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**Technical Support Document  
Title V Permit  
Durham Regional Landfill, LLC  
Permit# V20679.000**

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## 1. BACKGROUND

### 1.1 Applicant

The application has been submitted by Durham Regional Landfill, LLC, 3755 South Royal Palm Road, Apache Junction, Arizona, 85119. Durham Regional Landfill is an Arizona Limited Liability Company.

Durham Regional Landfill is located at 22316 South Harmon Road, Florence, Arizona on Pinal County Assessor parcel number 400-28-0010. The site is located in Section 35 of Township 8 South, Range 10 East, of the Gila and Salt River Baseline Meridian, Pinal County, Arizona.

This analysis reflects consideration of at least the following:

- Permit application received on 9/8/15, signed by Bart Powell, CEO.

### 1.2 Attainment Classification

The landfill is located in an area designated as non-attainment for PM10.

### 1.3 Permitting History

The facility is owned and operated by Durham Regional Landfill, LLC, an Arizona Limited Liability company.

- The initial permit, V20660.000 was issued on 10/16/14 for the construction and operation of the landfill.

### 1.4 Compliance/Enforcement History

This facility does not have any history of compliance problems or enforcement.

## 2. PROCESS DESCRIPTION

### 2.1 General Process

The Durham Regional Landfill is a regional municipal solid waste treatment and disposal facility. No regulated hazardous waste, infectious medical wastes or liquid waste are accepted for disposal. Incineration of wastes is not performed.

The landfill consists of approximately 500 acres of land of which 184 acres are currently permitted as landfill area. The estimated design capacity of the site is approximately 2.6 million megagrams or 28,569,100 tons.

Durham Regional Landfill accepts residential wastes, commercial wastes, construction debris, industrial special wastes and other acceptable non-hazardous wastes from the areas it serves. Wastes acceptable for landfilling include:

- o Municipal refuse (garbage, paper products), pesticide containers (clean, rinsed, and punctured), and other wastes from households or commercial facilities;
- o Vegetative (green) waste;
- o Construction debris (wood, concrete, dirt, rocks, and gypsum);
- o Demolition material;
- o White Goods: appliances that have been certified to be chlorinated fluorocarbon (CFC) free;
- o Dead animals;

- o Friable asbestos-containing materials, including Regulated Asbestos Containing Material (RACM);
- o Shredder residue;
- o Incinerator ash;
- o Non-infectious medical wastes;
- o Water and wastewater treatment sludges which pass the paint filter test;
- o Industrial waste; and,
- o Other non-hazardous special wastes (i.e. petroleum contaminated soils) as approved by the Arizona Department of Environmental Quality.

The facility will be designed and operated as a loose-fill landfill. There will be stockpiled soil and imported inert material used for daily, intermediate and final cover. New landfill cells constructed will be designed and constructed in accordance with the requirements of 40 CFR Part 258, and will have a synthetic liner and a leachate collection system.

During the landfill operations, waste is evenly spread in layers and compacted. A layer of soil or approved alternate material is then spread in a layer of at least 6 inches over the waste as daily cover in accordance with the requirements of 40 CFR Part 258.21. Intermediate cover will be added to any area that will be idle for more than 180 days. Approved daily cover materials include petroleum contaminated soil, auto shredder fluff, wood chips, tire chips, foam and tarps.

### 2.1 Process Changes

Permit Revision, V20660.R01, added the 40 CFR Part 61 Subpart M, National Emission Standards for Asbestos, requirements associated with accepting Regulated Asbestos Containing Material (RACM) as set forth in 40 CFR 61.54.

## 3. EMISSIONS

Since this is the initial permit for construction and operation of the landfill was issued on 10/16/14 actual emissions are not yet available. The following table summarizes the Potential to Emit (PTE) for the facility.

TABLE 1: UNCONTROLLED POTENTIAL TO EMIT (PTE) EMISSIONS

	VOC (tpy)	NMOC (tpy)	PM10 (tpy)	PM2.5 (tpy)	NOx (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	HAPs (tpy)
Landfill gas <sup>1</sup>	98.90	98.90	-	-	-	-	-	19.65
Leachate Evaporation	6.61E-6	-	-	-	-	-	-	7.58E-6
Haul Roads / Surface / Cover /Stockpiles <sup>2</sup>	-	-	35.94	4.35	-	-	-	-
Diesel Gen (MultiQuip Whisperwatt – 433 hp) <sup>3</sup>	4.8	-	4.2	4.2	58.8	12.7	3.9	0.05
Tipper (Columbia Corp – 140 hp) <sup>3</sup>	1.5	-	1.3	1.3	19.0	4.1	1.3	0.02

<sup>1</sup> These emissions were calculated using 2826 scfm of landfill gas expected to be generated in year 2126 which is one year after waste acceptance is expected to cease. The application assumed VOC emissions were equal to NMOC emissions. No single HAP was projected to emit over 5 tpy thru year 2126, Toluene is the largest single HAP at 4.51 tpy.

<sup>2</sup> Haul road, landfill surface, cover and stockpile uncontrolled PTEs were calculated from the V20660.000 application (fugitive emissions).

<sup>3</sup> Emissions from the generators and tippers were estimated assuming 24 hour/day operations, 365 days per year.

Tipper (Columbia Corp – 140 hp) <sup>3</sup>	1.5	-	1.3	1.3	19.0	4.1	1.3	0.02
<b>TOTAL</b>	106.6	98.9	42.7	11.2	96.8	20.9	6.5	19.7

### 3.1 Landfill Gas and Landfill Surface

Landfill gases are generated by the decomposition of solid waste. The duration of the decomposition can vary from a few years to over 100 years depending on the amount of oxygen present, refuse moisture, pH and temperature. Some of the decomposition by-products are: carbon dioxide, methane, water, organic acids, nitrogen and ammonia. Also some small quantities of air toxics will be emitted.

#### 3.1.1 NMOCs

The landfill gas generation rate was estimated using the EPA Landfill Gas Model (LANDGEM), Version 3.02. Emissions of landfill gas and organic compounds were estimated using region-specific  $k = 0.02$  and  $L_0 = 100$  cubic meters per Mg parameters, which are recommended in AP42, 5th ed., Section 2.4, Municipal Solid Waste Landfills, dated 11/98, for dry climates and estimated future disposal rates.

#### 3.1.2 HAPs

Default HAP concentrations in landfill gases were taken from the Waste Industry Air Coalition (WIAC) Report titled, Comparison of Recent Landfill Gas Analysis with Historic AP 42 Values.

#### 3.1.3 VOCs

The application assumed VOC emissions to be equal to the modeled NMOC emissions

#### 3.1.4 Leachate Evaporation

Emissions from leachate management activities are estimated using the assumption that during collection and management of the leachate all VOCs and volatile HAPs in the leachate will volatilize. Leachate generation is estimated to be 8,000 gallons per year. Leachate will be collected and disposed on the landfill as dust control.

VOC and volatile HAP emissions are estimated by multiplying the concentration by the total amounts of leachate generated and converting to tons or pounds. The concentration of leachate was taken from Environmental Research and Education Foundations' "Municipal Solid Waste Landfill Leachate Characterization Study" dated September 2007.

### 3.2 Haul Roads/Landfill Surface Dust Emissions (including stockpiles)

This section does not address emissions from the access road from Park Link Drive to the landfill as these sections of Pecan and Harmon Roads were paved prior to the landfill opening.

Dust is generated by the operation of vehicles on the landfill surface and is reported as PM10 and PM2.5. Dust emissions at this landfill will be controlled by:

- Watering and proper maintenance of haul roads, and/or application of chemical dust suppressant;

- Water spraying of soil cover areas when conditions exist that may result in the formation of fugitive dust;
- Applying water or planting temporary vegetation on intermediate soil cover, as needed.

### 3.2.1 Haul Roads

The initial permit application used AP-42 methodology for calculating emissions from traffic on the landfill surface. The following equation was utilized to calculate an emission factor in pounds per vehicle mile traveled (VMT). See application material for calculations

$$E = k(s/12)^a (W/3)^b \times (365-p)/365$$

(From Eqtn. 1a, AP42 13.2.2.2)

#### 3.2.1.1 Dust from construction vehicles on unpaved roadways within the landfill

$$E = \text{PM10 Emission factor in pounds per VMT} = 2.20$$

$$E = \text{PM 2.5 Emission factor in pound per VMT} = 0.22$$

It was estimated that 21 vehicle miles traveled (VMT) are accumulated per day, or 7665 VMT per year, by landfill construction equipment operations.

Uncontrolled construction vehicle emissions  
 PM10 = 8.43 tpy  
 PM2.5 = 0.84 tpy

#### 3.2.1.2 Dust from haul vehicles on unpaved roadways within the landfill

$$E = \text{PM10 Emission factor in pounds per VMT} = 1.4373$$

$$E = \text{PM 2.5 Emission factor in pound per VMT} = 0.1437$$

It was estimated that 97.5 vehicle miles traveled (VMT) are accumulated per day, or 35,588 VMT per year, by residential trucks, commercial trucks, roll-off/industrial trucks and pick-ups.

Uncontrolled construction vehicle emissions  
 PM10 = 25.57 tpy  
 PM2.5 = 2.56 tpy

### 3.2.2 Cover Operations

The initial application used AP-42 methodology for calculating emissions from cover soil excavation and loadout operations. The following equation was utilized to calculate an emission factor in pounds per ton of material. See application material for calculations

$$E = k(0.0032) [(U/5)^{1.3}]/(M/2)^{1.4}$$

(From Eqtn. 1, AP42 13.2.4.3)

$$E = \text{PM10 factor in pounds per ton of material} = 0.0001$$

$$E = \text{PM2.5 factor in pounds per ton of material} = 0.00001$$

It was estimated that 803,000 tons of soil cover will be used per year

Uncontrolled cover emissions  
 PM10 = 0.040 tpy  
 PM2.5 = 0.004 tpy

### 3.2.3 Stockpiling Operations

The initial application used an emission factor from FIRE (Factor Information and Retrieval System) (database SCC30501049 – Industrial Processes; Mineral Products; Coal Mining, Cleaning and Material Handling; Wind Erosion; Exposed Areas) for calculating emissions from stockpiling operations.

E = PM10 factor in pounds per acre = 380

E = PM2.5 factor in pounds per acre = 190

It was estimated that the stockpile area will be 10 acres

Uncontrolled cover emissions

PM10 = 1.9 tpy

PM2.5 = 0.95 tpy

### 3.3 Internal Combustion Sources

There are up to 3 stationary internal combustion engines (1 generator and 2 tippers) permitted for the site.

Two (2) Columbia Industries landfill tippers, 50 Ton, Model LFT-50/65T, powered by a John Deere, Model E404, 140 hp diesel engine.  
Manufactured 2014

One (1) MultiQuip Power Whisperwatt generator, Model DCA300SSCU4i, powered by Cummins, Model QSL9-G3, 433 hp diesel engine.  
Manufactured 2014

Emission factors from AP-42 Tables 3.3-1 through 3.3-3 and potential operations of 24 hrs/day and 365 days/yr were used in calculating emissions from the permitted stationary internal combustion engines.

### 3.4 Greenhouse Gases

Following a June 2014 U.S. Supreme Court decision related to Greenhouse Gas permitting USEPA has stated that it will not apply or enforce federal regulations or provisions in EPA-approved PSD or Title V programs that require a stationary source obtain a PSD or Title V permit solely because the source emits or has the potential to emit GHGs above the major source threshold. At this time additional steps have yet to occur in the U.S. courts to implement the Supreme Court decision and to identify particular parts of the regulations adopted in the Tailoring Rule and earlier EPA regulations that EPA must revise (remanding the regulations) or that are struck down (vacating the regulations). Consistent with the Supreme Court decision the District will not require any source to obtain a Title V or PSD permit based solely on GHG emissions.

Since this source is already subject to maintaining a Title V permit and given the continued uncertainty in how the various components of the Tailoring Rule will be effected by additional actions in the U.S. Courts this application will simply serve to quantify the GHG emissions for this facility in accordance with the Greenhouse Gas Tailoring Rule (75FR 17004). The facility may also be subject to the Mandatory Greenhouse Gas reporting rule (40 CFR 98). Since this reporting rule is currently not included in the definition of applicable requirement in 40 CFR 70.2 or 71.2 it will not be listed in the Title V operating permit.

TABLE 3: GHG EMISSIONS

<b>Emissions</b>	<b>CO2e (tpy)</b>
Non-Fugitive GHG	72,615
Fugitive GHG	24,205
Total GHG	96,820

#### **4. REGULATORY REQUIREMENTS AND MONITORING**

##### 4.1 Title V/PSD Review

In accordance with 40 CFR 60.752(b), any landfill with a design capacity over 2.5 million megagrams by mass or 2.5 million cubic meters by volume is subject to Part 70 permitting (Title V).

Potential emissions of any criteria pollutant are below PSD review thresholds.

##### 4.2 NSPS and NESHAP Requirements

This facility is subject to the requirements of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. This standard requires that a calculation of NMOC emissions be made annually. When the emissions equal or exceed 50 megagrams per year, a gas collection and control system is required to be installed. The applicant does not expect to reach that level of emissions during the term of this permit, and therefore a capture/control system has not been included in this permit.

This facility is subject to the requirements of 40 CFR Part 63 Subpart AAAA, National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills. This subpart requires landfills to meet the startup, shutdown, and malfunction (SSM) requirements and also includes additional reporting requirements. The SSM plan is effective upon the installation of collection and control system.

The 2007 model year or later Compression Ignition (CI) Internal Combustion Engines (ICE) are subject to NSPS, 40 CFR 60 Subpart IIII.

The Stationary Reciprocating Internal Combustion Engines (RICE) are subject to NESHAP, 40 CFR 63 Subpart ZZZZ.

At the request of the owner/operator Revision V20660.R01 incorporates the provisions of 40 CFR 61 Subpart M, National Emission Standards for Asbestos, associated with accepting Regulated Asbestos Containing Material (RACM).

##### 4.3 Other Regulatory Emissions Limitations

###### 4.3.1 Opacity and Reasonable Precautions

The facility must meet the federally enforceable 40% opacity limitation. For this purpose the permit also requires that reasonable precautions be taken, and it includes a list of the methods to employ.

While PCAQCD has a locally enforceable 20% opacity standard (§2-8-300), it does not apply to fugitive sources, sources which already have another opacity standard under PCAQCD rules, or have an applicable NSPS. Therefore, 20% does not apply to the fugitive emissions from the landfill surface or the generators.

In line with other permits issued by PCAQCD, a semi-annual opacity screening requirement has been added to the permit. If such opacity screening shows there are visible emissions, a full Method 9 test is required.

4.3.2 Soil Moisture Content

Since the soil moisture content used for emissions calculations is from AP-42 and not site specific, PCAQCD requires that a sampling program be conducted when the tipping rate exceeds 750 tons per day. The soil moisture content obtained will be used for determining the emissions under AP-42 Section 13.2.4-6.

**5. COMPLIANCE ASSURANCE MONITORING (CAM)**

The requirements of 40 CFR 64 do not apply to this facility, since this no single emission unit satisfies the criteria of §64.2(a)(3). No single unit has pre-control device emissions of 100 tpy or more.

**6. CONCLUSION AND PROPOSED ACTION**

Based on the information supplied by the applicant and analyses conducted by PCAQCD it is determined that the proposed revision will not cause or contribute to a violation of any federal ambient air quality standards. Therefore, PCAQCD intends to issue to the applicant a unitary permit, including both approval to construct/modify pursuant to CAA Title I, and authority to operate, pursuant to CAA Title V, subject to the conditions set forth in the accompanying draft permit.

**7. LIST OF ABBREVIATIONS**

AP-42	.....
“Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources”, 5 <sup>th</sup> Edition	.....
CAA	.....Clean Air Act
CAM	.....Compliance Assurance Monitoring
CFR	.....Code of Federal Regulations
CO	.....Carbon Monoxide
Eqtn	.....Equation
FIRE	.....Factor Information and Retrieval System
hp	.....horsepower
hr	.....Hour
lb	.....Pound
LLC	.....Limited Liability Company
MACT	.....Maximum Achievable Control Technology
Mg	.....Megagrams
MMBTU	.....Million British Thermal Units
NESHAP	.....National Emission Standard for Hazardous Air Pollutants
NOV	.....Notice of Violation
NOX	.....Nitrogen Oxides
NSPS	.....New Source Performance Standard
NSR	.....New Source Review
PCAQCD	.....Pinal County Air Quality Control District
PCS	.....Petroleum Contaminated Soils
PGCAQCD	.....Pinal-Gila Counties Air Quality Control District
PM10	.....Particulate Matter nominally less than 10 Micrometers
PM2.5	.....Particulate Matter less than 2.5 Micrometers



PSD ..... Prevention of Significant Deterioration  
RACM ..... Regulated Asbestos Containing Material  
SIC ..... Standard Industrial Code  
SOX ..... Sulfur Dioxide  
tpy ..... tons per year  
TSD ..... Technical Support Document  
VMT ..... Vehicle Miles Traveled  
VOC ..... Volatile Organic Compound  
yr ..... year