover placement will be via the northwest (back) side of the site in order to minimize noise and dust to the surrounding community. A natural marsh immediately south and west of Cell 6 also serves as a barrier to the site. Should DRPI employ a security service to patrol the property after hours, they will periodically visit the site entrance in order to verify that the gate and fencing around the site have not been compromised.

### **3.3 Waste Disposal Sequence**

#### **3.3.1 General**

##### **3.3.1.1 Waste Receipt**

Industrial waste will be received into the facility at the entrance area off U.S. Route 13. Upon arrival at the scale area waste will be screened (as described in Section 3.6), weighed, and receive initial inspection using a video camera and monitor. Drivers will be briefed as necessary concerning required personal protective equipment (PPE). The vehicles will then be directed to the appropriate area of the landfill (e.g., working face, recycled materials, etc.) to dispose of the waste.

##### **3.3.1.2 Unloading of Waste**

All incoming hauling vehicles will be directed to the proper disposal areas by means of signs, pylons, or other markers designating the proper route. Unloading will be supervised either by the operator of the waste compaction equipment or another individual assigned this specific task (usually referred to as a spotter) and will be limited to the immediate vicinity of the working face. The working face of the landfill will be kept as small as practicable to minimize impacts on traffic flow. Scavenging will not be allowed; it will be the responsibility of the equipment operators and/or spotter to enforce this rule.

##### **3.3.1.3 Trailer Tipper Operation**

A trailer tipper may be utilized at the active face to facilitate the unloading of transfer trailers. Activities involving the tipper should conform to the Operating Procedure and Safety Policy provided in **Appendix V-C**. Generally, the tipper will be located in an area that will serve the active face for as long a time as practical without obstructing active face operations. Transfer trailers will be tipped in accordance with the operating procedure resulting in the trailer's payload to be discharged. After the waste load is discharged at the rear of the tipper, a piece of equipment (typically a dozer or compactor) will push that waste to the active face and return to clear another load from the rear of the tipper. The tipper will periodically be moved with a dozer or other suitable piece of equipment to work in conjunction with the active face location and traffic patterns. Only employees, either WM or third party, trained in Tipper operations will be permitted to operate the unit.

##### **3.3.1.4 Spreading and Compaction of Waste**

The industrial wastes discharged from the hauling vehicles will be spread out by heavy equipment (compactor, dozer, or combinations thereof) into layers that should measure approximately two to

five feet in thickness when compacted. Spreading and compaction will be confined within the limits of the working face designated for that day. Compaction will be accomplished with a landfill compactor or dozer of a sufficient size and weight to achieve a minimum desired in-place industrial waste density of 1,300 lbs./yd<sup>3</sup>. Equipment needs will be evaluated by the Facility Manager based on the volume of wastes received at the site.

#### 3.3.1.5 Lift Construction

Typically waste will be tipped and compacted using methods similar to placing and compacting structural fill. Waste will be tipped at the top (or bottom) of a lift and pushed down (or up) the slope and compacted in horizontal layers approximately 1- to 2-ft thick. Each additional layer will be smaller in size to create a pyramid affect to create an outer slope until they reach the height of the lift. After the area reaches a height of 6-inches below the elevation of the adjacent lift, six inches of soil, or approved alternative cover material, will be placed to extend the deck (top of the lift).

Refuse lifts will be constructed to approximately ten feet (total compacted thickness). The width of each day's work area will be limited to the width of the working face for the day. As much as possible, the top of the lift will be sloped to minimize ponding of water from rainfall or snowmelt on the landfill surface.

When starting a new lift, it may be necessary to use the sideslope (face) of the lift to compact the waste in layers. Once the deck of the lift is large enough for refuse vehicles to operate on top, the structural fill method of placing and compacting waste will be employed.

#### 3.3.1.6 Sideslope Construction

Finished landfill sideslopes will be constructed as shown on Permit **Drawing 13**. Intermediate cover drainage benches will be constructed as fill progresses in order to direct stormwater runoff into sediment basins prior to discharge.

### 3.3.2 Sequence of Landfilling

The Permit **Drawing 21** depicts the sequence of landfilling at DRPI Landfill. The proposed sequence of development calls for the initial placement of waste along Cell 5A, then working clockwise along eastern portion of Cells 4, 3, 2, and 1 (overlay area). As fill reaches final grades in the outer portions of Cell 6A and Cell 6B, filling will continue clockwise towards Cell 6-1 and western Cell 5. The capping sequence will start on the eastern side to allow for vegetation to get established while landfilling continues on the back (west) side so as to minimize visibility by the adjacent community. The final sequence of filling requires waste placement towards the inside

working its way to the vertical expansion until final grades are reached for the entire landfill. The sequence of filling may vary based on waste intake rates as needed.

### **3.4 Cover Material**

#### **3.4.1 Operational Cover**

Six inches of approved, compacted operational cover material will be placed over the surface of the exposed compacted industrial waste at least once each week. Additionally, on windy days, or when strong wind is forecast for the area, DRPI will immediately work the waste into the working face of the landfill and cover with six inches of approved, compacted operational cover at the end of operations for the day. Bulldozers will be used as the primary means to track-in and compact intermediate cover.

An additional six inches of compacted earthen cover material will be placed over operational cover areas that will not receive additional lifts of refuse for periods longer than six months. To minimize maintenance activities, temporary vegetation will be established on sideslopes as described in Section 3.4.3. The establishment of healthy vegetation will stabilize disposal areas by minimizing erosion of intermediate cover materials. Eroded areas that may develop will be repaired and reseeded as weather and season permits.

Intermediate cover materials will be either delivered directly to the working face from off-site borrow sources or obtained from on-site stockpiles maintained in the vicinity of the tipping area. Off-site cover soil may only be obtained from sources that have been approved by the Facility Manager; sources may be approved based on review of the properties of the material and the materials ability to meet the requirements of Section 3.5 (i.e., Control of Nuisances and Odors) of this O&M Plan.

#### **3.4.2 Final Cover**

When waste placement is completed in sufficiently large areas of the landfill (i.e., to the permitted final elevations), a final cover will be installed over the area. Final cover installation will be contracted to a general earthwork firm. The final cover system is designed: (i) to minimize infiltration of surface water into the landfill; (ii) to minimize maintenance requirements; (iii) to be capable of supporting vegetation; (iv) to be stable against slope stability failure; and (v) to control landfill gases generated in the landfill. The cross-section of the final cover is identified in the Permit Drawings.

As shown in **Figure V-3**, capping of the DRPI facility will be performed in phases of varying sizes. Depending upon the actual filling sequence, the proposed capping sequence may be altered

and two or more phases may be combined in one capping event or one area split into multiple capping events.

### **3.4.3 Seeding**

Seeding to promote stabilization of final cover areas will be accomplished as soon as weather permits. Seeding operation and application of necessary nutrients will follow the Delaware Erosion and Sedimentation Control Handbook of 2016 or the latest revision thereof. To help establish a good vegetative growth on poorer soils, soil amendments, such as composted vegetative matter or digested sludge from a domestic wastewater treatment facility may be applied to the surface. Such an undertaking will be coordinated with the New Castle County Soil Conservation District to insure proper application rates. Established vegetation on non-landscaped areas will be mowed at least once per year by DRPI.

### **3.4.4 Estimate of Borrow Requirements**

Soil will be needed for landfill operations and for landfill closure. The primary source for soil will be off-site borrow areas. Assuming an 8-to-1 waste to cover ratio, approximately 0.8 million yd<sup>3</sup> of material will be required for operational and intermediate cover during landfill operations. For the final cover system described in the Permit Amendment Application, approximately 500,000 yd<sup>3</sup> of soil will be required and will consist of the following components (from the top down):

- 6-in thick final topsoil layer;
- 18-in thick vegetative rooting layer for the cover system;
- geocomposite drainage layer;
- 40-mil textured high-density polyethylene (HDPE) geomembrane; and
- 6-in thick grading layer placed as daily or intermediate cover material.

An alternate final cap system may be used consisting of the following components, listed from top to bottom:

- 6-in. thick layer of vegetative growth material (topsoil or equivalent);
- 18-in. thick layer of granular borrow soil (vegetative rooting layer);
- 8 oz./s.y. non-woven geotextile filter layer;
- 50-mil combination HDPE or LLDPE geomembrane/drainage layer; and,
- 6-in. thick grading layer placed as daily or intermediate cover material.

This amount of cover material can be provided by local sources.

### **3.5 Control of Nuisances and Odors**

#### **3.5.1 Litter Control**

The Facility Manager will be responsible for litter control which will be performed both on and off the landfill site. All incoming waste haulers are required to secure and/or cover their loads when delivering them to the site. DRPI personnel will verify that waste loads remain tarped until the vehicle enters the designated untarping area located just before the scale.

Litter at the working face will be kept to a minimum by quick compaction of waste and regular placement of cover. If necessary, portable litter fencing will be installed near the working face downwind of the working face to intercept blowing debris. The actual placement of this portable fence is best left to the judgment of the Facility Manager and may vary in its use and location.

Blown litter will be collected on a routine basis by laborers, both off-site and on-site, under the direction of the Facility Manager. Also, surrounding areas will be inspected several times per year. Blown litter that was not collected during weekly field reconnaissance will be collected during special collection efforts if needed.

On-site personnel shall regularly review compliance with regulations regarding litter control. If any problem should arise regarding compliance with these regulations, proper mitigation will be implemented to correct the issue. Any issue for which corrective action is necessary shall be documented using Form F (**Appendix V-B**).

#### **3.5.2 Vector Control**

The types of waste accepted at the DRPI Landfill greatly reduce the potential problems associated with rodents, insects, and birds, because there is no food source. Historically, birds, rodents, or insects, have not been a problem at the DRPI Landfill. Mosquito control is best provided by minimizing standing water bodies on site. Continuous grading to fill in low spots is essential.

#### **3.5.3 Dust Control**

Over paved surfaces, dust will be controlled by periodic sweeping and/or cleaning of the pavement. The site entrance, entrance road, access roads, and parking areas can be cleaned with typical street cleaning equipment. Other paved areas adjacent to the scalehouse and scales will be cleaned by hand, if necessary. On gravel and unpaved roads, dust will be controlled by the use of water applied by a water truck. The water truck shall also apply water as needed to the working face in order to control dust from this area.

On-site personnel shall regularly review compliance with regulations regarding dust control. If any problem should arise regarding compliance with these regulations, proper mitigation will be implemented to correct the issue. Any issue for which corrective action is necessary shall be documented using Form F (**Appendix V-B**).

In general, most soil disturbance will take place for liner construction or cover construction in the southeast corner of the site, which includes the Cells 1-3 overlay area and the Environmental Cap (Phase 3). Therefore, the disturbed area will be covered with the proposed liner (or cover) system. At these locations, dust from disturbed soils will be controlled as necessary by applying water until the liner (cover) system is installed. In disturbed areas that will not be covered by either a liner or a cover system, dust will be controlled by applying water as necessary until temporary vegetation has been established in accordance with E&S regulations.

#### **3.5.4 Odor Control**

Most common and objectionable odors are associated with putrescible wastes. Because DRPI Landfill is an industrial waste facility, odors associated with incoming wastes are generally not an issue. Nonetheless, strong odors may be caused by the generation of landfill gas (LFG) within the landfill and therefore DRPI has a LFG Odor Control System in place (**Appendix V-D**). Regular inspection and maintenance of the LFG management system (described in Section 3.9 of this O&M Plan) should minimize odors from the landfill. If odors become a problem at the landfill, then an on-site evaluation will be performed by the Facility Manager and other qualified personnel to identify appropriate remedial actions to be taken. Typical remedial actions include reviewing the efficiency of the existing LFG management system, installation of additional LFG extraction wells, or eliminating specific incoming waste streams that may be a source of odors.

On-site personnel shall regularly review compliance with regulations regarding odor control. If any problem should arise regarding compliance with these regulations, proper mitigation will be implemented to correct the issue. Any issue for which corrective action is necessary shall be documented using Form F **Appendix V-B**).

#### **3.5.5 Noise Control**

Because DRPI Landfill is adjacent to Interstate 495 and U.S. Route 13, nuisance complaints associated with noise have historically not been a problem at the site. To minimize noise problems, all internal-combustion engine equipment will be fitted with mufflers. Noise from the equipment should not exceed 80 decibels (dBA) at a distance of 50 ft. This complies with Delaware Noise Regulation 1149, which limits construction noise at a receiving property to no more than 85 dBA for any period exceeding one hour.

On-site noise control for employees will be governed by existing Occupational Safety and Health Act (OSHA) Standards.

### **3.5.6 Mud Control**

During wet weather, mud could potentially be tracked onto public roads from the landfill. To prevent this, the entrance road to the DRPI Landfill has been designed to be sufficiently long and straight to allow mud to fall off the trucks' tires before they enter the public roadway. In addition, DRPI will employ a water truck to wash mud off access roads as needed.

On-site personnel shall regularly review compliance with regulations regarding mud control. If any problem should arise regarding compliance with these regulations, proper mitigation, e.g. tire wash, will be implemented to correct the issue. Any issue for which corrective action is necessary shall be documented using Form F (**Appendix V-B**).

### **3.5.7 Control of Leachate Seeps**

Problems associated with leachate seeps will be minimized by the following operations, which will be directed by the Facility Manager:

- excavation of “windows” in cover surfaces to promote downward, rather than lateral, leachate migration;
- construction of intermediate cover on landfill sideslopes; and
- prompt repair of seeps using techniques such as over-excavating the seep area and backfilling with granular materials to promote the flow of leachate down through the wastes rather than laterally.

On-site personnel shall regularly review compliance with regulations regarding control of leachate seeps. If any problem should arise regarding compliance with these regulations, proper mitigation will be implemented to correct the issue. Any issue for which corrective action is necessary shall be documented using Form F (**Appendix V-B**).

## **3.6 Waste Screening Plan**

### **3.6.1 Overview**

A Waste Screening Plan was designed to minimize the possibility that non-acceptable waste is delivered to the DRPI Landfill. Accordingly, this Waste Screening Plan includes measures for: (i) inspection of incoming loads; (ii) inspection records for incoming loads; (iii) training of facility

personnel to recognize regulated hazardous wastes; and (iv) DNREC notification, if unacceptable wastes are received. As such, the Waste Screening Plan will ensure that DRPI Landfill receives only non-hazardous industrial waste types specifically authorized by DNREC to be accepted at the DRPI Landfill. To this end, the Waste Screening Plan describes the responsibilities of both DRPI personnel and haulers served by DRPI.

### **3.6.2 Inspection of Incoming Loads**

DRPI will implement an inspection program for incoming loads. The purpose of this program is to detect, intercept, and remove non-acceptable waste from the waste stream directed to the DRPI Landfill, to the maximum extent practicable. The procedures to be used for inspecting incoming loads are described below.

- Scale operators monitor the continuous video feed of incoming loads. The video camera is positioned in an elevated location that allows a view inside the trucks.
- Scale operators will ensure that the proper paperwork has been completed by the hauler. If the scale operator observes any non-acceptable wastes or is suspicious of a particular vehicle's contents, landfill personnel will be notified to inspect the contents, at the screening area, during off-loading.
- Incoming vehicles will be randomly spot-checked as necessary and as requested by the Facility Manager or DNREC Compliance Inspector. Information from commercial haulers will be recorded by DRPI personnel (an electronic log is stored on a shared drive accessible by all staff and a paper copy is kept on the scalehouse clipboard). Trucks will be checked at random based on the origin and type of waste collected, and directed to the designated screening area (i.e., within the waste disposal area). Form A in **Appendix V-B** will be used to document the inspection.
- Equipment operators (bulldozer and compactor operators) will visually screen material in the refuse vehicles as they are unloading for unacceptable waste materials. Suspect loads will be spread to the side of the working face and closely inspected by landfill personnel. Investigation of any suspect loads including any bagged waste shall be done outside the cab of the heavy equipment to ensure adequate visual inspection to include any observable odors. The inspection program will be performed in such a manner so as to thoroughly investigate contents of the selected truck without unnecessarily delaying the hauler. The operators will promptly notify the Facility Manager should any suspect wastes be visually identified. Upon receiving such notice, landfill personnel will commence the response procedures outlined in the following section.
- Appropriate PPE (e.g., respirators, protective clothing, gloves, boots, first aid kit, etc.), and emergency firefighting equipment, along with spill prevention and clean up

equipment, will be stored at the maintenance building for use by landfill personnel involved in screening. Temporary storage containers and other appropriate materials needed to isolate the waste (rope, pylons, etc.) also will be stored in a nearby area. Inspection personnel will be trained in the use of such gear.

### **3.6.3 Records of Inspection and Notification Procedures**

Random inspections of incoming waste will be documented using Form A in **Appendix V-B**. The form includes directions regarding notifications should unacceptable wastes be identified.

### **3.6.4 Training**

DRPI will implement a Training Plan, as outlined in Section 2.6.3, which will include sessions in managing suspected hazardous waste and other non-acceptable waste. All personnel will be trained in identification of unacceptable wastes, policies and procedures for managing hazardous waste, how to recognize potentially hazardous material, and what to do to prevent such waste from being disposed at DRPI as part of job performance training. A crucial part of every DRPI employee's job is to constantly be on the lookout for any waste that is non-conforming to the permit or questionable and could potentially be hazardous.

### **3.6.5 Preventing Hazardous Waste from Being Disposed at DRPI**

Employees will always be on the lookout for non-conforming, questionable or hazardous waste. Questionable waste can arrive at a sanitary landfill anytime and brought by anyone in any size type or type of load. The following clues are used to identify arrival of questionable waste:

- Vehicle (type, vacuum/tank trucks, name on the side door or body)
- New customers (to be questioned as to what they are carrying)
- Warning labels on containers (drums, buckets, cans, boxes, or crates)
- Common forms (leaking loads, sludges, or semi-solids, powders, liquids of any kind, or oily waste)
- Odor (anything that has a noticeably different odor than normal materials received or that has a petroleum smell)
- Containers (boxes, cans, crates, drum without top or bottom removed, or anything that could contain non-conforming, hazardous, or questionable waste).

### **3.6.6 Unacceptable Waste and Hazardous Waste Response Procedures**

This section contains procedures to be followed if unacceptable or hazardous wastes are identified at the site.

- If non-acceptable waste is discovered in an incoming truck before the truck discharges the load, then the driver will not be permitted to discharge the load and will be directed to leave the site. If the waste already has been discharged at the working face and is declared non-acceptable waste by DRPI Landfill equipment operators or spotters, then the waste may be reloaded back on the truck as a rejected material. DRPI Landfill personnel will reload the unacceptable waste, as appropriate. If this is not possible, then the hauler will be contacted to expedite such reloading. A written report will be prepared as a matter of record using Form B in **Appendix V-B**. In addition, the waste hauler involved will be notified in writing of the infraction.
- Under no circumstances will hazardous waste be returned or reloaded onto the hauler's vehicle unless specifically authorized by the Facility Manager, DNREC, or other appropriate agency. Such a practice could be a violation of hazardous or special waste regulations if the vehicle is not authorized to transport the material.
- For all incidents involving non-acceptable wastes, the Facility Manager will contact the management team of the hauler carrying said waste in an effort to determine its origin.
- Whenever hazardous waste is detected by landfill personnel in the tipping area, reasonable efforts will be used to contain the material and to prevent its disturbance by other unloading or mixing operations. DNREC or other appropriate agency will be notified immediately for guidance regarding handling of the suspected hazardous waste. The Facility Manager will be notified to make a determination in conjunction with agency personnel, on whether to remove the material. If the material can be removed without causing spillage and without posing a threat to the health and safety of operating personnel, then it will be moved to a secure area away from the active working face. The temporary storage area will be roped off and signs posted while provisions are made for removal of the material. If necessary, the material will be contained to prevent leakage or contamination of the environment. In cases where the material is considered to be hazardous waste which cannot be removed in a secure manner or which presents a possible immediate threat to operating personnel, the material will be left in place and that area roped off. Personnel and traffic will be prevented from operating in that area. Further actions will be taken as directed by DNREC or appropriate agency.
- Should asbestos-containing wastes, either friable or non-friable, be detected by landfill personnel in the working face, reasonable efforts will be used to contain the material and to prevent its disturbance by other unloading or mixing operations. Reloading and removal of asbestos must be performed in a manner to prevent asbestos from becoming airborne (i.e., water truck). Because of safety concerns, if friable asbestos requires removal, then it will be reloaded into sealed containers in a manner that prevents exposure to landfill customers and operational personnel. Appropriate protective gear,

including respirators, will be worn by operations personnel during the reloading and removal operation.

If questionable waste is encountered at the scale house, the following proper response should be followed:

1. Customer is not allowed to proceed to the working face or unload;
2. Notify on-site DNREC inspector;
3. Notify supervisor;
4. Complete a rejection form, and obtain all driver details;
5. Obtain hauling company details;
6. Direct driver to park out of the way of traffic in site of weighmaster; and
7. Do not sign any load with unusual or unfamiliar paperwork and contact supervisor.

If questionable waste is encountered at the working face or within the facility, the following proper response should be followed:

1. Stop all unloading activities;
2. Follow steps 2-7 listed above; and
3. Isolate and secure the immediate area if necessary, including containing the material if it can spread.

### **3.6.7 Disposal of Non-Acceptable and Hazardous Wastes**

Operating personnel will remove non-acceptable waste from the landfill as soon as practical, preferably within 24 hours, or as otherwise directed by DNREC or other appropriate agency. If necessary, transportation and disposal will be conducted by an authorized and approved transporter licensed to transport the particular waste(s).

### **3.6.8 Hauler Rules and Regulations**

Incoming waste haulers will be advised of, and generally conform to, the following rules and regulations.

- Each commercial waste hauler will provide DRPI with the information listed below:
  - name and address;
  - solid waste permit number;
  - permit expiration date; and
  - contact person's name and telephone number.

- Commercial hauling vehicles will have a vehicle identification number permanently and conspicuously displayed in an agreed upon location on the side of its vehicle.
- Incoming waste will be limited to dumping during posted operating hours of the landfill unless prior special arrangements are agreed to by DRPI, DNREC, and the local community.
- Commercial haulers will become familiar with acceptable wastes and will preclude delivery of any waste that is not acceptable waste.
- All haulers will comply with all landfill rules, including waste screening procedures.
- All haulers will follow the directions of the landfill staff while on site.
- When directed to do so by landfill operation personnel, the hauler will discharge waste material from his vehicles as directed for inspection.
- DRPI may, at its discretion, establish commercial hauler insurance and performance security requirements, as applicable, which may be adjusted from time-to-time.
- Maintain valid DESW Permit for vehicles registered over 26,000 lbs.

### **3.7 Other Waste Operations**

#### **3.7.1 Weighing**

The weigh master's duties include, but are not limited to, the following:

- weighing all incoming and outgoing waste hauling vehicles;
- maintaining daily records of all weighing and other transactions; and
- controlling the flow of traffic in and around the scalehouse.

Weighing of construction contractor vehicles will not be performed at the entrance scales except by prior arrangement between the contractor, and the Facility Manager.

#### **3.7.2 Wastes with Special Handling Characteristics**

##### *Bulky Wastes*

Bulky wastes consist of furniture, tree stumps, playground equipment, and other materials that are very large and difficult to handle. When placed in the landfill, these materials will be handled as follows:

- disposal at toe of waste slope and compact other waste around them;
- disposal in a separate area; or

- pre-compact on the tipping platform with a bulldozer or landfill compactor prior to disposal in the landfill.

### *Construction/Demolition Wastes*

Normally, construction/demolition (C/D) wastes or rubble will be disposed with industrial waste in the daily working face. However, in some circumstances, select C/D waste can be used in landfill construction, especially roadways. This includes, for example, crushed concrete, rock, bricks, and asphalt as road base, road surfacing, and to repair potholes. Lumber, stumps, and logs can also be shredded for use as mulch.

### *Tires*

Whole tires are not accepted at the DRPI Landfill. However, occasional whole tires are found buried within individual loads of waste. When the hauler that dumped a whole tire can be identified, DRPI personnel will reload the tire back into the hauler's vehicle. If this cannot be done, then DRPI will remove the tire from the working face and temporarily store it in a roll-off or other suitable container. Once a load of whole tires is collected, they will be either chipped and disposed on site or shipped off site for recycling.

### *Scrap Tires*

The total volume for scrap tires at DRPI Landfill will be no greater than 450.5 square feet by 10 feet high, with the height being measured from the lowest point on the lowest tire and the square footage measured using the furthest tire. Scrap tires will be stored in a designated and dedicated scrap tire area which will be secured at all times except when adding or removing tires with a locked security fence. A minimum 20 foot setback between the scrap tire facility and all public roads and property boundaries will be maintained. A minimum 50 foot setback between the scrap tire facility and adjacent residencies will be maintained. Also, a minimum 100 foot setback will be maintained between the scrap tire facility and off site drinking water supply wells.

Mosquito control will be implemented, as needed, by removing any water held in scrap tires immediately upon receipt at DRPI Landfill by punching holes throughout the tires or other sufficient means. Tires will also be stored in such a way that water does not accumulate in the tires.

Scrap tires will not stay on Site indefinitely. Each calendar year, the amount of scrap tires removed from the facility will equal at least 75% (by weight, volume, or number) of the amount of scrap tires accumulated on site on January 1<sup>st</sup> of that calendar year. Documentation demonstrating management of all scrap tires will be maintained for a period no less than three (3) years and all documentation will be available for inspection by DNREC upon request.

### *Vegetative Wastes*

Source separated vegetative wastes represent an easy waste to divert from disposal. DRPI or its Contractor may maintain a separate vegetative waste stockpile on-site. Periodically, a brush chipper or tub grinder will be mobilized to the DRPI Landfill to grind the vegetative waste stockpile. Chipped vegetation will then be used as an organic soil amendment or cover for landfill operations.

### **3.7.3 Salvaging and Scavenging**

Salvaging is allowed to reduce the amount of materials that will be placed in the landfill. DRPI Landfill is approved to salvage metal, plastics, wood, cardboard, tree debris, stumps, and concrete. The salvaged material will be recycled.

The process involved for this operation is as follows:

- As loads come into the site, the scale attendant and/or the workface operators will visually inspect the loads to determine if they would have a high quantity of salvageable material.
- If the loads are determined to be highly salvageable, they would be directed to a segregated area to be sited adjacent to the active working face where a specially equipped excavator will be stationed. The segregated area would be located as to not conflict with the daily operations and may be relocated as required. The excavator will have a magnetized grapple attachment, which would pull cardboard and the magnet would attract any metal in the load.
- The driver will drop his load and leave the cell. The excavator operator will visually scan the load to extract cardboard while the magnet will pick up any metal in the load.
- Separate containers will be available for collection of the materials.
- The operator will then deposit any cardboard recovered into one container and deposit any metal recovered into a separate container. When the containers are full they would be taken to a recycling facility, to be determined.

Scavenging is strictly prohibited at DRPI Landfill.

### **3.7.4 Local Resident Disposal**

Residents from the community of Minquadales periodically utilize the landfill to dispose of small loads from their residence. The residents will utilize a section of the working face away from the heavy equipment and other large commercial disposal vehicles. The residents will be required to wear the proper PPE when utilizing the workface. Residents will obtain a manifest from the

administrative offices prior to utilizing the landfill. DRPI personnel will provide instruction regarding acceptable waste types and dumping procedures.

### **3.8 Leachate Management**

#### **3.8.1 Introduction**

The leachate management system for DRPI Landfill was designed in accordance with the requirements of DRGSW §6.4. Management of the leachate will include the following elements:

- *collection* of leachate that percolates through the waste within sumps located at the perimeter of the landfill;
- *removal* of the leachate from the sumps through submersible pumps;
- *transmission* of leachate via force main around the perimeter of the DRPI Landfill;
- *pretreatment* of leachate at the facility's leachate pretreatment facility; and
- *disposal* of leachate into the New Castle County sewer system.

Plans, designs, and cross sections for the leachate management system are presented in the Permit Drawings. The following narrative description addresses operation, inspection and maintenance of the leachate management system. Any leachate discharge or spill that may occur shall be recorded using Form C (**Appendix V-B**).

#### **3.8.2 Operation of Leachate Management System**

##### **3.8.2.1 Overview**

In this section, the components and functions of the leachate management system are described. The system is described in terms of the following components:

- leachate collection system (Section 3.8.2.2);
- leachate removal and transmission systems (Section 3.8.2.3); and
- leachate storage and pretreatment system (Section 3.8.2.4).

##### **3.8.2.2 Leachate Collection System**

A leachate collection system exists in previously lined cells (**Drawing 8**). Leachate is collected within a leachate collection layer located above the liner system which consists of: (i) a 12-in thick protective cover layer; (ii) a drainage geocomposite; and (iii) a perforated piping system. The

leachate collection system is designed to convey liquid to sumps (located inside the perimeter of the landfill) for removal by submersible pumps.

For the vertical expansion, a leachate collection system will also be constructed above the Cells 1-3 overlay liner system. As shown on the Permit Drawings, the leachate collection system will extend over the base of the liners in their respective cells as the overlay liner that will be constructed over existing waste in Cell 1 through 3. Leachate collected from the Cells 1-3 Overlay and Cell 6 will flow by gravity through perforated pipes to a sump in the westernmost corner of Cell 6 where it will be removed by a submersible pump and directed to the leachate collection system. Leachate from Cells 4 and 5 drains via gravity towards their individual leachate risers and the transmission forcemain (**Drawing 8**). Leachate flow rate from each subcell will be recorded on Form D (**Appendix V-B**).

### 3.8.2.3 Leachate Removal and Transmission Systems

Leachate collected will be removed by submersible pumps into the leachate transmission force main. The leachate transmission force main will convey the leachate around the perimeter of the landfill until it is discharged into leachate storage tank(s) prior to being pretreated and discharged into the sewer system.

The components and operation of this leachate removal and transmission system are described below.

- *Leachate sumps* with submersible pumps are located at the low point of each cell. These pumps will function automatically, controlled by level sensors. The pumps are designed to function when the leachate depth rises above a preset level.
- The *leachate transmission force main* is located within the leachate transmission corridor, which is located along the perimeter of the landfill and outside the limits of the liner system. The *force main* consists of solid HDPE pipe. The location of the leachate transmission *force main* is shown on the Permit Drawings.

### 3.8.2.4 Leachate Storage and Pretreatment System

In order to meet discharge limits for the New Castle County sewer system, the DRPI Landfill operates a leachate pretreatment system. Based on the historical leachate quality at the DRPI Landfill, the main constituent requiring treatment prior to discharge is hydrogen sulfide (H<sub>2</sub>S). Therefore, the leachate pretreatment system at the DRPI Landfill is designed to remove H<sub>2</sub>S using a proprietary ferrous sulfate compound (Odophos or equivalent). The leachate pretreatment system, its components, and operations are addressed in the report entitled, "*Leachate*

*Pretreatment Facility Operation and Maintenance Plan, Delaware Recyclable Products, Inc., New Castle County, Delaware*”, dated March 2019, provided in **Appendix V-E**.

### **3.8.3 Inspection and Maintenance**

The leachate management system must be routinely inspected and maintained to provide for proper operation and maximum protection of the environment. Any deficiencies found during the routine inspections will be noted on the leachate monitoring report found in **Appendix V-B**, Form D. System inspection includes visually confirming that leachate pumps controls are operational, valves have been properly placed in open or closed positions, and that the leachate transmission *force main* is not leaking into secondary containment pipe. Regular maintenance of leachate management system components, including submersible pumps, valves, and controls, will be performed according to manufacturer recommendations. The leachate transmission *force main* has been designed to move leachate at a self-scouring velocity to prevent build-up of solids. Accessible leachate collection lines will be cleaned using a sewer jetter or other suitable method once every four years or as deemed necessary by system performance.

During inspection and maintenance events, DRPI will document the work performed and conditions encountered.

## **3.9 Landfill Gas Management**

### **3.9.1 Introduction**

The LFG management system for the DRPI Landfill was designed in accordance with DRGSW §6.5. LFG management and includes the following elements:

- extraction of LFG from the waste mass by means of vertically drilled wells and/or horizontal extraction trenches;
- transmission of LFG from the landfill to a flare through a piping system; and
- combustion of the LFG in a utility flare.

Plans and details of the landfill gas management system are presented in the Permit Drawings. DRPI Landfill currently has an active LFG collection system; however, the existing system will be replaced and/or modified as landfill activities cover existing vertical gas collection wells.

## 3.9.2 Landfill Gas Management System

### 3.9.2.1 Overview

In this section, the installation, operation, and maintenance of the LFG management system are addressed. This system is designed to operate throughout the operational (i.e., waste filling) phase of the landfill and after closure.

### 3.9.2.2 Installation

The LFG management layout and construction sequence is planned in conjunction with the landfill filling sequence (**Drawings 24 and 25**). Additional LFG management system features will be constructed each time a filling phase in a subcell is completed and landfill operations move to a different section of the landfill or to a higher elevation. In this way, LFG management system construction and landfilling can progress simultaneously at different locations in the DRPI Landfill with minimal interference.

Vertical LFG collection wells, consisting of perforated piping surrounded by gravel will be installed in 3-ft diameter boreholes drilled through the existing waste. Solid piping from the wellhead conveys the LFG to a blower and flare. In areas where vertical collection wells cannot be installed yet, horizontal LFG collectors may be installed for interim control. Typical details of the LFG collection system are shown in the Permit Drawings.

### 3.9.2.3 Operation

The LFG management system was designed to control LFG migration, odors, and air pollutants without drawing an excessive amount of oxygen into the landfill and without interfering with landfilling operations. Because vertical wells are constructed with an appropriate non-perforated zone near the surface, vacuum may be applied after construction without waiting for additional fill placement.

The operation of the flare station, where the LFG is combusted, is intended to be continuous and automatic; accordingly, no regular operation activities are required under usual circumstances.

### 3.9.2.4 Inspection and Maintenance

The LFG management system must be routinely inspected and maintained to provide for proper operation and maximum protection of the environment. Wellheads installed at the LFG extraction wells will be monitored on a quarterly basis. Data collected during wellhead monitoring will include LFG temperature, vacuum, percent methane, and percent oxygen and will be recorded in the Waste Management Landfill Gas Management System (LGMS).

The blower and flare station will be monitored on a weekly basis (Form E, **Appendix V-B**). Data will be obtained near the blower, prior to combustion in the flare. Collected data will include vacuum at the blower, total gas flow, percent methane, and percent oxygen. When the flare is operational, thermocouple temperature at the flare tip will also be monitored. A record of the results of each monitoring event should be maintained in a file.

### **3.10 Groundwater Control System**

#### **3.10.1 Introduction**

A groundwater control system has been constructed underneath the liner in Cells 4 and 5 in order to maintain groundwater levels below the landfill liner and subgrade elevation (**Drawing 8**). This system, which is shown on the Permit Drawings, consists of a 6-in. sand drainage blanket that discharges into collection trenches that flow to sumps along the perimeter of Cells 4 and 5. From these sumps, a submersible pump removes the collected groundwater. A portion of the groundwater underdrains discharge into perimeter drainage channels that convey flow to the stormwater management ponds, and a portion discharge to the leachate force main.

In addition, a groundwater interceptor trench was constructed along the eastern limit of Cell 5 to collect potentially contaminated groundwater from a toe drain on the western edge of Cells 1 through 3 (which are unlined) at the DRPI Landfill. Liquids collected in the groundwater interceptor trench are managed as leachate in the leachate management system described above.

In 2007, a groundwater interceptor trench and barrier wall were approved for installation along the eastern border of Cell 4B, the eastern and southern border of Cells 1-3 and along the southern border of Cell 5E. The intent of the trench is to reduce groundwater flow beneath Cells 1 through 5 and reduce the amount of pumping at other facility drains. The drain will consist of approximately 4,000 feet of 12 inch diameter perforated pipe placed in an aggregate filled trench. The drain line elevation will drop from approximately 23' MSL at its highest point to approximately 13' MSL at the discharge point near the southwest corner of Cell 5E. A barrier wall measuring approximately 1,000 feet will be installed in conjunction with the trench along the east side of Cell 4B and Cell 3. The first phase of interceptor trench measuring approximately 1,500 feet was built in 2007 from the outfall to a point east of the Cell 6-1A construction limits. The second phase of interceptor trench measuring an additional 1,500 feet was constructed in 2012 from the tie-in of the first phase to the eastern corner of Cell 1. The third phase will be constructed at the time of landfill closure. The outfall is sampled in accordance with the requirements identified in the current Solid Waste Facility Permit.

### **3.10.2 Inspection and Maintenance**

The groundwater control system will be routinely inspected and maintained along with other environmental systems at the DRPI Landfill. Any deficiencies found during the routine inspections will be noted on the leachate monitoring report found in **Appendix V-B**, Form D. System inspection includes visually confirming that groundwater control pumps controls are operational, valves have been properly placed in open or closed positions, and that the groundwater discharge is being managed with other stormwater in the facility's stormwater management system. Maintenance of groundwater control system components, including submersible pumps, valves, and controls, will be performed to maintain working conditions. Accessible groundwater collection lines will be cleaned using a sewer jetter or other suitable method once per year.

During inspection and maintenance events, DRPI personnel will document the work performed and conditions encountered.

### **3.11 Stormwater Runoff and Erosion Control**

#### **3.11.1 Introduction**

In this section, the operation of two separate, but closely related, systems is described: (i) the site drainage control system; and (ii) the site erosion and sediment control plan.

The purposes of the landfill drainage, erosion, and sediment control systems are: (i) to manage stormwater; (ii) to minimize erosion; and (iii) to control sediment during all phases of facility construction and operation. These systems have been designed in accordance with DRGSW §6.6.

The site drainage, erosion and sediment control systems include:

- timely revegetation of disturbed areas to minimize erosion;
- drainage channels and culverts to route stormwater runoff to locations where it will be properly managed; and
- silt fence and stone check dams will be used to reduce the stormwater runoff velocity to trap sediment.

#### **3.11.2 Features of Erosion and Sedimentation Control Plan**

##### **3.11.2.1 Vegetative Stabilization**

Vegetative stabilization of disturbed ground is the most effective method of minimizing erosion. Vegetation of disturbed areas will be carried out in accordance with the guidelines presented in the

most current version of the documents “*Delaware Sediment and Stormwater Regulations*,” and “*Delaware Erosion and Sediment Control Handbook*” (2016) as amended and referenced by “New Castle County Drainage Code Sec. 12.05.006”). Temporary and permanent vegetation are addressed below.

### 3.11.2.2 Temporary Vegetation

Intermediate cover that will not be removed for additional waste placement within three months will be stabilized with temporary vegetation. Procedures for establishment of temporary vegetation are described below. It should be noted that temporary vegetation is intended to last only to the end of a current growing season and that it must be replaced as provided below at the start of each growing season or replaced by Permanent Vegetation as provided in Section 3.11.2.3.

#### *Site Preparation*

To promote the growth of vegetation on soil cover surfaces, both the physical character and fertility of the soil must be considered. If the intermediate cover is packed, crusted, and hard prior to seeding, then the soil surface will be loosened by discing or trackwalking with a bulldozer. Prior to seeding, lime and fertilizer will be incorporated into the soil as appropriate. Alternately, lime, fertilizer, and seed may be applied by the hydroseed method on the tracked soil surface. All bulldozer track marks will be oriented parallel to contours to minimize erosion and seed washout.

#### *Seeding*

For seeding during the spring, summer or fall periods, seed mixes will be in accordance with Soil Conservation District guidelines or the recommendation of professional seeding contractors. After the growing season has ended, intermediate cover surfaces will not be seeded, but will be maintained through blading and backtracking with a bulldozer, and the application of additional cover soils to maintain proper intermediate cover until the next spring seeding period.

The method used for the application of the seed will be: (i) hand broadcasting with a thin cover soil venter; (ii) hydroseeding; or (iii) machine broadcasting with willow discing.

#### *Mulching*

Mulch for temporary vegetation will involve the application of straw by mechanical blowing or hand application. The straw mulch will be sufficiently anchored (i.e., tacked) to avoid movement and provide protection to the seedbed.

### *Maintenance*

The success of vegetative stabilization is evidenced by the absence of erosion of the intermediate cover and drainage system features. Unacceptable stabilization is indicated by excessive sediment in drainage system features, cover terraces, and/or culverts, accelerated siltation in sediment basins, the presence of rills and gullies, or exposure of waste beneath intermediate cover surfaces. If vegetation is not established to the degree necessary to limit erosion to an acceptable level on the intermediate cover surfaces, the surface will be revegetated under the direction of the Facility Manager. Any waste that is exposed due to erosion will immediately be covered with one foot of compacted soil.

#### 3.11.2.3 Permanent Vegetation

Permanent surfaces to be vegetated during landfill development include all final cover surfaces within the disposal area as well as areas outside the disposal area where surface soils have been disturbed. The criteria for vegetation of these surfaces have been developed based on the documents “*Delaware Sediment and Stormwater Regulations*,” and “*Delaware Erosion and Sediment Control Handbook*” (2016) as amended and referenced by “New Castle County Drainage Code Sec. 12.05.006.” Establishment of permanent vegetation is addressed below.

### *Site Preparation*

To provide a suitable environment for the growth of vegetation on permanent surfaces, both the physical character and fertility of the soil must be considered. The soil must be loose and friable to a depth of at least 3 in. prior to seeding. Fertilizer, 10-10-10 or an equivalent will be applied to the surface as required by soil fertility testing. In addition, the pH of the soil will be tested prior to seeding to determine if agricultural lime is needed. In lieu of soil testing, fertilizer will be applied at a rate of approximately 1,000 lbs./acre and lime will be applied at a rate of approximately 2 tons/acre. Fertilizer and lime (if used) will be disced into the soil to a depth of 4 to 6 in. before seeding. All permanent surfaces to be stabilized will be trackwalked using a bulldozer before seeding, with track marks oriented parallel to contours, to minimize erosion and seed washout. For the hydroseed method, lime, fertilizer, and seed will be applied to the tracked soil surface.

### *Seeding*

The type of seed to be used to vegetate permanent surfaces will vary based on the seeding date, Soil Conservation District guidelines, and the recommendations of professional seeding contractors.

The method used for the application of the seed will be either hand broadcasting applying a thin cover soil veneer or hydroseeding.

### *Mulching*

The procedures for mulching permanent vegetation will be identical to those described for temporary vegetation.

### *Maintenance*

The success of vegetative stabilization of permanent surfaces will be assessed monthly by estimating the percentage of coverage the vegetation provides. When the percentage occupied by living vegetation is less than 40 percent, vegetation will be reestablished following the original recommendations for soil preparation, seeding, and mulching. If 40 percent to 70 percent of an area is occupied by living vegetation, then the area will be revegetated by overseeding and applying fertilizer using half the rates originally applied. Soil testing will be performed if vegetation coverage is less than 60 percent. Vegetation coverage of 70 percent will be considered adequate.

The success of vegetation on permanent surfaces will also be based on the absence of erosion. Unacceptable amounts of erosion will be indicated by excessive sediment in drainage system features, accelerated siltation in sediment basins, or the presence of rills and gullies. Areas that exhibit an unacceptable occurrence of erosion will be repaired by regrading the eroded area, filling with topsoil, and restabilization at the original rates of application of lime, fertilizer, seed, and mulch. Problem areas may require the use of an erosion control blanket in lieu of straw mulch.

Based on visual inspection of the stand of permanent vegetation, additional fertilizer and lime will be applied, under the direction of the Facility Manager, to the permanently vegetated areas yearly, or as determined by soil testing. Conditions indicating the need for additional fertilizer and/or lime include stunted growth and excessive yellowing of vegetation as well as gradual thinning of vegetation. The fertilizer will be 10-10-10 or an equivalent applied at a rate of 500 lb./acre. Lime will be applied at the rate of one ton/acre during the spring and fall or until the soil pH reaches 6.5.

When mowing is performed, the vegetation will be mowed no closer than 5 to 6 in. from the ground surface and will be mowed in strips to control woody growth and promote wildlife habitat.

#### 3.11.2.4 Silt Fence

Silt fence should be used during landfill development in areas that do not drain directly to other sediment control features at the DRPI Landfill. Silt fence should be placed at the downslope limit of all disturbed areas and properly maintained until permanent drainage features and erosion control measures are established. Silt fence should be removed when permanent drainage features are in place or all upslope areas are stabilized with vegetation.

### 3.11.2.5 Permanent Drainage Features

Permanent drainage features within the landfill include drainage channels and cover terraces. Drainage channels will be constructed on the downslope side of developed areas to convey stormwater runoff to the sediment basins. Cover terraces will convey water to perimeter drainage channels. Details for the cover terraces, downdrains, and drainage channels are shown on the Permit Drawings. The various permanent drainage features will be constructed either during initial cell construction or at the installation of the final cover system.

### 3.11.2.6 Temporary Drainage Features

Temporary drainage features include terraces in the intermediate cover and drainage channels outside of the active landfill cell areas. Terraces as previously described, occur on the landfill intermediate cover and will be formed by the operator during landfilling. Also, temporary drainage channels will be constructed as needed to route stormwater runoff to the sediment basins.

### 3.11.2.7 Sediment Basins

The purposes of sediment ponds is to: (i) collect sediment-laden stormwater runoff from the landfill; (ii) provide an environment for sediment to settle out of the water; and (iii) discharge, in a controlled manner, the detained water to nearby natural waterways. Because stormwater discharge is to a tidal river, management of sediment, rather than peak discharge rate, is the primary focus of the stormwater management system at the DRPI Landfill. Accordingly, the temporary sediment basins are designed to capture sediment associated with runoff from a 25-year frequency storm.

The Facility Manager or designee will perform inspections monthly and after each significant rain event. As needed, the Facility Manager will initiate necessary maintenance on the sediment basins, including repair of any eroded areas, repair of damaged or clogged spillways, and removal of sediment from the ponds. Sediment that is removed from the basins during the active life of the landfill will be dried and then used for daily or intermediate cover material; sediment removed after the landfill is closed will be spoiled and vegetated or used as fill in miscellaneous areas of the landfill that have been eroded and require maintenance.

## **3.11.3 Inspection and Maintenance**

All components of the stormwater management and erosion and sediment control system at the DRPI Landfill will be inspected and maintained throughout the life of the landfill. Monthly inspections will be made by the Facility Manager or their designate and after each significant rain event (i.e., 24-hour rainfall of about 3 in. or greater) to ensure the integrity of the systems. The Facility Manager will perform preventive maintenance of all stormwater management practices to

ensure proper functioning. All required maintenance will be performed in a timely manner to minimize off-site discharge of sediment and ensure environmental protection at all times. In addition, surface water will be monitored in accordance with approved stormwater plan (see **Appendix V-F**).

### **3.12 Inclement Weather**

#### **3.12.1 Introduction**

During periods of inclement weather, such as rain and winter conditions, the procedures discussed in the following subsections will be implemented.

#### **3.12.2 Wet Weather Operation**

Precipitation is not expected to adversely affect landfilling operations, so the landfill will be operated during precipitation events. If access roads become muddy due to heavy rain, then access roads will be covered with gravel and regraded. In the event of a severe electrical storm, DRPI personnel shall: (i) avoid high ground, open spaces, trees, bodies of water; (ii) avoid metal objects; (iii) seek shelter at the administration building, maintenance building, or other permanent on-site structure. Personnel operating heavy equipment that have not been able to seek shelter shall shut the vehicle down, close doors and windows, and remain seated in the cab with both feet flat on the floor of the machine, and with both hands on their lap. All operations, including the acceptance of waste and the operation of the scale, will be temporarily suspended. Because severe electrical storms are short in duration, they are not expected to disrupt the ability of DRPI personnel to complete required operational activities prior to leaving the site at the end of the working day.

Wet weather working areas will be established as close to the access road as possible. The disposal area roads in the vicinity of the wet weather working areas will be stabilized (with a combination of crushed stone, slag, or similar aggregate material, and geotextile, as needed) to improve accessibility in poor weather. This will aid in maintaining a smooth traffic flow.

#### **3.12.3 Winter Conditions**

During winter weather conditions, operations will be performed to remove snow from the landfill working area and to ensure the availability of workable (i.e., unfrozen) cover material. Accumulations of snow will be plowed from the following areas prior to each day's refuse placement activities or as soon as practicable:

- entrance area;
- scale area;

- parking areas; and
- access roads.

If cover material is frozen in the stockpile area, then frozen soils will either be broken up or removed as a crust using earthwork equipment to expose unfrozen cover. Note that, during freezing conditions, some of the typical problems that the cover material addresses (i.e., odor and vector control) are minimized. Therefore, minor difficulties that may be encountered during placement of daily or intermediate cover in freezing conditions are not expected to adversely impact the effectiveness of the cover material.

### **3.12.4 High Winds**

Should winds become excessive, the landfill working area will be located at a more sheltered area of the landfill (i.e., downwind side of the landfill), if possible. Customers may be contacted and asked to delay delivery of waste that would contribute to blowing litter conditions until after the high wind conditions subside. In case of severe winds, customers will be notified and operations will be temporarily suspended until conditions improve.

## **3.13 General Maintenance**

### **3.13.1 Landfill Area**

The DRPI Landfill shall be maintained under the direction of the Facility Manager. General maintenance activities will include, but not be limited to, the following tasks:

- cutting grass;
- reseeding and fertilizing finished slopes where grass may have died;
- removing accumulated sediment from stormwater features;
- reburying waste that may have worked its way to the surface;
- grading the access road on the landfill as necessary; and
- repairing leachate seeps.

Inspections will be performed on a regular basis with identified maintenance being scheduled as soon as practical thereafter.

### **3.13.2 Grounds**

The Facility Manager will be responsible for maintenance of the grounds of the entire DRPI Landfill, which will include, but not be limited to, the following tasks:

- cutting grass;
- grading the perimeter access roads;
- sweeping the paved entrance road;
- cleaning the surface of weigh scales; and
- picking up litter on grounds.

Inspections will be performed on a regular basis with identified maintenance being scheduled as soon as practical thereafter.

### **3.13.3 Haul Roads**

The Facility Manager will construct and maintain access roads to the landfill working face to provide for the uninterrupted flow of traffic under all weather conditions. As necessary, portions of these roads, particularly those used over an extended period of time, will be stabilized with a combination of stone and geotextile to improve accessibility in poor weather.

### **3.14 Site Closure Requirements**

Operations and maintenance procedures for construction of the closure system and for operation and maintenance of the closed landfill are presented in the Closure/Post-Closure Plan.

### **3.15 Site Monitoring**

#### **3.15.1 Introduction**

Site monitoring of groundwater quality, landfill topography, stormwater quality, LFG concentrations, and erosion and sedimentation will be performed by DRPI and by contractors to DRPI. General site operations are monitored weekly and recorded in Form F (**Appendix V-B**). In this section, the monitoring activities are described and the parties responsible for the monitoring are identified.

#### **3.15.2 Water Quality Monitoring**

The monitoring of groundwater quality and groundwater elevations at the DRPI Landfill will be the responsibility of DRPI and will be performed through the periodic sampling of groundwater monitoring wells in accordance with DNREC permit requirements. Monitoring will be performed by subcontractors to DRPI under the direction of the Facility Manager or qualified designee. The locations of existing and proposed monitoring wells at the site are shown on the Groundwater Monitoring Plan within the Permit Drawings. Specific monitoring requirements are addressed in the Hydrogeologic Report.

### 3.15.3 Topographical Monitoring

DRPI will survey the disposal area on an annual basis to estimate the volume of waste remaining at the DRPI Landfill and the efficiency of waste compaction at the site. The survey information will provide data on the volume (space) utilized for each period and will be compared to the weight records. Specifically, DRPI will contract a surveyor that will provide DRPI with a topographic plan accurate to within 2-ft of the vertical contours. Following receipt of the topographic plan, DRPI will assess the following:

- the active disposal areas of the DRPI Landfill during the period;
- the tonnage landfilled during the period; and
- the in-place density of refuse for the period.

### 3.15.4 Landfill Gas Monitoring

DRPI will monitor LFG under the direction of the Facility Manager. The DNREC-approved plan for LFG monitoring is available from the DRPI Facility Manager. LFG concentrations will be observed in the following locations:

- in confined spaces (buildings on the landfill property within 500 ft. of the landfill);
- outside the landfill in groundwater monitoring wells, which have screen intervals above the water table; and
- along the property boundary at locations identified on the Permit Drawings (i.e., monitoring probes).

Monitoring will be performed on a semi-annual basis (April, October) for methane (i.e., combustible gas content as a percent of the lower explosive limit (LEL) of methane) and oxygen. Results of LFG monitoring must be maintained on-site at the landfill office. A sample reporting form has been provided as Form E (**Appendix V-B**).

### 3.15.5 Erosion and Sedimentation Monitoring

All components of the stormwater management and erosion and sediment control system at the DRPI Landfill will be inspected and maintained by DRPI throughout the landfill operation, according to the schedule described in Section 3.11.3 of this O&M Plan. In addition to regular review by Facility Manager, inspections will be made after each significant rain event (i.e., a rainfall of about 3 in. over a 24-hour period) to ensure the integrity of the system. All required maintenance will be performed in a timely manner to eliminate the off-site discharge of sediment and to ensure environment protection at all times.

### **3.15.6 Leachate Monitoring**

Leachate will be monitored routinely to evaluate the quantity and quality of leachate collected from the landfill. Leachate monitoring will include: (i) verification of operation; (ii) flow measurements; and (iii) sampling and analysis of leachate (Form D, **Appendix V-B**).

The function of the automatic leachate pumping stations will be monitored at least weekly as part of routine inspection and maintenance activities. Leachate flow rates and volumes from each of the sumps will be monitored by flow meters installed in each leachate pump house. Leachate flow can be measured daily and total flow can be calculated on a weekly, monthly, and annual basis. The flow meters will provide a measurement of instantaneous flow rates and cumulative volumes collected from the landfill sumps.

The leachate collection system was designed and will be constructed with the ability to sample leachate from each sump, or the combined leachate flow prior to its discharge into the New Castle County sewer system. Leachate sampling and analysis will occur as required by the New Castle County industrial sewer discharge permit. A copy of the discharge permit is provided in **Appendix V-E**.

## 4 SAFETY

### 4.1 Introduction

In this section, health and safety procedures for Site personnel are presented. All employees shall receive emergency first aid training and CPR training, required upon initial hire and annually thereafter.

### 4.2 Personnel Health and Safety

General health and safety considerations for landfill operations are presented below. For operations involving potentially hazardous conditions or substances, additional site health and safety procedures should be prepared prior to initiating the activity.

- *Protective Clothing.* Appropriate protective clothing and footwear will be worn by all personnel when beyond the entrance of the landfill. Appropriate clothing includes an employer-issued shirt and long-pants, hardhat, hard-toe work boots and, depending on the situation, rubber gloves, safety glasses, or rubber boots.
- *Hygiene.* For personal hygiene, sanitary facilities, washbasins, and a shower are available at the maintenance building.
- *Confined Spaces.* Because there are confined spaces such as pump stations, sampling pits, valve pits, and manholes that personnel may have to enter, approval to enter the confined space requires specific safety procedures to be established and followed prior to someone entering such an area.
- *Miscellaneous.* Smoking is not permitted on or near the disposal area, gas vents, manholes, pump station, or fuel storage areas. Firearms are not permitted on the premises. Landfill equipment will only be used for the designated purposes and within the capabilities of the equipment. Only experienced, properly trained, and authorized personnel are permitted to operate landfill equipment.
- *Accident Reports.* A report must be prepared for each accident that occurs involving injury to operating personnel or visitors (personal injury requiring medical attention) and/or damage to equipment or facilities. The reports will be prepared and submitted to the DRPI Landfill Facility Manager within 24 hours of the incident. Maintenance of accident records is a necessary part of the safety program for the following reasons:
  - to identify conditions and practices that cause accidents and to modify work practices to prevent accidents;
  - to address accident claims, possibly including worker's compensation; and
  - to fulfill governmental requirements for accident reporting.

### **4.3 Accident Reports**

Accident reports will be maintained as required by OSHA. Each accident that results in personal injury, damage to equipment, damage to any portion of the DRPI Landfill, or loss of productivity of personnel will be documented and kept on file.

### **4.4 Contingency Plans/Emergency Action Plan**

An action plan for each type of emergency is included in **Appendix V-A** (i.e., Contingency Plan) of this O&M Plan.

### **4.5 Fire Prevention Plan**

DRPI is responsible for the control and extinguishing of fires that occur at the DRPI Landfill, including the immediate reporting of major fires to Minquadale Fire Company and DNREC. Most fires at landfills are caused by hot loads or carelessness. To combat fires, each piece of equipment will include a fire extinguisher capable of controlling and extinguishing all classes of small fires. In addition, extinguishers will be provided and/or maintained in the maintenance building, DRPI's administration building, and the scalehouse.

If a collection truck arrives at the DRPI Landfill with a "hot load" (i.e., with its contents smoldering or on fire), then the vehicle will be directed to a point pre-designated by the Facility Manager that is in the landfill disposal area but remote from the working face. This area will have a minimum 12-in. deep layer of cover material over the underlying refuse. The burning material can be dumped in this area and extinguished by DRPI personnel under direction of the Facility Manager.

Landfill surface fires will be isolated or kept from spreading, if possible, using soils from the stockpile that is maintained near the working face. The stockpiled cover will be used either to create a fire break by covering waste that has not caught fire, or by using it to smother the refuse that is on fire. For any fire, the equipment operator or spotter must immediately contact the Facility Manager and report the conditions of the fire. DRPI personnel will then coordinate efforts to dispatch a water truck to the scene of the fire. The water truck will be equipped with suitable apparatus to allow landfill personnel to quell or control a fire until the nearest fire department has an opportunity to respond. Immediately after dispatching on-site equipment, the nearest fire department will be contacted by the Facility Manager.

Fires that occur deep within refuse deposits can only be brought under control by identifying the sources of oxygen to the fire and sealing them off. Such fires, however, are rare in a well-compacted and covered landfill. If a deep-seated fire is detected within deposited refuse, then the

Facility Manager will identify potential conduits for oxygen to the fire and seal them with a combination of soil and water inundation.

If a landfill fire should occur, DRPI will notify DNREC immediately of the situation and provide a written report after extinguishing the fire.

#### **4.6 Confined Space Entry**

No person may enter a vault, trench, tank, or manhole without checking the area for the presence of hazardous conditions, including obstacles and LFG. Entrance into a confined space may not be made without OSHA confined space training. Persons entering confined spaces must wear a safety harness and rope with an appropriate retrieval device and a second person ready to pull him or her to safety. Gas composition and concentration will be monitored at all times during entry. No smoking is allowed within the limits of the landfill or in confined spaces.

## 5 REPORTING AND RECORD KEEPING

### 5.1 Operating Reports and Records

Landfill operating records will be maintained by DRPI for submittal to DNREC, as appropriate.

Sample reporting and record keeping forms are presented in **Appendix V-B** to this O&M Plan. The attached forms are intended to be a guide to effective and efficient monitoring and record keeping. The waste transporter roster is kept in an Excel™ file on a shared drive accessible to all staff and a paper copy is kept on the scalehouse clipboard. The forms may be modified by DRPI to address site-specific record keeping needs. The forms included in **Appendix V-B** are identified on the following table.

Form ID	Reference in this O&M Plan	Description	Frequency
A	Sections 3.6.2 and 3.6.3	Incoming Vehicle Inspection Report	Per vehicle inspection frequency
B	Section 3.6.5	Notice of Infraction	Per occurrence
C	Section 3.8.1	Leachate Spill/ Discharge Incident Report	Per incident
D	Section 3.8.2.2	Leachate Daily Facility Inspection Log	Daily
E	Section 3.15.4	Landfill Gas Migration Monitoring Report	Quarterly
F	Sections 3.5.1, 3.5.3, 3.5.4, 3.5.6 and 3.5.7	Weekly Operations Inspection Report	Annually

### 5.2 Instrumentation

Test records will be maintained and kept up to date for all instruments used at DRPI Landfill, including:

- landfill scale calibration;
- test equipment (i.e., LFG detection meters, etc.); and
- pumps.

### **5.3 Environmental Monitoring**

Environmental monitoring will be performed as described in Section 3.15 (Site Monitoring) of this O&M Plan. Results of environmental monitoring will be issued to DNREC within 60 days of completion of the tests. Monitoring results will be kept at the DRPI Landfill.

### **5.4 Landfill Capacity Management**

In this section, the procedures are presented for monitoring the use of landfill disposal capacity at the DRPI Landfill to comply with the requirements of DRGSW §4.2.1.4.4. and §4.4.1.4.7. Monitoring procedures are described below:

- waste elevation monitoring procedures for waste placement activities;
- monitoring of waste quantity;
- annual capacity estimation; and
- capacity utilization.

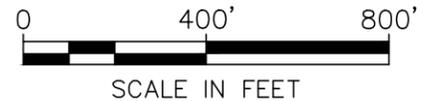
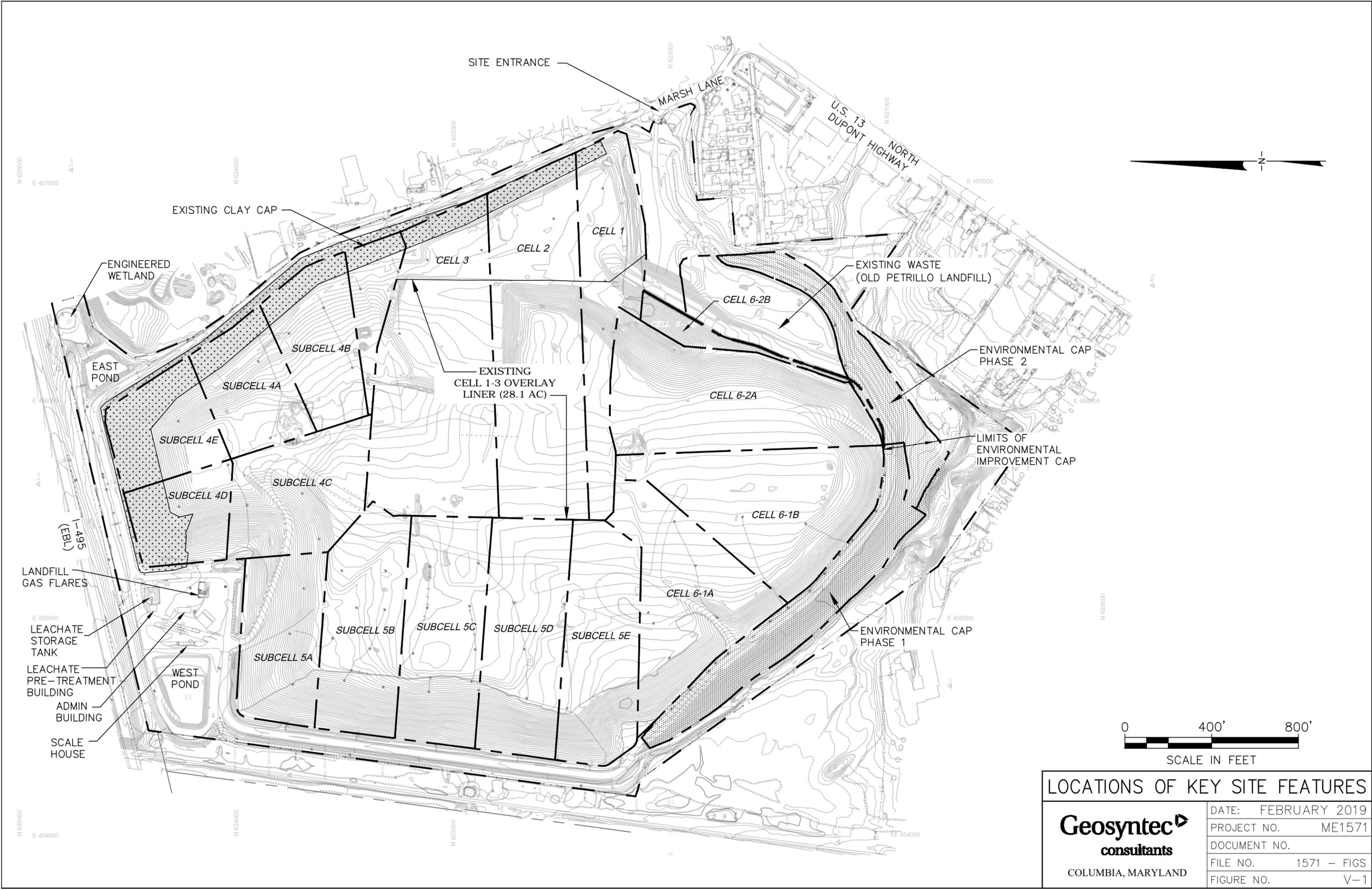
Waste placement and capacity utilization will be visually monitored by the Facility Manager on a routine basis. Waste will be placed in daily waste cells (as described in Section 3.3.1.4) that will be approximately 10- to 15-ft high, 100-ft wide, and 100-ft long. Also, a topographic map of the active portions of the landfill will be prepared annually.

The following information will be compiled at DRPI Landfill on a quarterly basis:

- volume of waste received;
- types of waste received (e.g., C/D debris, contaminated soil, etc.);
- volume of cover material placed in the landfill; and
- locations of active disposal areas.

Quarterly volume reports will be made by the Facility Manager, by summing the values for each day during the quarter that waste and/or cover was placed. Additional information (e.g., leachate quantity records, LFG volumes, weather data, etc.) may be added to the quarterly volume report at the discretion of DRPI.

# FIGURES



**LOCATIONS OF KEY SITE FEATURES**

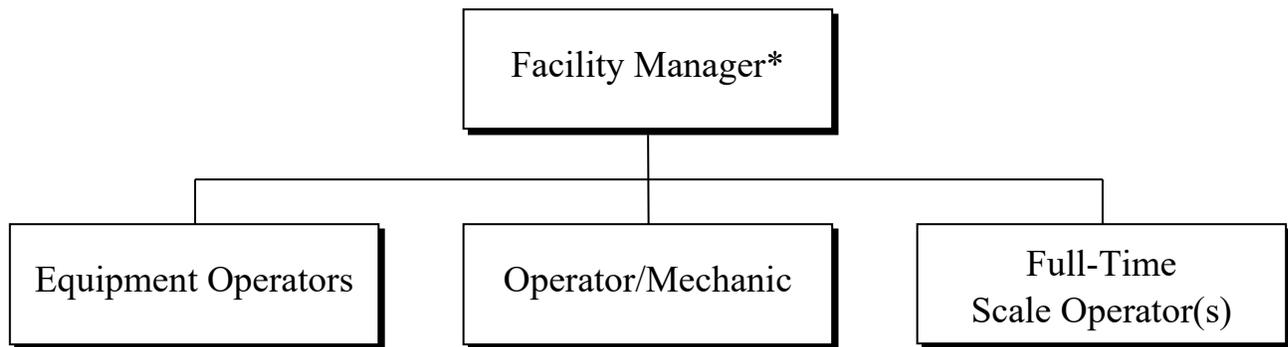
**Geosyntec**  
**consultants**  
 COLUMBIA, MARYLAND

DATE:	FEBRUARY 2019
PROJECT NO.	ME1571
DOCUMENT NO.	
FILE NO.	1571 - FIGS
FIGURE NO.	V-1

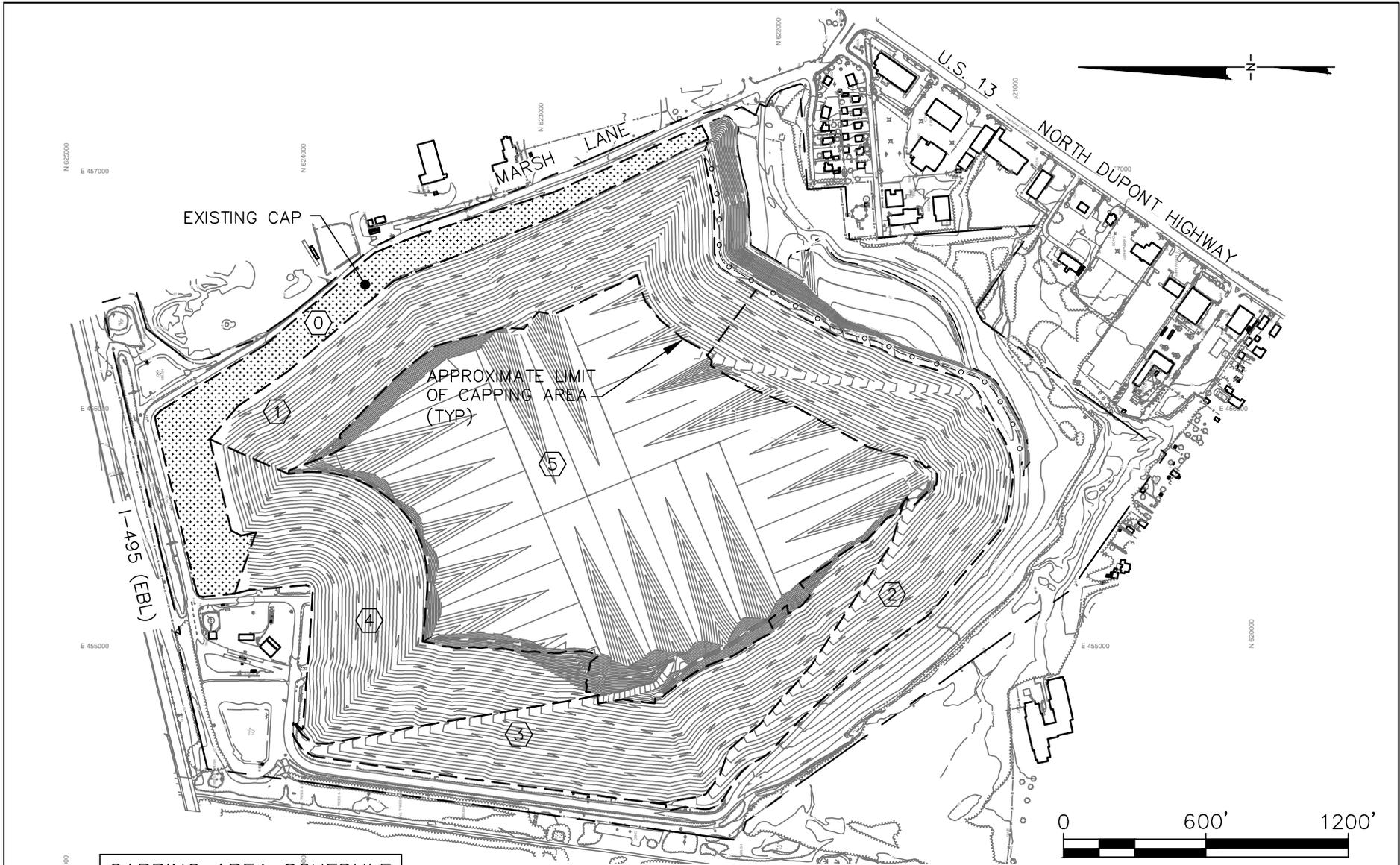
**FIGURE V-2**

**LANDFILL PERSONNEL ORGANIZATION CHART**

**Operation and Maintenance Plan  
DRPI Vertical Expansion  
New Castle, Delaware**



\*The Facility Manager, who may also be the District Manager, will: (i) manage all landfill operations; (ii) oversee any construction at the site; (iii) manage the scale operators and office assistant; and (iv) ensure that the landfill is operating in compliance with the terms and conditions of the permit.



CAPPING AREA SCHEDULE	
ID	AREA
0	EXISTING CAP
1	19.4 AC
2	21.6 AC
3	17.2 AC
4	19.7 AC
5	58.5 AC

NOTE:  
AREAS SHALL BE CAPPED SEQUENTIALLY.

<b>CAPPING SEQUENCE PLAN</b>	
 <b>Geosyntec</b> consultants COLUMBIA, MARYLAND	DATE: MARCH 2019
	PROJECT NO. ME1571
	DOCUMENT NO.
	FILE NO. 1571f001-capping
	FIGURE NO. V-3

Delaware Recyclable Products, Inc.  
Industrial Waste Landfill  
Permit Modification Application

Geosyntec Consultants  
PART V: OPERATION AND MAINTENANCE PLAN  
Vertical Expansion

# APPENDIX V-A

## CONTINGENCY PLAN



**DELAWARE RECYCLABLE PRODUCTS, INC.**

246 Marsh Lane  
New Castle, Delaware 19720

*Prepared for*

**PERMIT MODIFICATION  
APPLICATION – PART V**

**APPENDIX V-A:  
CONTINGENCY PLAN**

*for*

**VERTICAL EXPANSION  
DRPI Industrial Landfill  
New Castle, Delaware**

*Prepared by*

**Geosyntec**   
consultants

10211 Wincopin Circle, 4<sup>th</sup> Floor  
Columbia, Maryland 21044

Geosyntec Project No.: ME1571

July 2018

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## **1 INTRODUCTION**

### **1.1 Terms of Reference**

The purpose of this Contingency Plan is to present procedures and methods addressing unusual and/or emergency conditions that may arise during operation of the Delaware Recyclable Products, Inc. (DRPI) Landfill located at 246 Marsh Lane in New Castle, Delaware. This Plan was prepared for DRPI to address the requirements of the Delaware Regulations Governing Solid Waste (DRGSW), §4.2.1.3.5. The information presented in this plan is intended for use by personnel that operate and maintain the DRPI Landfill.

This Contingency Plan was prepared by Geosyntec Consultants (Geosyntec) of Columbia, Maryland in October 2004, revised by Golder Associates Inc. (Golder) in March 2015 as part of the 2014 permit renewal application for the reduction in footprint to Cell 6-2 and updates to facility management structure. The changes provided herein relate to the vertical expansion. All other sections in the document remain unchanged.

### **1.2 Project Background**

DRPI Landfill was permitted and developed as an industrial waste landfill and was developed in six phases, identified as Cells 1 through 6. This Contingency Plan was developed for the DRPI Landfill vertical expansion, but addresses Cells 1 through 6 as well. The total landfill footprint at DRPI Landfill is approximately 146 acres. Currently, disposal operations at the DRPI Landfill are primarily within the Cells 1-3 overlay liner area. The locations of major features of DRPI Landfill are shown on **Figure V-A-1**.

### **1.3 Organization of this Plan**

This Contingency Plan is organized as follows:

- Section 2 presents the purpose for this plan;
- Section 3 discusses Materials and Waste Inventory;
- Section 4 describes arrangements with Emergency Response Teams;
- Section 5 provides Emergency Action Information; and
- Section 6 presents Contingency Measures.

This Contingency Plan addresses the following events or occurrences:

- personnel and customer safety (Section 6.2);
- personal injury (Section 6.3);
- fire (Section 6.4);
- explosive landfill gas detection (Section 6.5);
- dust (Section 6.6);
- litter (Section 6.7);
- odors (Section 6.8);
- noise (Section 6.9);
- equipment breakdown (Section 6.10);
- unusual traffic conditions (Section 6.11);
- vectors (Section 6.12);
- receipt of unauthorized waste (Section 6.13);
- release of hazardous or toxic material (Section 6.14);
- fuel storage areas (Section 6.15);
- groundwater or stormwater contamination (Section 6.16);
- capacity of leachate transmission system exceeded (Section 6.17); and
- inability to dispose leachate into sewer system (Section 6.18).

This plan also includes the following:

- a description of arrangements between DRPI and police and fire departments, hospitals, contractors, suppliers, and emergency response teams to coordinate emergency services;
- a list of the names and telephone numbers of emergency coordinators;
- a list of relevant emergency equipment at the site; and
- an evacuation plan that depicts primary and alternative evacuation routes.

## **2 PURPOSE OF THIS PLAN**

The purpose of this Contingency Plan is to identify situations at the DRPI Landfill that could impair operation or that could adversely affect human health, safety, or the environment. Contingency procedures have been developed for each of the situations identified in this Contingency Plan. It is important to note that this Contingency Plan does not address all of the potential problems or emergencies that could impair the operation of DRPI Landfill. The foundation for any contingency response is maintaining a calm manner and constant communication between the personnel involved and outside Emergency Response Teams, if necessary.

A copy of the Contingency Plan will be kept at the DRPI Landfill office and will be distributed to all staff responsible for developing, monitoring, and implementing this plan. The plan will also be made available, by the Facility Manager, to all local emergency management authorities.

### **3 MATERIALS AND WASTE INVENTORY**

Materials managed onsite in quantities sufficient to cause environmental degradation or endanger public health and safety, include fuels, waste and lubrication oils, and landfill leachate. Descriptions of materials and wastes that may be used and stored at the DRPI Landfill are presented below.

#### *Fuels and Oils*

Fuels will be stored in aboveground storage tanks that are provided with secondary containment designed to control a volume greater than the volume of the largest tank. Lubrication and waste oil storage tanks will also be above ground and provided with secondary containment systems.

#### *Leachate*

The leachate generated by operation of the DRPI Landfill will be collected in leachate collection sumps within each of the landfill cells. The leachate is pumped from leachate collection sumps into a leachate transmission forcemain and leachate storage tanks as described in Section 3.8 of the Operations & Maintenance (O&M) Plan.

## **4 DRPI ARRANGEMENTS WITH EMERGENCY RESPONSE TEAMS**

### **4.1 Introduction**

Emergency response teams from public agencies will be contacted in the event of fire, explosion, serious personal injury, or other emergency at the DRPI Landfill. Contact will be made with each agency or firm that may need to respond to an on-site emergency in order to arrange for emergency response team personnel to visit DRPI Landfill and become acquainted with its operations.

This section of the plan describes the public safety agencies serving the DRPI Landfill, including the Minquadale Fire Company, New Castle County Police Department, local hospitals, contractors and equipment suppliers, and local and/or state emergency response teams that may be contacted in the event of an emergency.

### **4.2 Fire Department**

In the event of an **emergency, dial “911”** for the Fire Department. The **non-emergency** Minquadale Fire Company number is (302) 652-0986. Fire Department personnel will be invited to visit DRPI Landfill to become familiar with the operation and the locations of roads, buildings, and other structures. This site visit will also provide an opportunity for the fire department to provide recommendations to improve site safety or access.

### **4.3 Police Agencies**

In case of **emergencies, dial “911”** for both the New Castle County Police Department and the Delaware State Police. The **non-emergency** telephone numbers are as follows:

- New Castle County Police: (302) 573-2800
- Delaware State Police: (302) 739-5901

#### **4.4 Nearby Hospitals**

The Wilmington Hospital, located approximately 2.5 miles from DRPI Landfill, is the closest major medical facility. Hospital contact information is as follows:

- Wilmington Hospital  
501 West 4<sup>th</sup> Street  
Wilmington, Delaware 19801  
Phone: (302) 428-6436

Additional emergency contacts are:

- Poison Control Center (800) 548-4400
- National Response Center (800) 424-8802

## **5 EMERGENCY ACTION INFORMATION**

### **5.1 Emergency Coordinators On-Site**

There will be one Primary Emergency Coordinator (the Facility Manager or their designee) and an adequate number of Alternate Emergency Coordinators appointed at the DRPI Landfill to ensure that one Emergency Coordinator will be available at all times. The Primary Emergency Coordinator is responsible for directing all emergency response measures necessary to minimize or prevent harm to human health and the environment in the event of a fire, explosion, hazardous emissions, and/or discharge of wastes or hazardous materials into the air, soil, surface water or groundwater.

The Primary Emergency Coordinator and alternates will be made thoroughly familiar with all aspects of the Contingency Plan, including all operations and activities, the locations and characteristics of all materials handled, the locations of all records, and the layout of the site. The Primary Emergency Coordinator and alternates will also be required to be familiar with the entire O&M Plan for the facility. The Primary Emergency Coordinator will be responsible for maintaining all first-aid equipment including first-aid kits, major injury kits, and emergency washes. The persons named to be Emergency Coordinators will have the authority to commit the resources necessary to carry out the activities described in this Contingency Plan. The Emergency Contact List and their contact information is included as **Table V-A-1**.

### **5.2 Emergency Equipment on Site**

The emergency equipment at the DRPI Landfill will include fire extinguishing systems, first-aid kit, spill control equipment, and internal and external communication and alarm systems. A list of relevant emergency equipment that will be maintained on site, including the location and physical description of each item, and a brief outline of its capabilities, is provided in **Table V-A-2**, Safety and Emergency Equipment.

### **5.3 Evacuation Plan for Personnel**

Evacuation routes from the DRPI Landfill are shown on **Figure V-A-2**. A figure showing evacuation routes from the landfill will be posted on bulletin boards throughout the

facility and will be reviewed in the initial and ongoing training programs for employees and supervisors.

Depending upon the nature of the emergency, the Emergency Coordinator may specify a point for all employees to regroup so that he or she may assess and direct what emergency measures should be implemented next.

## **6 CONTINGENCY MEASURES**

### **6.1 Overview**

In the event of an emergency that threatens public health, safety, or the environment, the person discovering the emergency will implement the following:

- As possible, emergencies will be contained on site using equipment that can be mobilized by qualified operators without endangering their health and safety, the person discovering the emergency will implement the measures that can be safely undertaken at the site before contacting emergency response team.
- As necessary, appropriate emergency response teams will be contacted (i.e., fire department, police, hospital, etc.). At a minimum, the following information must be conveyed to the emergency response team:
  - name and telephone number of the person reporting emergency;
  - name and address of DRPI Landfill;
  - time and type of incident;
  - name and quantity of materials involved;
  - extent of injuries, if any; and
  - possible hazards to human health or safety.
- The Primary Emergency Coordinator and/or alternate will be contacted and emergency notification will proceed.
- The individual identifying the emergency will remain at the scene to direct the Emergency Coordinator and emergency response team upon their arrival.

### **6.2 Personnel and Customer Safety**

#### **6.2.1 Introduction**

The DRPI Landfill will be operated to provide a safe establishment for employees and customers. The safety measures to be taken include security to prevent unauthorized access (Section 6.2.2), a communications system (Section 6.2.3), employee training programs (Section 6.2.4), preventive maintenance (Section 6.2.5), and housekeeping (Section 6.2.6).

### **6.2.2 Security**

Access to the DRPI Landfill is controlled by chain-link fence or natural barriers entire perimeter of the facility. Each access road onto the landfill expansion will have a gate equipped with a lock. After operating hours, all gates will be locked and access will be restricted to persons with proper identification.

Trucks hauling refuse must stop at the scales to be weighed and have their loads monitored. The scalehouse is equipped with closed circuit television cameras to record each vehicle. Only vehicles authorized by scalehouse personnel will be allowed to enter and each vehicle will be directed to the working face by signs and by spotter's signals. Access routes and critical working areas will be adequately identified. Other security measures will include requiring visitors to sign in, posting "No Trespassing" signs, and locking all groundwater monitoring wells.

### **6.2.3 Communication System**

The internal communication system will consist of two-way radios in all heavy equipment and mobile telephones for the Emergency Coordinators. A sufficient number of two-way radios will be maintained on site so that all personnel engaged in key facility operations have access to a radio. The radio equipment will be selected so that it will be fully operational under all weather conditions. Internal communication may also include personal pagers or mobile telephones that DRPI issues to key personnel. Oral communication with persons off-site will be accomplished by outside telephone lines. Telephone sets are in the scalehouse, the administration building, and the maintenance building.

The appropriate outside agencies such as the fire department, police department, and spill control contractors will be contacted by telephone in the event of an emergency. A list of telephone numbers for emergency agencies will be placed near each telephone that is located in an office with a radio receiver.

#### **6.2.4 Employee Training Program**

Each employee of the DRPI Landfill will be fully trained in proper work, safety, and emergency response procedures related to their particular position as described in Section 2.6.3 of the O&M Plan. Employees who may be required to handle potentially harmful materials will be taught procedures for materials handling, spill prevention and clean-up, material compatibility, and applicable right-to-know requirements.

Employees of the DRPI Landfill will be trained during their initial employment probationary period. Prevention of emergency situations is emphasized in landfill training programs; however, emergency response actions are also covered. Safety meetings will be held periodically for employees of the DRPI Landfill. Basic safety measures, emergency response procedures, and changes to facility operations will be reviewed at these site safety meetings.

#### **6.2.5 Preventive Maintenance**

The safety of DRPI's personnel, customers, and visitors is enhanced by its preventive maintenance program. It is imperative that maintenance be performed on equipment, structures, and related facilities to prevent emergencies. A schedule for routine maintenance is presented in the O&M Plan and includes the following.

- *Landfill Preventive Maintenance.* Preventive maintenance on the landfill includes upkeep of the topsoil cover and vegetation; cleaning the stormwater drainage features; and inspecting the leachate collection system. The program for landfill preventive maintenance is described in greater detail in Sections 3.8 through 3.11 of the O&M Plan.
- *Leachate Management System.* The leachate management system will have an ongoing preventive maintenance program. The program will include regular, documented inspections of pumps, valves, manholes, and other equipment, maintenance of pumps, and cleaning pipes. Unit inspection and service reports will be kept for each piece of equipment in the system to document each servicing, breakdown, or unusual incident. The program to inspect and maintain the leachate management system increases personnel and user safety, minimizes unnecessary shutdowns, and provides a database from which a comprehensive parts inventory can be developed.

### **6.2.6 Housekeeping**

Daily, routine procedures that result in neat and orderly surroundings (i.e., good housekeeping practices) will be emphasized to provide a safe environment for personnel and users. Examples of good housekeeping practices that will be implemented are the following.

- All access ways (aisles, stairways) will be kept free of obstructions.
- Storage areas will be cleaned routinely.
- Sumps, drains, manholes, and witness boxes will have liquids removed regularly.
- Equipment maintenance fluids (oil, antifreeze, etc.) will be stored in covered, well-maintained drums or other containers. Used maintenance fluids will be removed on a regular basis.
- All equipment, tools, repair parts, and products will be stored in an orderly manner.
- Leaks and spills will be cleaned up promptly.

DRPI will have adequate equipment on site to clean spills, load and unload materials, retrieve inventory, and provide an auxiliary source of electricity to run pumps and provide lights that are necessary to implement emergency procedures.

### **6.3 Personal Injury**

The risk of personal injury occurring during the operation of the landfill will be minimized by the training programs and operating procedures implemented by DRPI personnel. All accidents and treatments will be reported to the appropriate authorities. An industrial-type first-aid kit will be kept in the maintenance and administration buildings for treatment of minor lacerations and abrasions. This kit will include an analgesic such as aspirin to help relieve pain. Two-way radios will be used to signal the office that an accident has occurred. The caller will indicate the severity of the accident and the type of assistance needed. A record of the accident will be maintained as required under Section 5 of the O&M Plan.

Emergency response agencies in New Castle County are tied into the 911 Emergency System, and any outside emergency response team that is needed can be quickly summoned. The radio base station will be near a telephone to speed emergency responses. All personal injuries, no matter how minor, will be reported by the injured person to his or her immediate supervisor and recorded.

## **6.4 Fire Control**

### **6.4.1 Introduction**

The risk of fire at a landfill is carefully guarded against fires as landfill fires can be difficult to extinguish. Consequently, operations and training procedures are developed and practiced to minimize the risk of landfill fires and to maximize the ability of the landfill employees to expeditiously extinguish them. Fire risks and firefighting procedures related to: (i) heavy equipment is described in Section 6.4.2; (ii) fires in the buildings are described in Section 6.4.3; and (iii) landfill fires are described in Section 6.4.4.

### **6.4.2 Equipment Fires**

The principal cause of heavy equipment (i.e., bulldozers, front-end loaders, and/or compactors) fires is hydraulic oil leaks onto hot engine exhaust components. If not quickly extinguished, a small fire can burn through fuel or hydraulic hoses, adding large volumes of additional fuel to the fire, causing destruction of the equipment and a safety hazard to the operator. Each piece of on-site equipment is outfitted with a hand-held fire extinguisher, and the equipment operators are trained in the use of the fire extinguishers. In many instances, these units are sufficient to extinguish small fires and to contain larger fires until fire department personnel arrive at the site. In case of an equipment fire, the operator will:

- notify other personnel of the equipment fire via two-way radio;
- shut off the equipment;
- detach the fire extinguisher from the cab; and
- dismount the machine on the side opposite the fire, and attempt to extinguish the fire from the ground while maintaining a safe distance from the heat.

Other equipment operators will bring extinguishers from other pieces of heavy equipment nearby to aid in fire suppression. In all cases the water truck will be brought to the location of the fire and water applied to ensure the fire is extinguished and the equipment has cooled. Diesel fuel tanks on heavy equipment do not explode, but once the fuel begins to burn, a hand-held extinguisher is no longer adequate to control or extinguish the fire. During working hours, when the hazard of an equipment fire is most likely to occur, the equipment is outdoors where it is unlikely anything will be kindled from the fire or heat. After the equipment has cooled, the machine may be towed to the maintenance building area to be repaired.

### **6.4.3 Building Fires**

The greatest fire risks within the buildings at the DRPI Landfill are from operations and materials stored in the buildings as well as unsafe working habits. Fires within the buildings may be ignited by welding or torch cutting, placing flammable material too close to a machine exhaust pipe, irresponsible smoking of tobacco products, use, unsafe fueling practices, improperly maintained heating equipment (either furnaces or portable heaters), and improperly maintained electrically operated tools.

Each building has one or more portable fire extinguishers that are capable of extinguishing or containing fires until the fire department arrives. Fire risks will be minimized with training, proper housekeeping procedures, and periodic inspections for fire risks by DRPI personnel. Training and proper housekeeping procedures at work stations will minimize fires caused by flammable liquids dripping onto exhaust pipes, fires ignited by welding and cutting operations, fires started by improper fueling practices, and fires caused by improper tobacco use. In addition, proper housekeeping procedures will minimize fires ignited by improperly stored lubricants and fires started in waste paper or materials. Periodic inspections by DRPI personnel will identify improperly maintained heating equipment and improperly maintained electrically operated tools. These inspections will be followed by repair of defective tools and defective equipment revealed during the periodic inspections. The Facility Manager is the chief safety inspector, but all personnel will be trained in safety and encouraged to report conditions considered unsafe.

If a fire starts in the maintenance building, scalehouse or office, then the fire extinguisher(s) in the building will be used to extinguish it if the fire can be safely extinguished by personnel on the scene. The Site Supervisor will be immediately contacted, no matter what the size of the fire. If the fire cannot be quickly extinguished by DRPI personnel, the building will be abandoned by way of the nearest, safest exit.

The Primary Emergency Coordinator must be immediately notified of all fires by way of the two-way radios. If there is any question about the ability of on-site personnel to safely extinguish the fire, then the personnel on the scene or the Emergency Coordinator on duty will telephone the 911 Emergency Response System to summon the Wilmington Fire Department.

#### **6.4.4 Landfill Fires**

Landfill fires can be ignited by heavy equipment fires, delivery of material that is already burning (i.e., a “hot load”) or by rapid subsurface oxidation. The Primary Emergency Coordinator will be informed of the location, size and nature of any landfill fires.

In the case of a fire occurring on the surface of the landfill disposal area, site personnel and equipment will be used to contain and control and/or extinguish fires immediately. The burning material will be isolated and a stockpile of soil that will be maintained near the working face will be used to contain and control fires. The soil will be used in two ways: (i) to build a berm around the burning waste to prevent the water used to control the fire from spreading; and (ii) to smother the fire in the landfill itself. If the fire cannot be extinguished by smothering, then the area will be wetted down, excavated, and wetted down again until the fire is extinguished.

Should a “hot load” (a load of garbage that is already smoldering) be delivered to DRPI Landfill, it will be disposed of away from the active face and smothered by soil moved into place by the landfill equipment and wetted down in accordance with procedures given the landfill personnel during training.

Fires started by rapid subsurface oxidation rarely occur in well-managed landfills, but the ignition of such a fire is complex. The most common cause is excessive vacuum on landfill gas extraction wells. The excessive vacuum draws air into the landfill, thus providing oxygen at depth within the landfill. The fire begins when a variety of factors

such as waste composition, moisture level, available oxygen, and ambient pressure combine under opportune conditions to ignite. If such a fire should occur at the DRPI Landfill, than a variety of engineering measures may be used to locate and extinguish the fire. These measures include, but are not limited to, excavation, smothering by foam or soil, or injection of water. A variety of methods can be used to confirm that the fire is extinguished and identify the impacts of the fire on the landfill operations. One simple method is to observe the surface of the landfill for venting smoke or steam. In the event of a subsurface landfill fire, the Site Superintendent will consult with the Facility Manager to identify ways to minimize or negate any adverse impacts.

## **6.5 Explosive Landfill Gas**

The DRPI Landfill will include an active landfill gas management system that will remove and incinerate landfill gas generated in the landfill. The active landfill gas management system is described in detail in Section 3.9 of the O&M Plan. The system will consist of vertical extraction wells, transmission pipes, and a blower/flare station, all of which are intended to capture landfill gas.

DRPI Landfill will be monitored semi-annually for the presence of explosive landfill gas as described in Section 3.15.4 of the O&M Plan. On-site structures at the DRPI Landfill that will undergo explosive gas monitoring include crawl spaces below the scalehouse and administrative building, as well as the equipment maintenance building.

Should combustible gas concentrations be determined to be 25 percent of the LEL (i.e., 1.25 percent methane) at a gas monitoring location around the perimeter of the landfill, additional gas monitoring probes will be installed to evaluate the extent and source of the gas and the frequency of gas monitoring in the area with elevated gas concentrations will be increased. At that time, the need for remediation activities will be assessed, and actions will be taken as appropriate to eliminate any possibility for gases to accumulate to potentially explosive levels. Example contingency measures within the landfill include: (i) applying an increased vacuum on existing gas extraction wells; (ii) installing additional gas extraction wells in the landfill in the vicinity where gas appears to be migrating from the facility; and (iii) applying final cover over areas that have been completely filled if it appears that an excessive amount of gas is migrating upward through intermediate or daily cover surfaces.

Should gas concentrations exceed 25 percent of the LEL (i.e., 1.25 percent methane) in an on-site structure, the structure will be evacuated and vented. Increased gas monitoring will be undertaken, the need for remediation activities will be assessed, and actions will be taken as appropriate. Example contingency measures include those given above and such actions as installing additional passive or active venting systems and sealing potential pathways for gas migration into the structure.

## **6.6 Dust**

Water will be applied by a tanker truck during dry periods to control dust created by the operation of heavy equipment on the unpaved roads at the DRPI Landfill. Currently, the DRPI Landfill uses a tanker truck with a 2,000 gallon water tank. The tanker truck is available not only for dust control, but also for fire control.

The use of waste oils to reduce dust emissions on unpaved access roads will not be permitted. The use of chemical dust suppressants (such as Road Gard manufactured by Monarch Chemical Company) will be considered if, for some reason, the use of the water becomes impractical. Dust emissions from paved roads in the vicinity of DRPI Landfill will be controlled using a street sweeper to prevent the build-up of mud or dirt on the road.

## **6.7 Litter**

Litter in the form of paper and plastics may accumulate on the grounds of the facility. Portions of the facility are bordered by fencing, which helps prevent windblown litter from being carried off-site. Due to the nature of materials accepted at DRPI, windblown litter is generally not as severe a problem as at MSW facilities. However, the following measures will be used to control windblown litter and debris:

- use of the existing landfill and earth embankments as barriers;
- use of portable litter screens strategically located to trap litter; and
- placement of cover material.

## **6.8 Odor**

Odor will be controlled at the site by: (i) covering the waste with a minimum of 6 in. of cover material at least once each week; (ii) installing additional intermediate cover to areas not actively receiving waste; (iii) installing the final cover; and (iv) installing a landfill gas management system. Should odors from the operation of the DRPI Landfill become a problem offsite, DRPI will commence an investigation to locate the source of the odors (working face, trucks, etc.) and initiate reasonable actions to eliminate or mitigate the problem. Potential actions to mitigate odors include: (i) installing final cover over areas that have been filled to final grade; or (ii) installing additional extraction wells that are tied into the landfill gas management system.

## **6.9 Noise**

The DRPI Landfill has had no significant problems with noise complaints during operation. The site proximity to Interstate 495 and other heavy industrial land users render noise complaints at the DRPI Landfill unlikely. Muffler systems are maintained on heavy equipment to reduce equipment noise and the potential nuisance. Should noise problems occur, DRPI will identify the source of the increased noise levels and develop methods to decrease or eliminate the off-site noise impacts. Potential methods to decrease noise impacts include: (i) using alternate equipment; (ii) installing more efficient muffler systems; or (iii) limiting use of offensive equipment at certain times.

## **6.10 Equipment Breakdown**

In the event of equipment breakdown at the DRPI Landfill, one or more of the existing pieces of equipment available at the site will be utilized to continue the daily landfilling operations. As shown in the equipment list provided in Section 3.1.1 of the O&M Plan, sufficient additional equipment exists on site to allow DRPI Landfill to continue operations in the event that isolated equipment breakdown occurs. If the broken equipment cannot be repaired or temporarily substituted with any of the available on-site equipment, replacement equipment is available from local rental companies on an as-needed basis. Equipment repairs will be made in the on-site maintenance facility or, in the case of major repairs, through the equipment manufacturer or licensed service representative. If equipment breakdown threatens to prevent continued landfilling operations, then additional equipment will be rented.

Rental equipment is available from the local Caterpillar Dealer, Foley Cat at (302) 328-4131.

### **6.11 Unusual Traffic Conditions**

Traffic volume and type is expected to remain relatively consistent with the traffic volume in the past at DRPI Landfill. If there is an interruption of traffic flow, or traffic obstruction caused by interruption of landfill operations, then landfill personnel are available to direct traffic on site. The most likely causes of unusual traffic conditions are inclement weather or severe congestion of Interstate 495 and U.S. Route 13. Operating procedures during inclement weather are discussed in Section 3.12 of the O&M Plan.

### **6.12 Control of Vectors**

Should an infestation of any vector become evident at DRPI Landfill, the Facility Manager will initiate a control program after the program has been reviewed and approved by DNREC.

### **6.13 Receipt of Unauthorized Waste**

DRPI Landfill will operate in a manner consistent with DRPI's current operations at the site. Authorized waste will include industrial wastes as identified in Section 2.4 of the O&M Plan. Unauthorized waste of any kind, for example municipal solid waste or hazardous waste, will be refused at the entrance. Should unauthorized waste not be detected until it arrives at the working face of the landfill, DRPI will require the hauler to remove it immediately (as described in Section 3.6 of the O&M Plan).

DNREC shall be notified regarding all activities connected with the receipt of unauthorized waste in accordance with Condition VII.D of Solid Waste Permit SW-15/02. Unauthorized waste will also be recorded on the appropriate forms and filed at the landfill office and with DNREC.

## **6.14 Release of Hazardous or Toxic Material**

### **6.14.1 Introduction**

Materials present onsite, in quantities large enough to cause potential harm to human health or the environment, are leachate, landfill gases, and fuel oils. Spills or leakage of other material, such as machine fluids stored in the maintenance building, will be managed in the same way as spills of oil or leachate; however, due to the small quantities of these materials stored on site, spills of these materials will pose only a very small risk to health and these events would be much less severe and more easily controlled. Contingency measures for landfill gases were described in Section 6.5. The remainder of this section addresses releases of leachate or fuel oils.

The areas for which the possibility of spills or leaks is the greatest are:

- the leachate transmission system;
- the leachate storage area; and
- the fuel storage area.

### **6.14.2 Leachate Transmission System**

The leachate transmission system for the DRPI Landfill will consist of a series of transmission lines and manholes that are designed to convey leachate from the landfill cells to on-site storage tanks and ultimately the New Castle County sewer system. The features of the system are described in Section 3.8 of the O&M Plan.

The flow of leachate will enter the leachate transmission system through pumps installed in the leachate collection sumps in each lined landfill cell. Each pump moves leachate into a double-walled forcemain until it is finally discharged into on-site leachate storage tanks. Pumps will be turned on and off automatically by float control switches that will monitor the level of liquid in the sump. Typical controls will include low level alarm, pump off, pump on, standby pump on, and high level alarm. Flow from the individual leachate sumps will be metered.

All leachate transmission piping will be double-walled HDPE. The outside HDPE pipe is “witness” pipe, which functions to allow detection and collection of any leakage from

the inner or “carrier” pipe. All witness pipes flow by gravity back to monitoring points. Should a leak be detected, inspection will be performed to identify the source of the leak. On-site stand-by pumps will be used to pump the leachate to a down-stream portion of the transmission system that is not experiencing leakage. Based on the amount of leakage and its potential to cause environmental contamination, an assessment will be to identify the source of the leaking leachate. In all cases, once identified, the leak will be repaired.

### **6.14.3 Leachate Storage Area**

Leachate is stored within covered steel storage tanks at the DRPI Landfill. The tanks are constructed with a containment structure that provides spill storage for a volume of equal to 110 percent of the volume of the leachate storage.

Should a leak occur from a leachate storage tank, spill management and cleanup will proceed as soon as possible after detection of the spill. All applicable safety measures will be observed during implementation of spill cleanup procedures.

### **6.14.4 Fuel Storage Areas**

Fuel and oil are stored at the facility in a storage area near the existing maintenance building at the DRPI Landfill. Containment is provided for a volume of equal to 110 percent of the volume of the fuel and oil storage tanks.

In addition to the preventive measures described above, various types of spill control equipment are kept on site to mitigate any impacts potential leaks or spills. These materials are listed in Attachment 1 and include absorbent materials, portable containment devices, and pumps. Spill management and cleanup will proceed as soon as possible after detection of the spill. All applicable safety measures will be observed during implementation of spill cleanup procedures.

## **6.15 Groundwater and Stormwater Impacts**

### **6.15.1 Groundwater Impacts**

A groundwater monitoring system will be in place to monitor the groundwater around the DRPI Landfill area for the presence of contamination from the landfill. This groundwater

monitoring system is described in Section 3.15 (i.e., Site Monitoring) of the O&M Plan. The groundwater monitoring system has been developed to meet the requirements of DRGSW §6.7. The specific contingency measures to be taken at the DRPI Landfill in the event of groundwater impacts will very much depend on the nature and extent of the impacts. Potential actions may include:

- installation of additional groundwater monitoring wells;
- increased frequency of groundwater quality testing;
- increased pumping of the leachate collection systems to reduce head within the landfill;
- placement of final cover over the landfill to minimize leachate generation;
- installation of groundwater extraction wells to remove contaminated groundwater for treatment; and
- installation of subsurface barriers, such as bentonite slurry cutoff walls, to lateral groundwater migration.

It should be noted that the potential for significant leachate constituent migration from the landfill is extremely small, due to the engineering design requirements of DRGSW. In the unlikely event that groundwater impact is identified, DRPI will undertake a detailed remedial assessment of the impact. This assessment will be performed within six months of the first detection of the impact. The results of the assessment, which will include a plan for addressing the impacts, will be submitted to DNREC. Given the hydrogeologic characteristics of the DRPI Landfill and the financial resources of DRPI (and its parent corporation), remedial actions at the site should be both technically and financially feasible.

### **6.15.2 Stormwater Impacts**

The features of the stormwater management system of DRPI Landfill are described in Section 3.11 of the O&M Plan. Surface water bodies that may potentially be impacted include on-site wetlands that are hydraulically connected to the Delaware and Christina Rivers, although it is unlikely that these rivers will be impacted due to the layout of the landfill, use of intermediate and final cover, and transmission of leachate using double-walled pipes in the leachate transmission system. Nonetheless, stormwater discharge will be monitored at select discharge points. Depending on the results of stormwater

monitoring, the water would be either: (i) discharged to a receiving natural watercourse; or (ii) the source of impact will be investigated and a plan developed and implemented to mitigate the source.

#### **6.16 Capacity of Leachate Transmission System Exceeded**

The most likely causes of an exceedance of the leachate management system capacity is either: (i) an extended interruption of the operation of the system due to an equipment malfunction, resulting in a large volume of leachate requiring pumping; or (ii) poor operating practices causing excessive leachate generation until it exceeds the capacity of the leachate management system.

In the case of an extended system shut-down requiring large volumes of leachate to be pumped in a short period, temporary pumps and tanker trucks will be operated where needed in order to bring additional capacity to the system. These temporary pumps may discharge either into a tanker truck or through above-ground temporary piping in order to discharge leachate into the leachate storage tanks.

Should exceedance of the leachate management system capacity occur due to poor operating practices, it will likely be preceded by a gradual rise in leachate generation until it reaches the capacity of the system. Therefore, DRPI management will have time to react to operational problems and reduce the cause of excessive leachate generation. Typical operational improvements would include reducing the size of the daily working face of the landfill, ensuring that intermediate cover is consistent over the landfill, regrading intermediate cover to better promote stormwater runoff, and/or speeding the construction of final cover over filled portions of the landfill.

#### **6.17 Inability to Dispose Leachate into Sewer System**

In the highly unlikely case that the New Castle County wastewater treatment plant is temporarily unable to accept leachate from the DRPI Landfill, emergency temporary storage would be constructed. Advanced warning of closure of the treatment plant would be communicated through the wastewater treatment plant operator. After the County's wastewater treatment plant is shut down, leachate removal pumps at the DRPI Landfill would be shut off until temporary leachate storage was available. Following preparation

and submittal of emergency temporary leachate storage plans to DNREC, construction of the temporary storage units would be completed and the leachate collection system reactivated. These storage units would typically provide emergency leachate storage for up to 30 days. Given that New Castle County's ability to treat wastewater is a vital public health utility, closure of the plant for longer than 30 days is highly unlikely.

# TABLES

**TABLE V-A-1**

**EMERGENCY CONTACT LIST**

**Contingency Plan  
Delaware Recyclable Products, Inc.  
Vertical Expansion**

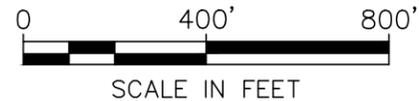
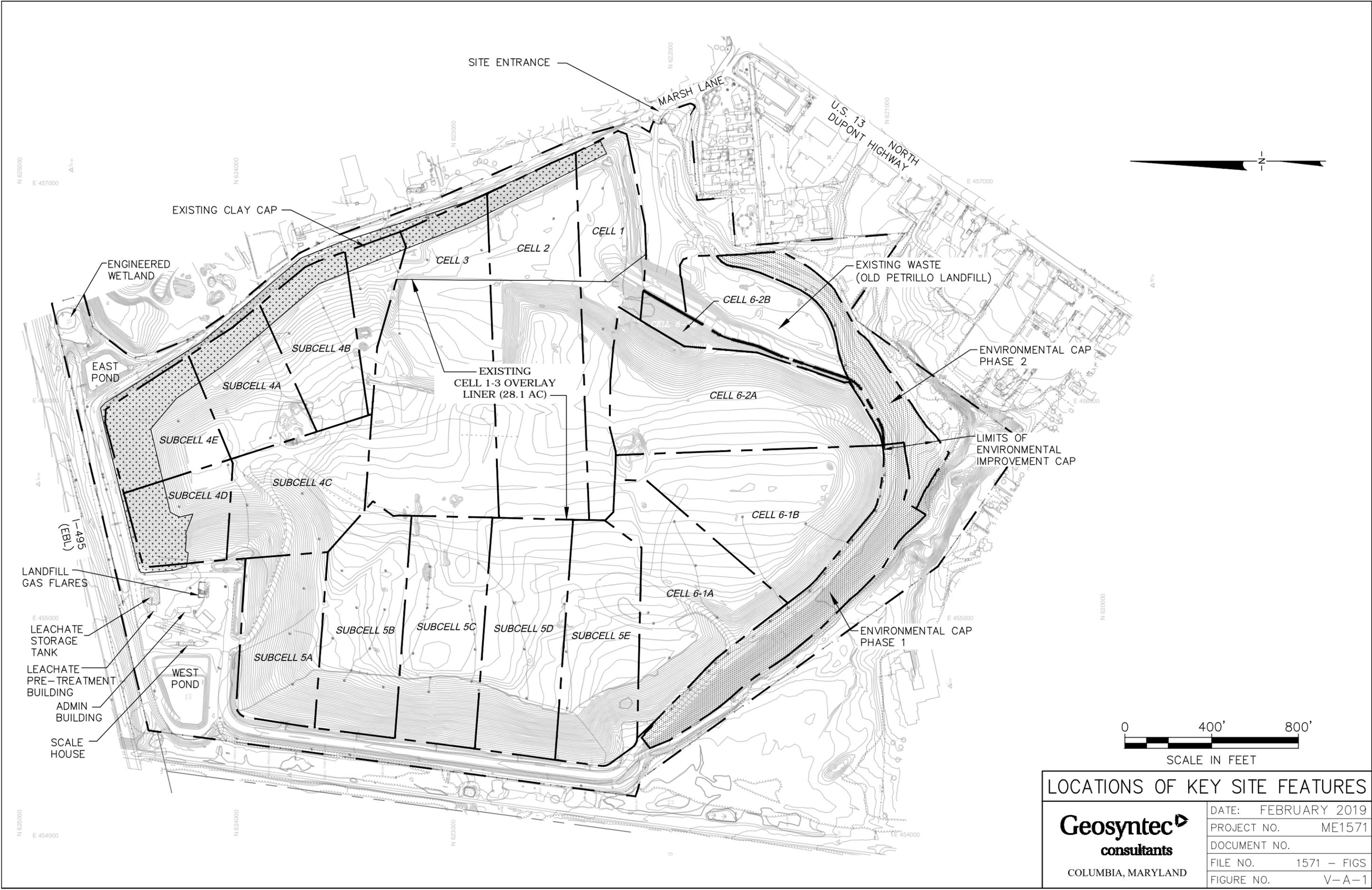
<b>CONTACT</b>	<b>CONTACT INFORMATION</b>
Richard Klonowski, Facility Manager	302-468-8178 (office) 302-476-5530 (cell)
Robert Ball, Maintenance Manager	302-655-1360 (office) 302-420-0259 (cell)
Jarod Freese, EP Manager	215-428-4391 (office) 215-783-2216 (cell)

**TABLE V-A-2**  
**DETAILED LIST OF**  
**SAFETY AND EMERGENCY EQUIPMENT**

**Contingency Plan**  
**Delaware Recyclable Products, Inc.**  
**Vertical Expansion**

<b>SAFETY EQUIPMENT</b>	<b>EQUIPMENT STORAGE LOCATION</b>	<b>INTENDED USE</b>
Hard Hats	Administration Building	To protect head from falling or thrown objects
Disposable Gloves and Shoe Covers	Maintenance Building	To protect hands and clothing from mud or leachate
Pumps (Submersible)	Maintenance Building	To pump leachate from perimeter wet wells
Spill Containment Materials	Maintenance Building	To contain spills in truck loading area or in maintenance building
Absorbent Materials	Maintenance Building	To absorb spilled fuel or fuel oils
First-Aid Supplies	Administration Building	To treat small cuts, burns, scrapes, etc.
Gas Monitoring Equipment	Maintenance Building	To monitor against excessive gas vapor buildup on site

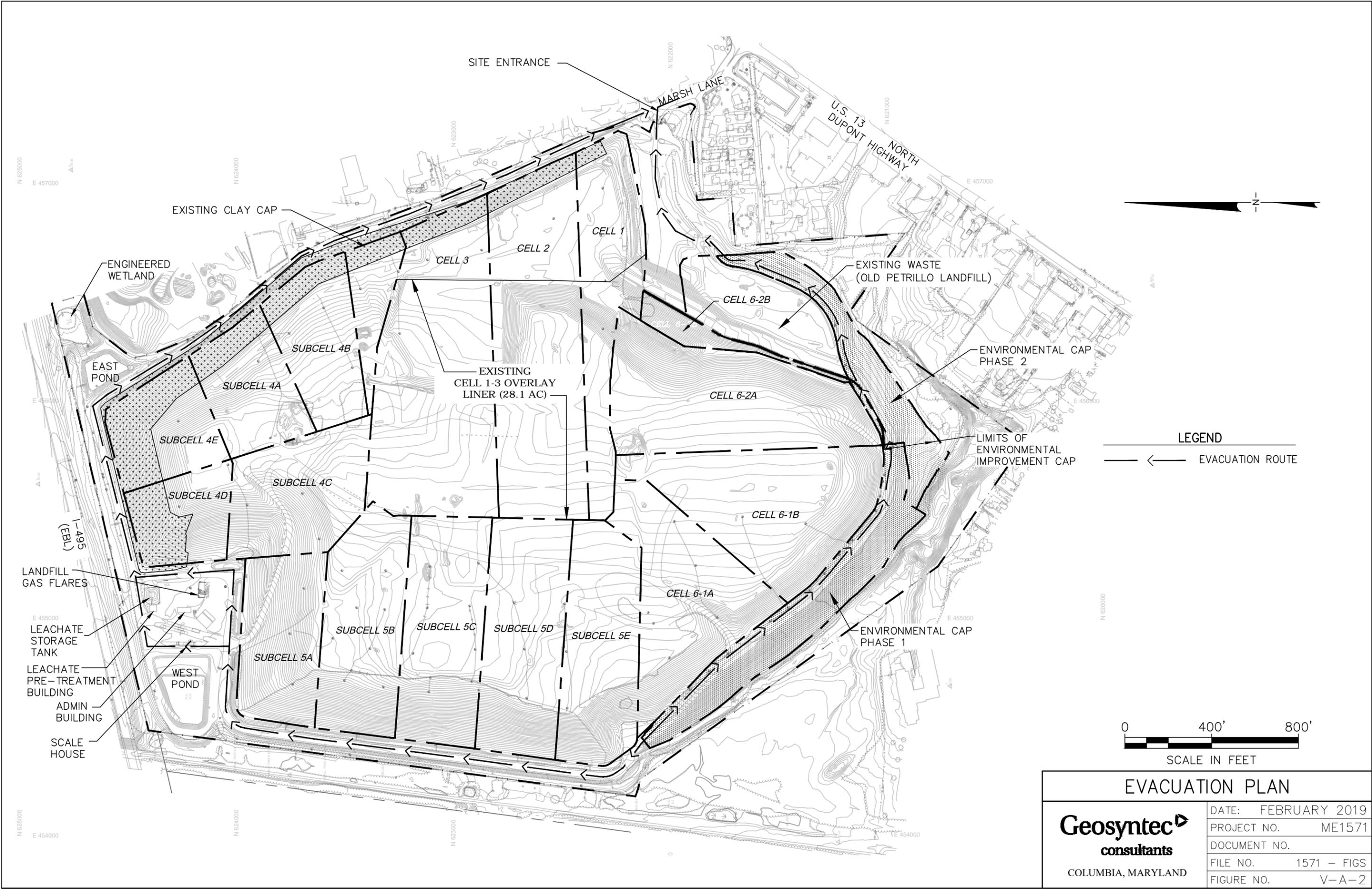
# FIGURES



**LOCATIONS OF KEY SITE FEATURES**

**Geosyntec**  
consultants  
COLUMBIA, MARYLAND

DATE:	FEBRUARY 2019
PROJECT NO.	ME1571
DOCUMENT NO.	
FILE NO.	1571 - FIGS
FIGURE NO.	V-A-1



**LEGEND**  
 ———— ← ———— EVACUATION ROUTE

0 400' 800'  
 SCALE IN FEET

<b>EVACUATION PLAN</b>	
<b>Geosyntec</b> consultants COLUMBIA, MARYLAND	DATE: FEBRUARY 2019
	PROJECT NO. ME1571
	DOCUMENT NO.
	FILE NO. 1571 - FIGS
	FIGURE NO. V-A-2

Delaware Recyclable Products, Inc.  
Industrial Waste Landfill  
Permit Modification Application

Geosyntec Consultants  
PART V: OPERATION AND MAINTENANCE PLAN  
Vertical Expansion

## APPENDIX V-B

# SAMPLE RECORD KEEPING FORMS

**FORM A  
INCOMING VEHICLE INSPECTION REPORT  
Delaware Recyclable Products, Inc.  
New Castle, Delaware**

Waste Hauler: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Vehicle No(s): \_\_\_\_\_ ID No(s): \_\_\_\_\_ License No(s) (Indicate state): \_\_\_\_\_

Manifest Available: Yes No (Circle answer) Attach copy if "Yes".

- A. Waste Description:             Acceptable Waste (Do Not Complete Parts B, C, or D)  
     Non-Acceptable Waste (Complete Parts B, C, and D)

Primary Composition Based on Appearance:             Demolition Debris             Vegetation  
     Rubble      Paper or Plastic

- B. Non-Acceptable Waste:             Municipal Solid Waste             Large Container (describe)  
     Chemicals (describe)             Liquid (describe)  
     Hospital/Infectious             Dangerous or Hazardous Materials  
     Septage (complete Part C below)  
     Other (provide description, document with photos if appropriate)

- C. Dangerous, Hazardous, or Potentially Dangerous Materials  
**(DO NOT MOVE ANY SUSPECT WASTES! CALL LANDFILL FACILITY MANAGER IMMEDIATELY!)**

Complete all items below.

Material Generators(s), if identifiable

\_\_\_\_\_  Identifying Marks (specify) \_\_\_\_\_

Number/Quantity of Items \_\_\_\_\_  Description of Materials (Document with photos if appropriate) \_\_\_\_\_

Notify Landfill Manager Immediately

Landfill Manager Submit Report to DNREC

- D. Disposition of Non-Acceptable Waste (Removal Date: \_\_\_\_\_)

Returned to vehicle: \_\_\_\_\_

Authorities removed materials \_\_\_\_\_

Agency and Person Notified/Telephone No.: \_\_\_\_\_

Isolated and monitored for removal by hauler: \_\_\_\_\_

Other (describe) \_\_\_\_\_

Complete Form D (Notice of Infraction) \_\_\_\_\_

E. Inspector:            Name: \_\_\_\_\_ Date: \_\_\_\_\_

                                 Signature: \_\_\_\_\_

Driver:            Name: \_\_\_\_\_ Date: \_\_\_\_\_

                                 Signature: \_\_\_\_\_

Other Personnel: \_\_\_\_\_

**FORM B  
NOTICE OF INFRACTION  
Delaware Recyclable Products, Inc.  
New Castle, Delaware**

DATE: \_\_\_\_\_

TO: \_\_\_\_\_  
Waste Hauler  
\_\_\_\_\_  
\_\_\_\_\_

FROM: Delaware Recyclable Products, Inc.

SUBJECT: NOTICE OF INFRACTION

The following vehicle(s) has/have been found to be in violation of the Delaware Regulations Governing Solid Waste as summarized below and detailed in the attached Waste Screening Report:

Vehicle Identification No: \_\_\_\_\_ Driver: \_\_\_\_\_

Date of Infraction: \_\_\_\_\_ Time: \_\_\_\_\_

Nature of Infraction:

- Attempted to deliver Unacceptable Waste
- Infraction of Facility Rules and Regulations (per details below)
- Other (summarize): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Generator Name: (If Known) \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Record of Infraction:

- First Infraction (Date: \_\_\_\_\_)
- Second Infraction (Date: \_\_\_\_\_)
- Third Infraction (Date: \_\_\_\_\_)

Penalty:

- Rejection of load
- Unacceptable waste reloaded
- Rerouted (Specify)
- Disposition of Unacceptable Waste (Describe): \_\_\_\_\_  
\_\_\_\_\_

Signed \_\_\_\_\_

Title: \_\_\_\_\_

Copy to: DNREC, per DRGSW §5.I.2.I.(a)(4), if hazardous waste is received at the facility.

**FORM C**  
**LEACHATE SPILL/DISCHARGE INCIDENT REPORT**  
**Delaware Recyclable Products, Inc.**  
**New Castle, Delaware**

Date and Time of Spill/Discharge: \_\_\_\_\_

Substance(s) Spilled/Discharged: \_\_\_\_\_

Quantity Spilled/Discharged: \_\_\_\_\_

Duration of Spill/Discharge: \_\_\_\_\_

Duration of Clean-Up: \_\_\_\_\_

Brief Description of Spill/Discharge: \_\_\_\_\_

Clean-Up Action: \_\_\_\_\_

Equipment Damage: \_\_\_\_\_

Injuries: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Recommendations to Prevent Recurrence \_\_\_\_\_

\_\_\_\_\_

Report Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

Landfill Manager: \_\_\_\_\_ Date: \_\_\_\_\_

**FORM D**  
**LEACHATE DAILY FACILITY INSPECTION LOG**  
 Delaware Recyclable Products, Inc.  
 New Castle, Delaware

Date: \_\_\_\_\_

Collected by: \_\_\_\_\_

<b>LIQUID LEVELS CELLS 1, 2, 3</b>					
<b>Location</b>	<b>Compliance Elevation (inches)</b>	<b>Head Level Readings (inches)</b>	<b>Beginning Gallons</b>	<b>Ending Gallons</b>	<b>Volume Pumped</b>
Cell 3 -4 Collection Trench	_____	_____	_____	_____	_____
Cell 1, 2, 3 – 5 Collection Trench	_____	_____	_____	_____	_____

<b>LIQUID LEVEL CELL 4</b>					
Subcell 4A Leachate Subcell 4A Underdrain	_____	_____	_____	_____	_____
Subcell 4B North Leachate Subcell 4B South Leachate	_____	_____	_____	_____	_____
Subcell 4C Leachate Subcell 4C Underdrain	_____	_____	_____	_____	_____
Subcell 4D Leachate	_____	_____	_____	_____	_____
Subcell 4E Leachate	_____	_____	_____	_____	_____

<b>LIQUID LEVEL CELL 5</b>					
Subcell 5A Leachate Subcell 5A Underdrain	_____	_____	_____	_____	_____
Subcell 5B Leachate	_____	_____	_____	_____	_____
Subcell 5C Leachate	_____	_____	_____	_____	_____
Subcell 5D Leachate Subcell 5D Underdrain	_____	_____	_____	_____	_____
Subcell 5E Leachate	_____	_____	_____	_____	_____

<b>LIQUID LEVELS CELL 6</b>					
Cell 6 Leachate	_____	_____	_____	_____	_____

Pump House Meters		(Readings taken next day)	Date: _____
Flow Meter	Gal. Per Min.	_____	_____
	PH	_____	Total Pumped _____

Deficiencies (additional pages may be attached if needed): \_\_\_\_\_



**FORM F**  
**WEEKLY OPERATIONS INSPECTION REPORT**  
**Delaware Recyclable Products, Inc.**  
**New Castle, Delaware**

Date / Time: \_\_\_\_\_

<b>Time Since Last Rain:</b> (circle one)	> 24 Hours	< 24 Hours
<b>Quantity of Last Rain:</b> (circle one)	> 0.5 Inch	< 0.5 Inch
<b>Weather:</b>	Visibility: (circle one)	Clear      Cloudy      Overcast
	Wind (blowing from):	N      NE      E      SE      S      SW      W      NW or N/A
	Precipitation: (circle one)	N/A      Rain      Snow
	Temperature (°F):	_____

**Conditions** (circle response and provide comments below):

Perimeter Fencing Weekly	Good	Needs Repair	N/A
Landfill Cover	Good	Needs Repair	N/A
Benches / Downchutes	Good	Needs Repair	N/A
Perimeter Channels	Good	Needs Repair	N/A
Ponds (sediment load / outfalls)	Good	Needs Repair	N/A
E&S Controls (silt fence, seed, etc.)	Good	Needs Repair	N/A
Stock Pile Areas / Cell Rain Tarps	Good	Needs Repair	N/A
Maintenance / Fuel Area	Good	Needs Repair	N/A
Leachate / Underdrain Sumps & FM	Good	Needs Repair	N/A
Litter/ Dust / Odor Control	Good	Needs Repair	N/A
Leachate Outbreaks	Good	Needs Repair	N/A

Comments: \_\_\_\_\_  
 \_\_\_\_\_

<b>Pond Outfall Discharge Observations</b> (see Note 1 below):			
Storm Water Odor: (circle one)	None	Odor Present	
Storm Water Clarity: (circle one or more)	Clear	Cloudy	Foam      Sheen
	Solids – Suspended / Settled / Floating		
Comments: _____ _____			

**Printed Name and Title:** \_\_\_\_\_

**Inspector's Signature:** \_\_\_\_\_

Notes:

1. Pond discharge water must be observed visually once per quarter within the first 30 minutes of any storm producing runoff at both Outfalls 001 and 002 (Sec 9.1.01.4.C.1).
2. Storm water samples must be taken in April and October within 30 minutes of the start of a 0.1" storm at both Outfalls 001 and 002.

## APPENDIX V-C

# TIPPER OPERATING INSTRUCTIONS AND SITE SAFETY POLICY FOR TIPPER OPERATIONS

## OPERATING SAFETY INSTRUCTIONS FOR TIPPER

### IMPORTANT:

TIPPER SHOULD BE CHECKED FOR LEVEL PERIODICALLY THROUGHOUT THE DAILY OPERATING PERIOD.

### NOTE!

WHEN LEVELING THE TIPPER, MAKE SURE THAT EACH MAIN TIPPER CYLINDER IS PLUMB, IN THE DOWN POSITION AND PARALLEL TO THE OTHER. ALIGNING OF THE CYLINDERS IS VERY IMPORTANT. FAILURE TO ALIGN CYLINDERS WILL RESULT IN SIDE-LOADING, BOWING OF THE CYLINDER, PACKING CHATTER AND WEAR, SCARRING OF THE TUBES AND BINDING. AT NO TIME SHOULD THE CYLINDERS BE CONSIDERED A STRUCTURE MEMBER.

THEY HAVE ONE FUNCTION: TO RAISE OR LOWER THE TIPPER

CYLINDERS MUST BE PLUMB, PARALLEL AND ½" TO 1-1/4" SHORT OF FULLY CLOSED IN THE DOWN POSITION.

**CAUTION! DO NOT OPERATE TIPPER IN WIDS EXCEEDING 45 MPH!**

1. All operators **must** be instructed in the proper use of this Tipper and **must** read these operating instructions.
2. The operator should be totally in charge of the tipping operation, preferably working by himself.
3. The operator should periodically check to make certain that the Tipper is level.
4. Tipper must be level from side to side; both at the front and at the rear.
5. All outrigger cylinders must contact their respective pads and the base under the pads must be capable of withstanding the necessary loading.
6. Before raising Tipper, be sure deck is cleared of all equipment and personnel.
7. Before raising the Tipper, be sure no one is behind the rear wall.
8. Never allow anyone to ride the Tipper through its up and down cycle.
9. Never raise the Tipper and trailer without the safety hoop securely in place.
10. The operator must see that the safety chains at the front of the deck are securely attached to the trailer. The operator has a very important responsibility to see that these chains are secured in position and that all the bindings are in good shape and not worn.

11. The operator should check and see that the truck to be unloaded is aligned properly on the platform, with the rear of the truck backed squarely against the backstop. This is particularly critical in the higher angles of 45° or over, where it could create a shifting of the trailer body to align itself while in the raised position.

**WARNING!**

**WHILE RAISING OR LOWERING THE TIPPER "DO NOT ATTEMPT" TO "BOUNCE" THE TIPPER TO DISLODGE THE LOAD FROM THE TRAILER; THIS CREATES TREMENDOUS STRESSSES ON THE TIPPER AND CYLINDERS AND COULD LEAD TO A CATASTROPHIC FAILURE WITH POTENTIAL INJURIES OR DEATH TO PERSONNEL AND DAMAGE TO OTHER SURROUNDING EQUIPMENT.**

12. The operator should work with the truck driver to see that they do not bang into the backstop, which creates unnecessary stress on the stop. Make certain the trailer is completely against the backstop.
13. The operator should always check and make sure that the driver has left the cab of the truck and is well clear of the Tipper and the unloading area.

"Well clear" means that in the event of an accident, no one would be in danger.

14. When operating the Tipper, the operator should try to raise the Tipper at an even speed where he unloads at an even rate without continually raising and lowering the Tipper to stop the flow. This puts additional stress on the equipment.
15. Do not jog or bounce the Tipper at any time.

**WARNING!**

**WHILE RAISING OR LOWERING THE TIPPER "DO NOT ATTEMPT" TO "BOUNCE" THE TIPPER TO DISLODGE THE LOAD FROM THE TRAILER; THIS CREATES TREMENDOUS STRESSSES ON THE TIPPER AND CYLINDERS AND COULD LEAD TO A CATASTROPHIC FAILURE WITH POTENTIAL INJURIES OR DEATH TO PERSONNEL AND DAMAGE TO OTHER SURROUNDING EQUIPMENT.**

16. Do not allow anyone to cross under or work under the Tipper and subframe without the equipment being safely supported.
17. Never attempt to raise the Tipper and trailer with the wind blowing in excess of 45 MPH!
18. Never exceed the rated capacity of the Tipper. Serious structural damage and/or serious injury could occur.
19. It is important to maintain good housekeeping on, around and under the Tipper. An accumulation of debris will obstruct the freedom of operation of the Tipper deck and related components, causing serious structural damage.

- 
20. Excess accumulation on the deck can raise the trailer enough to allow the trailer bumper to jump the Tipper backstop.
  21. All walkways and platforms must be kept clean at all times.
  22. Only engage or disengage the clutch when engine is at idle or stopped.
  23. It may be necessary to relevel the Tipper several times throughout the day until it has settled into the ground. This will depend on the ground you have placed the Tipper over.



## DRPI Landfill Safety Policy for Tipper Operation

### Purpose

To eliminate or minimize hazards associated with tipper operations at Waste Management Landfills.

### Scope

This Policy applies to the operation of any tipper at the DRPI Landfill.

### Requirements

All personnel operating a tipper must fully comply with this Tipper Operating Policy, Manufacturers Operating Instructions/Procedures, Facility Safety Rules, Facility Policies and Procedures, and applicable Federal, State and local laws and regulations.

### Hazard Assessment

- The hazard assessments that follow are general and a basis for establishing a *minimum* acceptable standard of PPE (personal protective equipment) to be worn during the normal work routine. PPE is not intended to replace engineering controls or safe work practices.
- Safety equipment must meet the following or equivalent standards:

Safety boots	ANSI Z41.1-1991
Apparel	ANSI Class II standard 107-199
Safety glasses	with side shields ANSI Z87.1-1989
Gloves	Leather, cut resistant, waterproof and chemical resistant where necessary
Hard hat	ANSI Class II standard 107-199
Hearing protection	NOISE REDUCTION RATING 29 (see hearing conservation plan if applicable)
High Visibility Outerwear	ANSI II Reflective vest or T-Shirt

## Hazard Assessment Review

1. Job, function, activity, or situation: *Tipper Operator*
2. Location of above: *Working face*
3. Apparent hazards:

<i>Hazard type</i>	<i>Description</i>	<i>PPE required</i>
Impact	Falling or blowing debris	Work boots Hard hat Safety Glasses
Penetration	Falling or blowing debris Broken glass Metal, Nails	Work boots with puncture resistant soles Hard hat Safety Glasses Gloves
Heat		
Harmful dust	NA	
Light (optical) radiation	NA	
Noise levels	Areas where noise levels are 85db or	Hearing Protection
Respiratory	NA	
Visibility	Backing / staging trucks, visibility to others	High visibility clothing / vest
Liquid	Possible Spray from liquids from trash	Safety Glasses, Uniform

4. PPE (Personal Protective Equipment) provided for this function: See table below

<i>PPE</i>	<i>Worn when</i>
<b>Safety Boots</b>	At all times
<b>Hard hat</b>	At all times
<b>Safety Glasses</b>	At all times
<b>Gloves</b>	Doing manual labor
<b>High visibility clothing / vest</b>	At all times

## Safe Operating Procedures

- Operators **MUST** receive documented training/instruction in the proper operation of the specific tipper and wind speed gauge and **MUST** know all operating instructions as identified in the current manufacturers operating manual.
- Only qualified operator may operate the tipper.
- All tippers are required to have a wind speed gauge mounted in direct view of the tipper operator. Tippers shall not be operated under any circumstances when the wind speed gauge measures wind speeds in excess of **45 M.P.H.**
- This Policy and all other operating instructions must be readily available in the operator's booth.
- Operators must ensure the deck is cleared of all equipment and personnel before operating.
- Operators shall not allow anyone to ride on the tipper deck through the up and/or down cycle.
- Operator shall maintain good housekeeping on, around and under the tipper. Excess accumulation on the deck can raise the trailer enough to allow for the trailer bumper to "jump" the tipper backstop.
- Operator shall ensure that the trailer is properly equipped for use on the tipper. Improperly equipped trailers shall not be permitted on the deck.
- Operator shall ensure that the rear trailer door must be unlatched (secure door to trailer if side hinged).
- Operator shall use caution when raising and lowering the deck. Be aware for personnel and equipment in the immediate area. Tipper operators must be certain that the area behind the tipper is clear, and there is no possibility of the load dumping onto or in close proximity of equipment working in the area.
- Once the down button has been pressed and the deck starts its downward motion, it must be lowered completely without stopping except in the event of an emergency. "Jerking" the tipper is not permitted.
- Drivers using the tipper may not back toward, onto, or pull off of the tipper until directed by the tipper operator. Driver must maintain visual contact with the tipper operator at all times. If visual contact with the tipper operator is broken, the driver must immediately stop until visual contact is reestablished.
- The tipper operator shall ensure all warning decals are in place, visible and legible.

- Movement and placement of the tipper is the responsibility of the tipper owner/operator. Waste Management will assist in the movement and placement only under direct supervision of the tipper owner/operator.
- Each individual tipper shall have its own designated operator supplied by the tipper owner.
- To ensure that safe operations are followed, the tipper operator **MUST** be able to verbally communicate with both the driver and equipment operator.
- At the request of the landfill, Tipper Owner will provide personnel (Traffic Control) to assist in the staging of its vehicles and in the safe operation of its designated work area. The above personnel **MUST** be able to verbally communicate with the driver, equipment operator, and other landfill personnel.

### **Maintenance Procedures**

- The tipper owner shall comply with the manufacturers recommended maintenance schedule(s) and maintain any and all certifications to ensure compliance.
- All maintenance activities shall be performed by a competent maintenance person who is designated by the tipper owner.
- All maintenance activities shall be performed in accordance with all Federal, State, Local and applicable WM Site specific laws, regulations, policies and procedures.