Yakima Regional Clean Air Agency

Mailing and Location Address: 186 Iron Horse Court, Suite 101
Yakima, WA 98901

Phone: (509) 834-2050 Fax: (509) 834-2050

AIR OPERATING PERMIT STATEMENT OF BASIS

Supplementary Information for Air Operating Permit No. y-004-03 (3rd renewal).

Permit Issued to: Yakima County Public Services- Solid Waste Division
7151 Roza Hill Drive
Yakima, WA. 98901

For the Facility located at: 7151 Roza Hill Drive
Yakima, WA 98901

Air Operating Permit No. y-004-03
Date Issued: August 10, 2022
Effective Date: August 11, 2022
Expiration Date: August 12, 2027
Application Renewal Due Date: August 12, 2026

TABLE OF CONTENTS

TABLES AND FIGURES:

1.0 Statement of Basis and Relevant Details

Pursuant to Title V of the Federal Clean Air Act (FCAA) as amended in 1990, the Yakima Regional Clean Air Agency, hereinafter known and abbreviated as YRCAA, sought and was granted delegation to implement the Title V Air Operating Permit program. Yakima County Public Services- Solid Waste Division owns and operates Terrace Heights Landfill, a municipal solid waste landfill facility located at 7151Roza Hill Drive Yakima, WA 98901. Terrace Heights Landfill, hereinafter referred to as the Permittee, THL, the Facility or the permitted Facility which has been determined by YRCAA as a major source in Yakima County. Thus, the Permittee shall obtain a Title V Air Operating Permit. The Permittee submitted an original Title V permit application to the YRCAA on March 8, 2000. The Permittee was issued a Title V permit which has since expired. The Permittee submitted a renewal application on July 16, 2007. The permit was deemed complete in April 2008. The original and the renewal applications by the Permittee provided the basic information for the development and issuance of the renewal Title V Air Operating Permit (AOP). The permit expires January 2, 2014. The Permittee submitted the second renewal May 13, 2013 and it was deemed complete August 26, 2013. After 5 years , hince this third renewal. The permit application and additional information provided are part of permanent public record in the office of the YRCAA at 186 Iron Horse Court, Suite 101 n Yakima, Washington. A copy of the original application, the draft permit and any additional information are available as reference material and upon request.

In addition, the Permittee requested to reopen / modify the permit due to change in the total design capacity of the landfill and other changes for cause on April 12, 2010. Since the renewal permit issuance, the design capacity of the landfill was increased from 6.5 to 7.17 million tons (6.5 million Megagrams (Mg) for phase one and two. The Yakima Health District approved the increase of the design capacity to dispose of waste in the “old phase I” area on December 7, 2009 based on documentation received from the Facility by YRCAA on February 12, 2010.

1.1 Definitions

The terms not otherwise defined in the Air Operating Permit (AOP) or the permit applications have the meaning assigned to them in the referenced regulations.

1.2 Authority

This permit, number y-004-03 issued by YRCAA, is authorized under the procedures established in the Washington Administrative Code (WAC) Chapter 173-401 Operating Permit Regulation, (effective 8/10/11). The provisions of this Title V AOP permit describes for the Permittee, the emission limitations, monitoring, recording and reporting requirements, and other conditions which will insure that all air emission requirements applicable to the permitted Facility are met.

1.3 Identical Applicable Requirements

Identical or nearly identical regulation requirements of the Washington Administrative Code (WAC) and the YRCAA Regulation 1 are cited together in the tables of Section 2.0 of the Title V Air Operating Permit. However, when regulations in the WAC and the YRCAA Regulation 1 with identical or nearly identical requirements are cited, the permitted Facility must comply with both requirements. As applicable, emission units are grouped together to indicate applicability of identical Monitoring, Recordkeeping, and Reporting Requirements (MRRR) or identical Compliance Assurance and Demonstration Provisions.

1.4 Insignificant Emission Units (IEU)

Insignificant Emission units (IEU's) are activities or emission units in the permitted Facility as defined in WAC 173-401-530 (effective 10/17/02). As provided in this WAC, an activity or emission unit is insignificant based on one or more, but not limited to, the following (Note: WAC 173-401-530 should be referenced in its entirety):

1.4.1 regulated emissions are below the stipulated threshold levels of WAC 173-401-530(4);
1.4.2 activities are identified as categorically exempt as per WAC 173-401- 532;
1.4.3 activities are below stipulated size or production rate; or
1.4.4 activities generate only fugitive emissions as defined in WAC 173-401-030(38).

Activities or emission units in the permitted Facility found to be insignificant based on the above and WAC 173-401-530 (effective 6/17/94) are not required to conduct testing, monitoring, reporting, recordkeeping, or any compliance certification in this permit. However, no activities or emission units qualify as IEU's when such activities or emission units are subject to any federally enforceable applicable requirements [e.g. New Source Review / Notice of Construction (NSR/NOC), Regulatory Order issued per WAC 173-400-091 (effective 9/20/93) or federally enforceable requirements as provided in the State Implementation Plan (SIP) (WAC 173-401-530(2)(a), (effective 6/17/94).

1.5 Operation and Maintenance (O&M) Monitoring Requirements

Whenever Operation and Maintenance **(**O&M) procedure is imposed as an approval condition in a NSR Order of Approval or in any other applicable regulatory requirement, the Permittee is required to implement/develop and update an O&M plan or procedure supplied by the equipment manufacturer, or an O&M plan, or procedure developed in-house for the equipment/process for which the O&M and/or monitoring is required. Whenever O&M is imposed on a process or equipment as a requirement in a NSR Order of Approval or in any other applicable regulation, the Permittee is required to schedule and conduct periodic inspections required in the O&M plan and insure that O&M is routinely instituted. In addition, the Permittee also agrees to continue their effort in research and development of process and/or materials to reduce the amounts of HAP and VOC emissions.

1.6 Rule Applicability to Source and Permit Shield

YRCAA determines applicability of the requirements in the Federal, State and Local Clean Air Laws and Regulations to Facility-wide and emission points in the permitted Facility. In the renewal Permit Application, THL provided a list of Washington State and Federal Air Pollution Regulations which are considered non-applicable by THL. The YRCAA determined applicability of the requirements of these regulations to the permitted Facility as outlined in Table 1 below. Permit Shield from identified requirements is granted to THL for requirements inapplicable to the Facility as indicated herein. Nonetheless, laws, the RCW rules and regulations may be superseded or revised without notice. It is the Permittee's responsibility to stay current with rules and regulations governing their business and therefore is expected to comply with all new rules and regulations immediately upon their effective date. Rules and regulation updates will be incorporated into existing permits or upon renewal or modification of said permits.

Table 1. Determination of Rule Applicability/inapplicability to Terrace Heights Landfill			
Applicable / (Inapplicable) Requirement	**State Only**	**Description of Requirement**	**Reason**
WAC 173-400 General Regulations		'010 Policy and Purpose	These are provisions which only apply to Ecology and/or local authorities or to the regulation itself.
		'020 Applicability	
		'030 Definitions	
		'040 General Standards for Maximum Emission '050 Emission Standards for Combustion and Incineration Sources	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
		'070 Emission Standards for Certain Source Categories	This Facility is not currently in a source category subject to this regulation. The Facility will be subject to the provisions of the cited regulation if and when the source category in which the permitted Facility is included becomes adopted and effective.
		'075 Emission Standards Emitting Hazardous Air Pollutants	
		'081 Startup and Shutdown	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
		'091 Voluntary Limits on Emissions	
		'100 Registration	Not applicable to AOP source.
		'110 New Source Review '112 Requirements for New Sources in Non-Attainment Areas '113 Requirements for New Sources in Attainment or Unclassified Areas	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
		'114 Requirements for Replacement or Substantial Alteration of Emission Control Technology at an Existing Stationary Source	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources are required to comply with all the provisions contained therein, if and when it is triggered.
		'115 Standards of Performance for New Sources	The permitted Facility is subject to the cited regulation in its entirety or applicable subsections.

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
		'120 Bubble Rules	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
		'131 Issuance of Emissions Credit	
		'136 Use of Emission Reduction Credits	
		'700 Review of major Stationary Sources of air pollution	
		'710 Definitions	
		'720 Prevention of Significant Deterioration (PSD)	
		'730 Prevention of Significant Deterioration Application Processing Procedures	
		'740 PSD permitting Public Involvement Requirements	
		'750 Revision of PSD Permits	
		'190 Requirements for Non-Attainment Areas	These are provisions which only apply to Ecology and/or local authorities or to the regulation itself.
		'200 Creditable Stack Height and Dispersion Techniques	The Facility is not currently subject to the stated rule. The Facility can be subject to the stated rule if and when it exceeds the applicable emissions threshold or conducts activities subject to the rule.
		'205 Adjustment for Atmospheric Conditions	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
		'210 Emission Requirements of Prior Jurisdiction	
		'220 Requirements for Board Members	These are provisions which only apply to Ecology and/or local authorities or to the regulation itself.
		'230 Regulatory Actions	
		'240 Criminal Penalties	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
		'260 Conflict of Interest	These are provisions which only apply to Ecology and/or local authorities or to the regulation itself.
WAC 173-401		All Subsections	This regulation is applicable to all sources in the entire state of

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
			Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
WAC 173-405		Kraft Pulping Mills (All Subsections)	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
WAC 173-410		Sulfite Pulping Mills (All Subsections)	
WAC 173-415		Primary Aluminum Plants (All Subsections)	
WAC 173-420		Conformity of Transportation Activities to Air Quality Implementation Plan (All Subsections)	
WAC 173-421		Motor Vehicle Emission Control System (All Subsections)	
WAC 173-422		Motor Vehicles Emissions Inspection (All Subsections)	
WAC 173-425		Open Burning (All Subsections)	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
WAC 173-430		Burning of Field and Forage Turf Grasses Grown For Seed (All Subsections)	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
WAC 173-433		Solid Fuel Burning Device Standards (All Subsections)	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
WAC 173-434		Solid Waste Incinerator Facilities (All Subsections)	
WAC 173-435		Emergency Episode Plan (All Subsections)	
WAC 173-440		Sensitive Areas (All Subsections)	
WAC 173-450		Establishing Requirements for Receipt of Financial Aid (All Subsections)	These are provisions which only apply to Ecology and/or local authorities or to the regulation itself.
WAC 173-460		Controls for New Sources of Toxic Air Pollutants (All Subsections)	This regulation is applicable to all sources in the entire state of Washington and all air pollution sources may comply or are required to comply with all the provisions contained therein, if and when it is triggered.
WAC 173-470		Ambient Air Quality Standards for Particulate Matter (All	

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
		Subsections)	This regulation specifies an ambient air quality standard for a specific pollutant and does not specify any requirement for a specific source.
WAC 173-474		Ambient Air Quality Standards for Sulfur Oxides (All Subsections)	
WAC 173-475		Ambient Air Quality Standards for Carbon Monoxide, Ozone, and Nitrogen Dioxide (All Subsections)	
WAC 173-480		Ambient Air Quality Standards and Emission Limits for Radionuclides (All Subsections)	
WAC 173-481		Ambient Air Quality Standards for Flourides (All Subsections)	
WAC 173-490		Emission Standards and Controls for Sources Emitting Volatile Organic Compounds (All Subsections)	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
WAC 173-491		Gas Vapor Emission Standards (All Subsections)	The Facility is not currently subject to the stated rule. The Facility can be subject to the stated rule if and when it exceeds the applicable emissions threshold or conducts activities subject to the rule.
WAC 173-492		Motor Fuel Specifications for Oxygenated Gasoline (All Subsections)	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
40 CFR Part 50		National Ambient Air Quality Standards (All Subsections)	This regulation specifies an ambient air quality standard for a specific pollutant and does not specify any requirement for a specific source.
NSPS 40 CFR Part 60 subpart Ca		Emission Guidelines and Compliance Times for Municipal Waste Combustors	The Facility is not currently subject to the stated rule. The Facility can be subject to the stated rule if and when it exceeds the applicable emissions threshold or conducts activities subject to the rule.
NSPS 40 CFR Part 60 subpart Cb		Emissions Guidelines and Compliance Times for Sulfuric Acid Production Units	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
NSPS 40 CFR Part 60		Emissions Guidelines and Compliance Times for Municipal	There is no separate Washington state Municipal Solid Waste

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
'Cc, 60.33c (b) and (c)		Solid Waste Landfills	plan that needs to satisfy the cited subsections in the Regulation. The cited subsections apply to the Washington state Municipal Solid Waste plan. However, the Washington state Municipal Solid Waste plan merely adopts 40 CFR Part 60 subpart WWW and therefore by default subjects THL to the latter Regulation.
NSPS 40 CFR Part 60 subpart D		Standards of Performance for Fossil Fired Steam Generation Units for Which Construction is Commenced After 8/17/71	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
NSPS 40 CFR Part 60 subpart Da		Standards of Performance for Electric Utility Steam Generation Units for Which Construction is Commenced After 9/18/78	
NSPS 40 CFR Part 60 subpart Db		Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	
NSPS 40 CFR Part 60 subpart Dc		Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	
NSPS 40 CFR Part 60 subpart E		Standards of Performance for Incinerators	The Facility is not currently subject to the stated rule. The Facility can be subject to the stated rule if and when it exceeds the applicable emissions threshold or conducts activities subject to the rule.
NSPS 40 CFR Part 60 subpart Ea		Standards of Performance for Municipal Waste Combustors	
NSPS 40 CFR Part 60 subpart F		Standards of Performance for Portland Cement Plants	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
NSPS 40 CFR Part 60 subpart G		Standards of Performance for Nitric Acid Plants	
NSPS 40 CFR Part 60 subpart H		Standards of Performance for Sulfuric Acid Plants	
NSPS 40 CFR Part 60 subpart I		Standards of Performance for Asphalt Concrete Plants	
NSPS 40 CFR Part 60 subpart J		Standards of Performance for Petroleum Refineries	
NSPS 40 CFR Part 60 subpart K		Standards of Performance for Storage Vessels of Petroleum Liquids for Which Construction, Reconstruction, or	

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
		Modification Commenced After 6/11/73 and Prior to 5/19/78	
NSPS 40 CFR Part 60 subpart Ka		Standards of Performance for Storage Vessels of Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After 5/19/78 and Prior to 7/23/84	
NSPS 40 CFR Part 60 subpart Kb		Standards of Performance for Volatile Organic Liquid Storage for Which Construction, Reconstruction, or Modification Commenced After 7/23/84	
NSPS 40 CFR Part 60 subpart L		Standards of Performance for Secondary Lead Smelters	
NSPS 40 CFR Part 60 subpart M		Standards of Performance for Secondary Brass and Bronze Production Plants	
NSPS 40 CFR Part 60 subpart N		Standards of Performance for Primary Emissions from Basic Oxygen Process Furnaces for Which Construction Commenced After 6/11/73	
NSPS 40 CFR Part 60 subpart Na		Standards of Performance for Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After 1/0/83	
NSPS 40 CFR Part 60 subpart O		Standards of Performance for Sewage Treatment Plants	
NSPS 40 CFR Part 60 subpart P		Standards of Performance for Primary Copper Smelters	
NSPS 40 CFR Part 60 subpart Q		Standards of Performance for Primary Zinc Smelters	
NSPS 40 CFR Part 60 subpart R		Standards of Performance for Primary Lead Smelters	
NSPS 40 CFR Part 60 subpart S		Standards of Performance for Primary Aluminum Reduction Plants	
NSPS 40 CFR Part 60 subpart T		Standards of Performance for the Phosphate Fertilizer Industry: Wet-Process Phosphoric Acid Plants	
NSPS 40 CFR Part 60 subpart U		Standards of Performance for the Phosphate Fertilizer Industry: Superphosphoric Acid Plants	
NSPS 40 CFR Part 60 subpart V		Standards of Performance for the Phosphate Fertilizer Industry: Di-Ammonium Phosphate Plants	
NSPS 40 CFR Part 60		Standards of Performance for the Phosphate Fertilizer	

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
subpart W		Industry: Triple Superphosphate Plants	
NSPS 40 CFR Part 60 subpart X		Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	
NSPS 40 CFR Part 60 subpart Y		Standards of Performance for Coal Preparation Plants	
NSPS 40 CFR Part 60 subpart Z		Standards of Performance for Ferro-Alloy Production Facilities	
NSPS 40 CFR Part 60 subpart AA		Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After 10/21/74 and on or Before 8/17/83	
NSPS 40 CFR Part 60 subpart AAa		Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After 8/7/83	
NSPS 40 CFR Part 60 subpart BB		Standards of Performance for Kraft Paper Mills	
NSPS 40 CFR Part 60 subpart CC		Standards of Performance for Glass Manufacturing Plants	
NSPS 40 CFR Part 60 subpart DD		Standards of Performance for Grain Elevators	
NSPS 40 CFR Part 60 subpart EE		Standards of Performance for Surface Coating of Metal Furniture	
NSPS 40 CFR Part 60 subpart GG		Standards of Performance for Stationary Gas Turbines	
NSPS 40 CFR Part 60 subpart HH		Standards of Performance for Lime Manufacturing Plants	
NSPS 40 CFR Part 60 subpart KK		Standards of Performance for Lead-Acid Battery Manufacturing Plants	
NSPS 40 CFR Part 60 subpart LL		Standards of Performance for Metallic Mineral Processing Plants	
NSPS 40 CFR Part 60 subpart MM		Standards of Performance for Automobile and Light-Duty Truck Surface Coating Operations	
NSPS 40 CFR Part 60 subpart NN		Standards of Performance for Phosphate Rock Plants	

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
NSPS 40 CFR Part 60 subpart PP		Standards of Performance for Ammonium Sulfate Manufacture	
NSPS 40 CFR Part 60 subpart QQ		Standards of Performance for Graphic Arts Industry: Publication Rotogravure Printing	
NSPS 40 CFR Part 60 subpart RR		Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations	
NSPS 40 CFR Part 60 subpart SS		Standards of Performance for Industrial Surface Coating: Large Appliances	
NSPS 40 CFR Part 60 subpart TT		Standards of Performance for Metal Coil Surface Coating	
NSPS 40 CFR Part 60 subpart UU		Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture	
NSPS 40 CFR Part 60 subpart VV		Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry (SOCMI)	
NSPS 40 CFR Part 60 subpart WW		Standards of Performance for Beverage Can Surface Coating Industry	
NSPS 40 CFR Part 60 subpart XX		Standards of Performance for Bulk Gasoline Terminals	
40 CFR Part 60 subpart AAA		Standards of Performance for New Residential Wood Heaters	The Facility is not currently subject to the stated rule. The Facility can be subject to the stated rule if and when it exceeds the applicable emissions threshold or conducts activities subject to the rule.
40 CFR Part 60 subpart BBB		Standards of Performance for Rubber Tire Manufacturing Industry	The Facility is not in the criteria of applicability or not in the source category of applicability. The Facility is categorically exempted from the requirements or is not included in the category of sources indicated in the citation.
40 CFR Part 60 subpart DDD		Standards of Performance for VOC Emissions from the Polymer Manufacturing Industry	
40 CFR Part 60 subpart FFF		Standards of Performance for Flexible Vinyl and Urethane Coating and Printing	
40 CFR Part 60 subpart GGG		Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries	
40 CFR Part 60		Standards of Performance for Synthetic Fiber Production	

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
subpart HHH		Facilities	
40 CFR Part 60 subpart III		Standards of Performance for VOC Emissions from SOCMI Air Oxidation Unit Operations	
40 CFR Part 60 subpart JJJ		Standards of Performance for Petroleum Dry Cleaners	
40 CFR Part 60 subpart KKK		Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants	
40 CFR Part 60 subpart LLL		Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	
40 CFR Part 60 subpart NNN		Standards of Performance for VOC Emissions from SOCMI Distillation Operations	
40 CFR Part 60 subpart OOO		Standards of Performance for Non-Metallic Mineral Processing Units	
40 CFR Part 60 subpart PPP		Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants	
40 CFR Part 60 subpart QQQ		Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems	
40 CFR Part 60 subpart RRR		Standards of Performance for VOC Emissions from SOCMI Reactor Processes	
40 CFR Part 60 subpart SSS		Standards of Performance for Magnetic Tape Coating Facilities	
40 CFR Part 60 subpart TTT		Standards of Performance for Industrial Surface Coating: Surface Coating for Plastic Parts and Business Machines	
40 CFR Part 60 subpart UUU		Standards of Performance for Calcines and Dryers in Mineral Industries	
40 CFR Part 60 subpart VVV		Standards of Performance for Polymeric Coating of Supporting Substrates for Facilities	
40 CFR Part 60 subpart WWW		Standards of Performance for Municipal Solid Waste Landfills	There is no separate Washington state Municipal Solid Waste plan that needs to satisfy the cited subsections in the Regulation. The cited subsections apply to the Washington state Municipal Solid Waste plan. However, the Washington state Municipal Solid Waste plan merely adopts 40 CFR Part 60 subpart WWW and therefore by default subjects THL to the latter Regulation.

Applicable / (Inapplicable) Requirement	State Only	Description of Requirement	Reason
40 CFR Part 61 Subpart M		National Emissions Standards for Asbestos	The Facility accepts asbestos and is subject to this Subpart.
40 CFR Part 63, Subpart AAAA		National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills.	The Facility is not currently subject to the stated rule.
40 CFR Part 72 Permits Regulation		Acid Rain Provisions (All Subsections)	The Facility is not currently subject to the stated rule. The Facility can be subject to the stated rule if and when it exceeds the applicable emissions threshold or conducts activities subject to the rule.
40 CFR Part 82		Protection of Stratospheric Ozone (All Subsections)	See Section I, Item 1.28 of this Title V permit.

1.7 Assurance of Compliance

The Permittee certified in the Permit renewal Application that the information provided therein is true, accurate and complete based on reasonable inquiry on their part. The Permittee is required in the Title V AOP to at least annually certify compliance of the permitted Facility with all the terms and conditions specified therein.

1.8 Monitoring, Recordkeeping, and Reporting Requirements (MRRR) for IEU's

For IEU's not subject to specific requirements but may exceed applicable standards, the MRRR may not be necessary to demonstrate compliance. However, the Permittee should certify that the specific IEU was operating normally and performed in its normal designed function. In addition, there was no process change made during the certification period that would cause emissions increase or violate applicable requirements. Normal operation of the IEU's which have not been subjected to alteration or modification, will not likely result in violation of applicable requirements of this permit.

1.9 Annual Compliance Source Testing Requirement

Annual compliance source testing of any emission point from the Facility, including the Hazmat operations, within the duration of this permit may not be required, provided that the Permittee certifies that the specific processes therein were operated normally, performed their normal designed function and that no process change was made during the certification period that would cause emissions increase or violate applicable requirements. Normal operation of equipment in specific processes therein and use of specific materials for specific application, implementation of currently applicable O&M plan, and periodic operator training have been diligently carried out and as such, said manner of operations will not likely result in violation of applicable requirements of this permit. YRCAA may request a source test when applicable pursuant to WAC 173-400-075(2) (effective 12/29/12)

1.10 Section 112 of the FCAA Applicability

The renewal, the original permit application and Section 2.0 below describe the operations in the permitted Facility. Municipal solid waste landfills generate landfill gas that contains methane gas and Non-Methane Organic Compounds (NMOC). NMOC's are considered as volatile Organic Compounds (VOC's). Included in these NMOC's are hazardous air pollutants (HAPs) and/or toxic air pollutants (TAPs).

TAP's are compounds listed in WAC 173-460 and (HAP's) are compounds listed Section 112(b) of the FCAA. EPA Emission Factors AP-42 (11/98) Table 2.4.1. & 2.4.2. lists the HAP's or TAP's with corresponding default concentration of each in the generated landfill gas. Table A in Appendix A of the original permit Application submitted by Permittee estimates the emission rates of each of such listed compounds based on the maximum potential emission rate of methane gas (projected in Year 2006). Table B in the same permit application shows the result after each of the listed HAP's or TAP's is tested for being above or below WAC 173-460

screening levels based on acceptable source impact level (ASIL). In addition, July 6, 2010 the Permittee submitted the results of another NSPS Tier 2 NMOC emission rate report. Results and pollutants are listed on Tables of the report. Facility-wide potential emission calculations are included in Appendix B of the second renewal application using EPA LandGEM model version 3.02.

The permitted Facility is subject to the New Source Performance Standards (NSPS) per 40 CFR Part 60 Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills (effective 3/12/1996)). This Facility must comply with all applicable requirements of the federal, state and local laws and regulation. This Facility receives asbestos. Thus, it is subject to the applicable provisions of 40 CFR Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAPS) subpart M, (National Emission Standard for Asbestos) (see Facility Wide Requirements, Table 1, Title V Permit). The Subparts of the General Provisions of 40 CFR Parts are usually applicable when any of the 40 CFR subpart is applicable to the source.

1.11 Compliance with New Source Review (NSR) permits requirements by YRCAA

The landfill Facility started operation in 1973. Prior to the official issuance of the Title V Air Operating Permit, no other NSR Orders of Approval were issued for the landfill operations. NSR review # NSR_06_THL_01 was issued for the wood waste chipper/grinder recycling operation in 2001. In 2009 the Facility applied for a Portable and Temporary NSR Order of Approval for the chipper/grinder to be moved back and forth between the Terrace Heights Landfill and Cheyne Landfill. YRCAA issued the first portable temporary NSR Order of Approval #NSRPT-03-YCPS-09 in December 17, 2009. YRCAA reissued another temporary/portable permit for the same operation in December 17, 2010 under permit # NSRPT-05-THLF-10. The requirements contained in the order are incorporated into this permit. Any NSR when triggered resulting from modifications or establishment of new sources is covered in the Title V Permit #y-004-02, Section 1.0 Permit General Terms and Conditions, 1. 22.

1.12 Reasonably Available Control Technology (RACT)

No prior RACT determination will be required for the permitted Facility as a prerequisite in the issuance of a Title V Air Operating Permit renewal when no RACT determination has been made for the category of sources in which this permitted Facility is included. As provided in WAC 173-401-605(3) (effective 11/4/93), emission standards and other requirements contained in rules and regulatory orders in effect at the time of operating permit issuance or renewal shall be considered RACT for purposes of this renewal permit issuance and any future renewal. Emission standards in the RACT, if any, shall be the applicable standards of this renewal permit when a RACT determination, prior to the issuance of this renewal permit, is made for the source category of facilities in which the sources is included. When any part of the operation of the permitted Facility is subjected to a determination for Best Available Control Technology (BACT) and emission standards or requirements become federally enforceable provisions, such emissions standards or requirements shall be considered BACT for purposes of this renewal permit issuance or any future renewal.

1.13 Applicability of Other Miscellaneous Requirements

The most significant air emissions from this permitted Facility are Volatile Organic Compounds (VOC) given off as the result of decomposition of organic materials in landfill waste (MSW) and are known as NMOC's. VOCs are photoreactive components in the formation of ozone. Ozone is one of the criteria pollutants that have specific National Ambient Air Quality Standard (NAAQS). The permitted Facility is located in an area which is currently in attainment with Ozone NAAQS. Any new activities in the permitted Facility which will result in significant emissions increase of VOC or any other regulated pollutant will be subject to NSR as specified in 1.22 of the Title V Air Operating Permit.

Depending on the type of pollutant and net emissions increase, applicability will be determined for the requirements of the Prevention of Significant Deterioration (PSD), Best Available Control Technology (BACT), and any other SIP related provisions which insure that any increased discharges of air pollutants will not cause violation of NAAQS. YRCAA does not have any evidence which would suggest that the Facility operation is likely to contribute to visibility impairment in any mandatory Class I area. Best Available Retrofit Technology (BART) will be required of the permitted Facility if and when a determination is made that the permitted Facility is reasonably contributing to visibility impairment in any mandatory Class I area and that more than 250 tons per year of the contributing pollutant is being emitted. (WAC 173-400-151, effective date 2/10/05)

1.14 Compliance Period Allowance for Corrective Action

The Permittee shall be required to accomplish corrective measures that eliminate non-compliance with applicable requirements within a 48 to 72 hour period or as specified in the permit. This grace period provides time for the Permittee to remedy non-compliance when equipment replacement and/or parts are required express shipment and/or repair. Non-compliance within this compliance time period may not exempt the Permittee from appropriate enforcement actions except as provided in Title V Permit, 1.15 Emergencies (WAC 173-401-645, effective 11/4/93).

1.15 Compliance with Sulfur Dioxide (SO_2) Emissions Standard

The use of pipeline grade natural gas as fuel in any combustion equipment that is operated under normal operating conditions shall inherently meet the Sulfur compounds emission limits specified in Table 1, Facility-Wide Requirements, Air Operating Permit #y-004-02. Pipeline Grade natural gas contains an average 2000 grains sulfur per million standard cubic foot (SCF) per EPA AP-42, fifth edition. This translates into 0.46 ppmv SO_2 (in the flue gas @ no excess air) according to the following:

#-moles S = #-moles SO_2 in flue gas = [2000/(7000)(32)] = 0.00893
1 million SCF natural gas = (1 atm)(1E6 cu. Ft.)/(0.7302-R gas constant)(528^0R) = 2593.7 #-mole

#-mole flue gas produced = (2593.7)(7.56), 1 #-mole natural gas will stoichiometrically

produce 7.56 #-mole combustion products

SO_2 in ppmv= {(0.00893)/(2593.7)(7.56)} * 1E6 = 0.46

Compliance with SO_2 emission standard may constitute a compliance certification from the Permittee's responsible official stating that combustion equipment performed the normal designed function and was operated in the same fashion which demonstrated compliance in the past.

1.16 Use of Factors for Estimating Emissions

Unless specified, emission factors and estimation methodology used in emission estimates to be reported pursuant to this permit could be taken from AP-42, Volume I, Chapter 2, Section 2.4 (Municipal Solid Waste Landfills), actual source test data, USEPA Federal reference method/ approved model, or YRCAA-prior approval emission factors.

1.17 Enforcement

Information from monitoring required under the Air Operating Permit may be used directly for enforcement actions. Violation of any provisions of the permit conditions may be subject to enforcement actions as provided in RCW 70A.15.2520 (effective 1993). Appeals to enforcement orders before a hearings board may be made as provided in 43.21B RCW. Appeals should be sent to the Pollution Control Hearings Board (PCHB), P.O. Box 4903, Olympia, WA. 98504-4903. Concurrently, a copy of the application must be sent to the YRCAA, 186 Iron Horse Court, Suite 101, Yakima, WA 98901. In addition, USEPA (EPA, Region 10, Office of Air, Waste and Toxics, 1200 Sixth Avenue, Suite 900, Seattle, WA. 98101) may be petitioned in accordance with WAC 173-401-920(3)(c)(xi). These procedures are consistent with the provisions of Chapter 43.12B RCW and the rules and regulations adopted thereunder. A petition requesting judicial review of final orders after the Hearings Board may be made before the Superior Court of the State of Washington as provided in Chapter 34.05 RCW.

2.0. General Process Information

A more detailed description of this Section is in Chapter 1 (Facility and Process Description) of the renewal permit Application. Diagram of the operations as well as the site layout are shown below, section 2.2.

2.1 Brief Description of the Facility

This Facility started its municipal wastes landfill operations in 1973. It was designed for municipal wastes disposal capacity of 4,400,000 cubic yards and/or 2,200,000 tons. The landfill was projected to reach capacity in 2004 or 2007, assuming an in-place compaction density of 1,000 pounds per cubic yard, or 1,300 pounds per cubic yard, respectively. However, the facility is still in operation as of the issuance of this renewal/reopening and could continue to 2015 or beyond. The Permittee requested to reopen/ modify the permit due to change in the total design capacity of the landfill and other minor changes. The Yakima Health District approved the increase for the design capacity to dispose of waste in the "old phase I" area on December 7, 2009 based on documentation received from the Facility by YRCAA February 12, 2010. The design capacity has increased to 7.17 million tons (6.5 million Megagram (Mg)) for phase one and two. Haulers are weighed before and after discarding waste materials to determine the weight and or volume of waste materials and appropriate disposal fees. As part of a 35 % waste reduction goal, the Permittee provides opportunity for garbage haulers at a reduced fee to salvage and recycle waste oils, lead-acid batteries, white goods, tires, and other waste materials in separate facilities. A designated area to receive yard debris and wood wastes is available where such deposited materials are chipped and converted to compost materials. As part of the Yakima County Hazardous Waste Management Plan, the Permittee also receives moderate risk household wastes in a separate treatment and salvaging facility. THL is the only authorized landfill facility in Yakima County that receives asbestos waste, which is landfilled in a separate and secured landfill section strictly for disposal of asbestos containing waste materials. The rest of the unspecified municipal wastes are deposited to the main landfill areas where all municipal wastes are covered with a minimum of 6 inches or more of daily cover within 24 hours of disposal. Air Emissions from the operations in this facility are mainly VOC's, some of which NMOCs, including HAP's, and Particulate Matter of aerodynamic diameter of 10 micron or less.

2.1.1 Moderate Risk Household and Business Hazardous Wastes

The Permittee operates a facility that receives, treats, salvages and disposes of small quantities of moderate risk hazardous wastes generated in households, businesses and institutions. The treatment area of the main building of this facility is maintained at a high air exchange rate and protected from electrical sparks by appropriate grounding and using explosion proof equipment. Unknown substances from small quantity generators (less than 220 pounds per month) delivered to this facility for disposal are analyzed and treated. Treated materials are transferred to steel drums for delivery to authorized hazardous material disposal sites. Usable paints are mixed together according to color and are salvaged for reuse. Unusable paints, solvents, garden pesticides, cleaning and other unknown materials

are poured into drums to be transferred to authorized hazardous material disposal sites. Metal containers of waste materials are crushed and transferred into waste metal recycle bins. Separate tanks outside the treatment building are available for haulers to dispose waste antifreeze and crankcase oil. These tanks are periodically emptied by contracted recyclers.

2.1.2 Yard Debris/Wood Waste Reclaim Area

The Permittee converts wood wastes and other biomass to partially composted chipped/ground materials in the wood and yard waste processing area. The facility consists mainly of a designated area in the landfill site where a wood chipper/grinder and stockpiles of converted wood waste materials are located. For a reduced fee, the Permittee receives in this area clean yard and garden debris and other wood wastes free of any plastic materials or other contamination. Stockpiles of accumulated wood materials are fed into the chipper/grinder. Ground wood waste is stockpiled in which partial decomposition occur depending on conditions and the length of time the stockpiles stay on site prior to hauling. Stockpiles of ground materials are hauled off by commercial establishments or the general public. This operation started as a pilot project in 1992 and has since been adopted as a standard operation in this facility.

2.1.3 Recycling Area

As part of the Yakima County Waste Management Plan, THL provides convenient recycling opportunities for the public to maximize participation in waste reduction/recycling programs. THL maintains an area where haulers can deposit recyclable materials in separate bins or other designated areas. Separate bins are available to deposit newsprint, hi-grade paper (computer paper), magazines, corrugated cardboard, press board (cereal and shoe boxes), clear plastics, aluminum and tin cans, scrap metals, and small household and lead acid batteries. A separate area is designated for haulers to discard tires. In another designated area, haulers drop-off junked white goods such as household washers, dryers, dishwashers, ranges, refrigerators, freezers, air conditioners and other similar large household appliances. Appliances with refrigeration systems are contracted on site for preprocessing to recover refrigerants and compressor oils for secure reuse/disposal and/or treatment. Recovery is accomplished using appropriate refrigerant discharging equipment. Motors/compressors, heating elements, and other usable materials are removed from the appliances and the rest is discarded into the scrap metal pile. The recovered materials are hauled off by contracted recycle operators.

2.1.4 Asbestos-Containing Materials Disposal

THL is the only landfill facility in Yakima County authorized to receive and dispose of asbestos-containing materials at the present time. This asbestos disposal site within the landfill facility is an area isolated from the rest of all other landfill activities and site access is restricted. It is identified by warning signs posted around the site in compliance with marking requirements for active waste disposal sites in the National Emissions Standards for Hazardous Pollutants (NESHAP) 40 CFR Part 61 subpart M. All air emissions related

requirements for asbestos disposal in this facility are covered in the Title V permit Section 2.0 Table 2. Items 26 through 30. All incoming asbestos materials received by THL for disposal are required to be recorded and reported to YRCAA. Large quantities of asbestos materials are weighed to determine the appropriate disposal charges. Small quantities are subject to fixed minimum disposal charges. Certain types of asbestos-containing materials are required to be appropriately packaged in accordance with the NESHAP regulations. Recorded asbestos waste materials are hauled off and discarded into the disposal trenches at the asbestos disposal site.

2.1.5 Other Special Landfill Wastes

The following describes THL handling of Other Special Wastes:

2.1.5.1 Bio- Solids - Until February 1991, THL received liquid sludge or septage from commercial pumpers of septic tanks. These bio-solids were discharged into lagoon facilities as part of THL operations. Bio-solids disposal at THL has since been terminated and haulers were diverted to other alternative disposal sites authorized to handle such waste materials.

2.1.5.2 Petroleum Contaminated Soils (PCS) - Remediation sites such as leaking underground storage tanks and petroleum products spills can generate large quantities of contaminated soils. THL is an authorized disposal site for PCS. It is not discarded directly into landfill cell but used mainly as intermediate landfill cover material. In order to extend the life of the landfill, THL has not received PCS since 1998.

2.1.5.3 Demolition Wastes - These wastes are generated in construction activities consisting mainly of building materials, concrete, asphalt, and miscellaneous wood wastes. Demolition wastes containing asbestos materials are diverted to the asbestos disposal site in the THL facility. In order to extend the life of the landfill, THL has also diverted these materials to other authorized private demolition materials landfill sites.

2.1.5.4 Biomedical Wastes - These wastes are bio-hazardous wastes such as infected animal waste, infectious microbiological cultures, communicable disease waste from certain viruses, pathological wastes and medical sharps waste (needles, syringes, surgical blades and lancets). THL receives these wastes provided that medical sharps and other items that can break or cut handlers are packaged in bright orange or yellow bags marked medical waste. Along with other materials received in main landfill area, medical wastes are required to be pushed as close to the working face as possible and buried carefully to avoid breaking bags and spreading contents.

2.1.5.5 Agricultural Wastes - These wastes generated in agricultural enterprises include crop processing wastes, bins, pallets, cold storage and warehouse

wastes and manure from stock yards. Only wood wastes and papers generated in agriculture generally end up being disposed in THL. When separated out, clean wood wastes are composted as described 2.1.2 above and paper wastes are deposited in the recycling bins as discussed in 2.1.3 above.

2.1.6 Air Emissions

The most significant air pollutants from municipal wastes landfill operations are VOCs which is synonymous to NMOCs as gaseous landfill emissions. These gaseous pollutants are generated during the biodegradation process due to bacterial action on materials buried in the landfill. These gasses permeate through the porous topsoil cover and eventually escape to the ambient air as fugitive emissions. NMOCs contain TAPs listed in Washington state toxic air pollutants regulation WAC 173-460-150 (effective 5/20/09) and/or as HAPs listed in FCAA Section 112 (b). Table 2 below lists and provides an estimated emission of HAPs or TAPs found in the NMOCs based on the original permit application. Newer emission concentrations of these HAPs/TAPs are found on the emission rate report submitted to YRCAA on April 14, 2022.

Table 2 HAZARDOUS AIR POLLUTANT (HAP) MAXIMUM POTENTIAL EMISSION ESTIMATION					
COMPOUNDS	**CAS No.**	**Mol. Wt.**	**Default ppmv***	**Cu. M. /yr ****	**Kg./yr *****
1,1,1-Trichloroethane	71556	133.41	0.48	8.50	46.40
1,1,2,2-Tetrachlroethane	79345	167.85	1.11	19.67	135.01
1,1-Dichloroethane	75343	98.97	2.35	41.64	168.53
1,1-Dichloroethene	75354	96.94	0.20	3.54	14.05
1,2-Dichloroethane	107062	98.96	0.41	7.26	29.40
1,2-Dichloropropane	78875	112.99	0.18	3.19	14.74
Acrylonitrile	107131	53.06	6.33	112.15	243.38
Carbon Disulfide	75150	76.13	0.58	10.28	32.00
Carbon Tetrachloride	56235	153.84	0.004	0.07	0.45
Carbonyl Sulfide	463581	60.07	0.49	8.68	21.33
Chlorobenzene	108907	112.56	0.25	4.43	20.39
Chloroethane	75003	64.52	1.25	22.15	58.44
Chloroform	67663	119.39	0.03	0.53	2.60
Dichlorobenzene	106467	147.00	0.21	3.72	22.37
Dichloromethane	75092	84.94	14.30	253.36	880.16
Ethylbenzene	100414	106.16	4.61	81.68	354.63
Ethylene Dibromide	106934	187.88	0.001	0.02	0.14
Hexane	110543	86.18	6.57	116.41	410.28
Hydrogen Sulfide	7783064	34.08	35.50	628.98	876.68
Mercury	0	200.61	0.000292	0.01	0.04
Methyl Ethyl Ketone	78933	72.11	7.09	125.62	370.47
Methyl Isobutyl Ketone	108101	100.16	1.87	33.13	135.72
Perchloroethylene	127184	165.83	3.73	66.09	448.21
Trichloroethylene	79016	131.40	2.82	49.96	268.51

Table 2 HAZARDOUS AIR POLLUTANT (HAP) MAXIMUM POTENTIAL EMISSION ESTIMATION					
Vinyl Chloride	75014	62.50	7.34	130.05	332.42
Xylenes	95476	106.16	12.10	214.38	930.81
Benzene	71432	78.11	1.91	33.84	108.11
Toluene	108883	92.13	39.30	696.31	2623.65
Totals				**2575.64**	**8548.90**

* From AP-42 Table 2.4.1. Default Concentrations of Landfill Gas (LFG) Constituents.

** Calculated using AP-42 Section 2.4.4.1., Equation (3), Estimation of other LFG constituents in M^3/yr.

*** Calculated using AP-42 Section 2.4.4.1., Equation (4), Estimation of other LFG constituents in kg/yr
Max Potential Methane Emission = 9735000 in Cubic Meters/yr per Title V Permit Application, Appendix A

In accordance with the original Title V Permit Application, Appendix A, the maximum NMOC emissions from this facility is expected to occur in the year 2018 at 29.26 Mg based on projected refuse received in the landfill facility. The most recent data received on February 12, 2021 and based on USEPA LandGEM Model, Version 3.02. However, site specific Tier 2 sampling and analysis as per 40 CFR §60.754(a)(3) showed that the NMOC emissions are below 50 Mg. Results of the analysis were submitted to YRCAA on December 20, 2018. The Facility will re-sample NMOC emissions per 40 CFR Part 60 Subpart WWW requirements. Latest emissions and the LandGEM results were submitted by the applicant and are shown in the Tables below.

Particulate Matter (PM) in the form of fugitive dust is emitted during back fill and bulldozing daily cover to deposited refuse. Fugitive dust is also emitted from paved and unpaved road traffic, wind erosion from loose soil cover, wind-blown materials from

erosion from storage piles

sing of paints and solvents
ss hazardous wastes area
d roof vents.

r/grinder in the wood
e amounts of SO_x, NO_x,

acility. These IEUs are as

Terrace Heights Landfill – LandGEM Results

Year	User Waste Acceptance Inputs (Mg/year)	User Waste-In-Place (Mg)	Methane Generation [a] (m^3/year)	Total LFG Generation [a] (m^3/year)
1974	93,985	0	0	0
1975	93,985	93,985	1.863E+05	3.726E+05
1976	93,985	187,971	3.689E+05	7.378E+05
1977	93,985	281,956	5.479E+05	1.096E+06
1978	93,985	375,942	7.233E+05	1.447E+06
1979	93,985	469,927	8.953E+05	1.791E+06
1980	93,985	563,913	1.064E+06	2.128E+06
1981	93,985	657,898	1.229E+06	2.458E+06
1982	93,985	751,884	1.391E+06	2.782E+06
1983	93,985	845,869	1.550E+06	3.100E+06
1984	93,985	939,855	1.705E+06	3.411E+06
1985	93,985	1,033,840	1.858E+06	3.716E+06
1986	86,798	1,127,825	2.007E+06	4.015E+06
1987	100,241	1,214,624	2.140E+06	4.279E+06
1988	94,917	1,314,865	2.296E+06	4.592E+06
1989	116,554	1,409,782	2.439E+06	4.877E+06
1990	109,224	1,526,335	2.621E+06	5.243E+06
1991	119,286	1,635,559	2.786E+06	5.572E+06
1992	137,415	1,754,845	2.967E+06	5.935E+06
1993	145,969	1,892,261	3.181E+06	6.362E+06
1994	145,491	2,038,230	3.407E+06	6.814E+06
1995	132,727	2,183,721	3.628E+06	7.256E+06
1996	125,215	2,316,448	3.819E+06	7.639E+06
1997	159,097	2,441,663	3.992E+06	7.984E+06
1998	143,146	2,600,760	4.228E+06	8.456E+06
1999	150,306	2,743,906	4.428E+06	8.857E+06
2000	158,574	2,894,213	4.638E+06	9.277E+06
2001	138,972	3,052,786	4.861E+06	9.722E+06
2002	142,899	3,191,758	5.040E+06	1.008E+07
2003	148,342	3,334,657	5.224E+06	1.045E+07
2004	151,167	3,482,999	5.414E+06	1.083E+07
2005	152,619	3,634,166	5.607E+06	1.121E+07
2006	160,276	3,786,785	5.798E+06	1.160E+07
2007	157,690	3,947,062	6.001E+06	1.200E+07
2008	149,979	4,104,752	6.195E+06	1.239E+07
2009	145,546	4,254,731	6.369E+06	1.274E+07
2010	147,125	4,400,277	6.532E+06	1.306E+07
2011	139,668	4,547,403	6.694E+06	1.339E+07
2012	143,164	4,687,071	6.838E+06	1.368E+07
2013	147,029	4,830,234	6.987E+06	1.397E+07
2014	151,430	4,977,263	7.140E+06	1.428E+07
2015	155,972	5,128,693	7.298E+06	1.460E+07
2016	164,355	5,284,665	7.463E+06	1.493E+07
2017	173,358	5,449,021	7.641E+06	1.528E+07
2018	68,908	5,622,379	7.833E+06	1.567E+07
2019	68,908	5,691,287	7.815E+06	1.563E+07
2020	68,908	5,760,195	7.797E+06	1.559E+07
2021	68,908	5,829,103	7.779E+06	1.556E+07
2022	68,908	5,898,010	7.761E+06	1.552E+07
2023	68,908	5,966,918	7.744E+06	1.549E+07
2024	68,908	6,035,826	7.728E+06	1.546E+07
2025	68,908	6,104,734	7.711E+06	1.542E+07
2026	68,908	6,173,642	7.695E+06	1.539E+07
2027	68,908	6,242,550	7.679E+06	1.536E+07
2028	68,908	6,311,458	7.664E+06	1.533E+07
2029	68,908	6,380,366	7.649E+06	1.530E+07
2030	68,908	6,449,274	7.634E+06	1.527E+07

Terrace Heights Landfill – LandGEM Results				
Year	User Waste Acceptance Inputs (Mg/year)	User Waste-In-Place (Mg)	Methane Generation [a] (m^3/year)	Total LFG Generation [a] (m^3/year)
1974	93,985	0	0	0
1975	93,985	93,985	1.863E+05	3.726E+05
1976	93,985	187,971	3.689E+05	7.378E+05
1977	93,985	281,956	5.479E+05	1.096E+06
1978	93,985	375,942	7.233E+05	1.447E+06
1979	93,985	469,927	8.953E+05	1.791E+06
1980	93,985	563,913	1.064E+06	2.128E+06
1981	93,985	657,898	1.229E+06	2.458E+06
1982	93,985	751,884	1.391E+06	2.782E+06
1983	93,985	845,869	1.550E+06	3.100E+06
1984	93,985	939,855	1.705E+06	3.411E+06
1985	93,985	1,033,840	1.858E+06	3.716E+06
1986	86,798	1,127,825	2.007E+06	4.015E+06
1987	100,241	1,214,624	2.140E+06	4.279E+06
1988	94,917	1,314,865	2.296E+06	4.592E+06
1989	116,554	1,409,782	2.439E+06	4.877E+06
1990	109,224	1,526,335	2.621E+06	5.243E+06
1991	119,286	1,635,559	2.786E+06	5.572E+06
1992	137,415	1,754,845	2.967E+06	5.935E+06
1993	145,969	1,892,261	3.181E+06	6.362E+06
1994	145,491	2,038,230	3.407E+06	6.814E+06
1995	132,727	2,183,721	3.628E+06	7.256E+06
1996	125,215	2,316,448	3.819E+06	7.639E+06
1997	159,097	2,441,663	3.992E+06	7.984E+06
1998	143,146	2,600,760	4.228E+06	8.456E+06
1999	150,306	2,743,906	4.428E+06	8.857E+06
2000	158,574	2,894,213	4.638E+06	9.277E+06
2001	138,972	3,052,786	4.861E+06	9.722E+06
2002	142,899	3,191,758	5.040E+06	1.008E+07
2003	148,342	3,334,657	5.224E+06	1.045E+07
2004	151,167	3,482,999	5.414E+06	1.083E+07
2005	152,619	3,634,166	5.607E+06	1.121E+07
2006	160,276	3,786,785	5.798E+06	1.160E+07
2007	157,690	3,947,062	6.001E+06	1.200E+07
2008	149,979	4,104,752	6.195E+06	1.239E+07
2009	145,546	4,254,731	6.369E+06	1.274E+07
2010	147,125	4,400,277	6.532E+06	1.306E+07
2011	139,668	4,547,403	6.694E+06	1.339E+07
2012	143,164	4,687,071	6.838E+06	1.368E+07
2013	147,029	4,830,234	6.987E+06	1.397E+07
2014	151,430	4,977,263	7.140E+06	1.428E+07
2015	155,972	5,128,693	7.298E+06	1.460E+07
2016	164,355	5,284,665	7.463E+06	1.493E+07
2017	173,358	5,449,021	7.641E+06	1.528E+07
2018	68,908	5,622,379	7.833E+06	1.567E+07
2019	68,908	5,691,287	7.815E+06	1.563E+07
2020	68,908	5,760,195	7.797E+06	1.559E+07
2021	68,908	5,829,103	7.779E+06	1.556E+07
2022	68,908	5,898,010	7.761E+06	1.552E+07
2023	68,908	5,966,918	7.744E+06	1.549E+07
2024	68,908	6,035,826	7.728E+06	1.546E+07
2025	68,908	6,104,734	7.711E+06	1.542E+07
2026	68,908	6,173,642	7.695E+06	1.539E+07
2027	68,908	6,242,550	7.679E+06	1.536E+07
2028	68,908	6,311,458	7.664E+06	1.533E+07
2029	68,908	6,380,366	7.649E+06	1.530E+07
2030	68,908	6,449,274	7.634E+06	1.527E+07

a - Methane and Total LFG emission rates based on EPA's LandGEM (Version 3.02). Assumptions: K = 0.020 year^-1; Lo = 100 m^3/Mg; NMOC = 636 ppmv (latest Tier II Testing); and Methane is 50 percent of total LFG by volume.

Terrace Heights Landfill - Fugitive LFG Emission Rate

- Based on LandGEM methane generation rate minus LFG soil vapor extraction system (146 cfm), LFG testing results, and default AP-42 pollutant concentrations.

Emissions Year = 2021

Potential LFG Generation = 18,580,000 m^3 total LFG/year

Total LFG Soil Vapor Extraction = 2,172,967 m^3 LFG/year 12% **Soil Vapor Extraction**

Fugitive LFG Emissions = 16,407,033 m^3 LFG/year

		LFG Conc.			Fugitive Emissions		
Landfill Gas Constituents	**CAS**	**(ppmv)**	**Data Ref.**	**Mol. W.**	**(scfm)**	**(lb/hr) [d]**	**(tpy) [e]**
Total landfill gas	--	--	a	30.03	1102	5.16E+03	22,587
Methane (50 percent of total LFG)	--	--	a	16.04	551	1.38E+03	6,033
Carbon dioxide (50 percent of total LFG)	--	--	a	44.01	551	3.78E+03	16,554
CO2e [f]	--	--	--	--	--	--	143,251
NMOC	--	271	b	86.18	2.99E-01	4.01E+00	18
Carbon monoxide	--	141	a	28.01	1.55E-01	6.78E-01	3
TAPs and HAPs	**CAS**	**(ppmv)**	**Data Ref.**	**Mol. W.**	**(scfm)**	**(lb/hr) [d]**	**(lb/yr) [e]**
1,1,1-Trichloroethane (methyl chloroform)	71-55-6	0.24	b	133.41	2.65E-04	5.50E-03	48
1,1,2,2-Tetrachloroethane	79-34-5	0.004	b	167.85	4.41E-06	1.15E-04	1
1,1-Dichloroethane (ethylidene dichloride)	75-34-3	5.1	b	98.97	5.62E-03	8.67E-02	759
1,1-Dichloroethene (vinylidene chloride)	75-35-4	1.7	b	96.94	1.87E-03	2.83E-02	248
1,2-Dichloroethane (ethylene dichloride)	107-06-2	0.047	b	98.96	5.18E-05	7.99E-04	7
1,2-Dichloropropane (propylene dichloride)	78-87-5	0.044	b	112.99	4.85E-05	8.54E-04	7
2-Propanol (isopropyl alcohol)	67-63-0	50.1	a	60.11	5.52E-02	5.17E-01	4531
Acrylonitrile	107-13-1	0.1095	b	53.06	1.21E-04	9.98E-04	9
Benzene	71-43-2	0.96	b	78.11	1.06E-03	1.29E-02	113
Bromodichloromethane	75-27-4	0.0041	b	163.83	4.52E-06	1.15E-04	1
Bromoform	75-25-2	0.0027	c	252.73	2.98E-06	1.17E-04	1
Bromomethane	74-83-9	0.0071	c	94.95	7.83E-06	1.16E-04	1
Carbon disulfide	75-15-0	0.026	b	76.13	2.87E-05	3.40E-04	3
Carbon tetrachloride	56-23-5	0.004	a	153.84	4.41E-06	1.06E-04	1
Carbonyl sulfide	463-58-1	0.49	a	60.07	5.40E-04	5.06E-03	44
Chlorobenzene	108-90-7	0.006	b	112.56	6.61E-06	1.16E-04	1
Chlorodifluoromethane	75-45-6	1.3	a	86.47	1.43E-03	1.93E-02	169
Chloroethane (ethyl chloride)	75-00-3	2.4	b	64.52	2.65E-03	2.66E-02	233
Chloroform	67-66-3	0.094	b	119.39	1.04E-04	1.93E-03	17
Chloromethane	74-87-3	0.013	b	50.49	1.43E-05	1.13E-04	1
Cyclohexane	110-82-7	1.7	b	51.49	1.84E-03	1.47E-02	129
Dichlorobenzene	106-46-7	0.048	b	147	5.29E-05	1.21E-03	11
Dichloromethane (methylene chloride)	75-09-2	17	b	84.94	1.87E-02	2.48E-01	2173
Ethylbenzene	100-41-4	0.74	b	106.16	8.16E-04	1.35E-02	118
Ethylene dibromide	106-93-4	0.001	a	187.88	1.10E-06	3.23E-05	0.3
Hexane	110-54-3	4.67	b	86.18	5.15E-03	6.91E-02	606
Hydrogen sulfide	7783-06-4	0.0148	b	34.08	1.63E-05	8.66E-05	0.8
Mercury (total)	7439-97-6	0.000292	a	200.61	3.22E-07	1.01E-05	0.1
Methyl ethyl ketone	78-93-3	0.681	b	72.11	7.51E-04	8.43E-03	74
Methyl isobutyl ketone	108-10-1	0.011	b	100.16	1.21E-05	1.89E-04	2
Methyl tert-Butyl Ether	1634-04-4	0.0077	b	88.15	8.49E-06	1.17E-04	1
Perchloroethylene (tetrachloroethylene)	127-18-4	3.5	b	165.83	3.86E-03	9.97E-02	873
Propylene	115-07-1	6.925	b	45.09	7.63E-03	5.36E-02	470
Styrene	100-42-5	0.069	b	104.15	7.61E-05	1.23E-03	11
t-1,2-Dichloroethene	156-60-5	0.072	b	96.94	7.94E-05	1.20E-03	11
Toluene	108-88-3	7.7	b	92.13	8.49E-03	1.22E-01	1067
1,1,2-Trichloroethane	79-00-5	0.0051	c	133.41	5.62E-06	1.17E-04	1
Trichloroethylene (trichloroethene)	79-01-6	1.2	b	131.40	1.32E-03	2.71E-02	237
Vinyl Acetate	108-05-4	0.0078	c	86.09	8.60E-06	1.15E-04	1
Vinyl chloride	75-01-4	3.2	b	62.50	3.53E-03	3.44E-02	301
Xylenes	1330-20-7	3.72	b	106.16	4.10E-03	6.78E-02	594

notes:

a - Default concentration from AP-42 Section2.4 (Municipal Solid Waste Landfills, November 1998)

b - NMOC concentration from Tier II Testing (May 2010), TAP/HAP maximum concentration from three samples LFG samples at Terrace Heights landfill (6/15/2005, 12/21/2005, and 7/1/2008)

c - Concentration was non-detect during analysis of Terrace Heights LFG, assume method reporting limit. d - Assume 1 atmosphere and 20 degrees C.

e - Based on 8,760 hours per year.

f - GHG emissions (CO2e) based on global warming potential (GWP) for each Greenhouse gas: CO2 = 1; CH4 = 21; and N2O = 310 (40 CFR Part 98, Subpart A).

Terrace Heights Landfill - LFG Soil Vapor Extraction System

- Based on measured LFG flow rate from LFG soil vapor extraction system, LFG testing results, and default AP-42 LFG concentrations
146 cfm LFG (typical flow rate)

		LFG Conc.			Soil Vapor Extract Emissions		
Landfill Gas Constituents	**CAS**	**(ppmv)**	**Data Ref.**	**Mol. W.**	**(scfm)**	**(lb/hr) [d]**	**(tpy) [e]**
Total landfill gas	--	--	a	30.03	146	6.83E+02	2991
Methane (50 percent total LFG)	--	--	a	16.04	73	1.82E+02	799
Carbon dioxide (50 percent total LFG)	--	--	a	44.01	73	5.01E+02	2192
CO2e [f]	--	--	--	--	--	--	18,972
NMOC	--	271	b	86.18	3.96E-02	5.31E-01	2
Carbon monoxide	--	141	a	28.01	2.06E-02	8.98E-02	0.4
TAPs and HAPs	**CAS**	**(ppmv)**	**Data Ref.**	**Mol. W.**	**(scfm)**	**(lb/hr) [d]**	**(lb/yr) [e]**
1,1,1-Trichloroethane (methyl chloroform)	71-55-6	0.24	b	133.41	3.50E-05	7.28E-04	6
1,1,2,2-Tetrachloroethane	79-34-5	0.004	b	167.85	5.84E-07	1.53E-05	0.1
1,1-Dichloroethane (ethylidene dichloride)	75-34-3	5.1	b	98.97	7.45E-04	1.15E-02	101
1,1-Dichloroethene (vinylidene chloride)	75-35-4	1.7	b	96.94	2.48E-04	3.75E-03	33
1,2-Dichloroethane (ethylene dichloride	107-06-2	0.047	b	98.96	6.86E-06	1.06E-04	1
1,2-Dichloropropane (propylene dichloride)	78-87-5	0.044	b	112.99	6.42E-06	1.13E-04	1
2-Propanol (isopropyl alcohol)	67-63-0	50.1	a	60.11	7.31E-03	6.85E-02	600.1
Acrylonitrile	107-13-1	0.1095	b	53.06	1.60E-05	1.32E-04	1
Benzene	71-43-2	0.96	b	78.11	1.40E-04	1.71E-03	15
Bromodichloromethane	75-27-4	0.0041	b	163.83	5.99E-07	1.53E-05	0.1
Bromoform	75-25-2	0.0027	c	252.73	3.94E-07	1.55E-05	0.1
Bromomethane	74-83-9	0.0071	c	94.95	1.04E-06	1.53E-05	0.1
Carbon disulfide	75-15-0	0.026	b	76.13	3.80E-06	4.50E-05	0.4
Carbon tetrachloride	56-23-5	0.004	a	153.84	5.84E-07	1.40E-05	0.1
Carbonyl sulfide	463-58-1	0.49	a	60.07	7.15E-05	6.70E-04	6
Chlorobenzene	108-90-7	0.006	b	112.56	8.76E-07	1.54E-05	0.1
Chlorodifluoromethane	75-45-6	1.3	a	86.47	1.90E-04	2.56E-03	22
Chloroethane (ethyl chloride)	75-00-3	2.4	b	64.52	3.50E-04	3.52E-03	31
Chloroform	67-66-3	0.094	b	119.39	1.37E-05	2.55E-04	2
Chloromethane	74-87-3	0.013	b	50.49	1.90E-06	1.49E-05	0.1
Cyclohexane	110-82-7	1.7	b	51.49	2.43E-04	1.95E-03	17
Dichlorobenzene	106-46-7	0.048	b	147	7.01E-06	1.61E-04	1
Dichloromethane (methylene chloride)	75-09-2	17	b	84.94	2.48E-03	3.28E-02	288
Ethylbenzene	100-41-4	0.74	b	106.16	1.08E-04	1.79E-03	16
Ethylene dibromide	106-93-4	0.001	a	187.88	1.46E-07	4.27E-06	0.04
Hexane	110-54-3	4.67	b	86.18	6.82E-04	9.15E-03	80
Hydrogen sulfide	7783-06-4	0.0148	b	34.08	2.16E-06	1.15E-05	0.1
Mercury (total)	7439-97-6	0.000292	a	200.61	4.26E-08	1.33E-06	0.01
Methyl ethyl ketone	78-93-3	0.681	b	72.11	9.94E-05	1.12E-03	10
Methyl isobutyl ketone	108-10-1	0.011	b	100.16	1.61E-06	2.51E-05	0.2
Methyl tert-Butyl Ether	1634-04-4	0.0077	b	88.15	1.12E-06	1.54E-05	0.1
Perchloroethylene (tetrachloroethylene)	127-18-4	3.5	b	165.83	5.11E-04	1.32E-02	116
Propylene	115-07-1	6.925	b	45.09	1.01E-03	7.10E-03	62
Styrene	100-42-5	0.069	b	104.15	1.01E-05	1.63E-04	1
t-1,2-Dichloroethene	156-60-5	0.072	b	96.94	1.05E-05	1.59E-04	1
Toluene	108-88-3	7.7	b	92.13	1.12E-03	1.61E-02	141
1,1,2-Trichloroethane	79-00-5	0.0051	c	133.41	7.45E-07	1.55E-05	0.1
Trichloroethylene (trichloroethene)	79-01-6	1.2	b	131.40	1.75E-04	3.59E-03	31
Vinyl Acetate	108-05-4	0.0078	c	86.09	1.14E-06	1.53E-05	0.1
Vinyl chloride	75-01-4	3.2	b	62.50	4.67E-04	4.55E-03	40
Xylenes	1330-20-7	3.72	b	106.16	5.43E-04	8.98E-03	79

notes:

a - Default concentration from AP-42 Section2.4 (Municipal Solid Waste Landfills, November 1998)

b - NMOC concentration from Tier II Testing (May 2010), TAP/HAP maximum concentration from three samples LFG samples at Terrace Heights landfill (6/15/2005, 12/21/2005, and 7/1/2008)

c - Concentration was non-detect during analysis of Terrace Heights LFG, assume method reporting limit. d - Assume 1 atmosphere and 20 degrees C.

e - Based on 8,760 hours per year.

f - GHG emissions (CO2e) based on global warming potential (GWP) for each Greenhouse gas: CO2 = 1; CH4 = 21; and N2O = 310 (40 CFR Part 98, Subpart A).

2.2 Facility Process Diagram

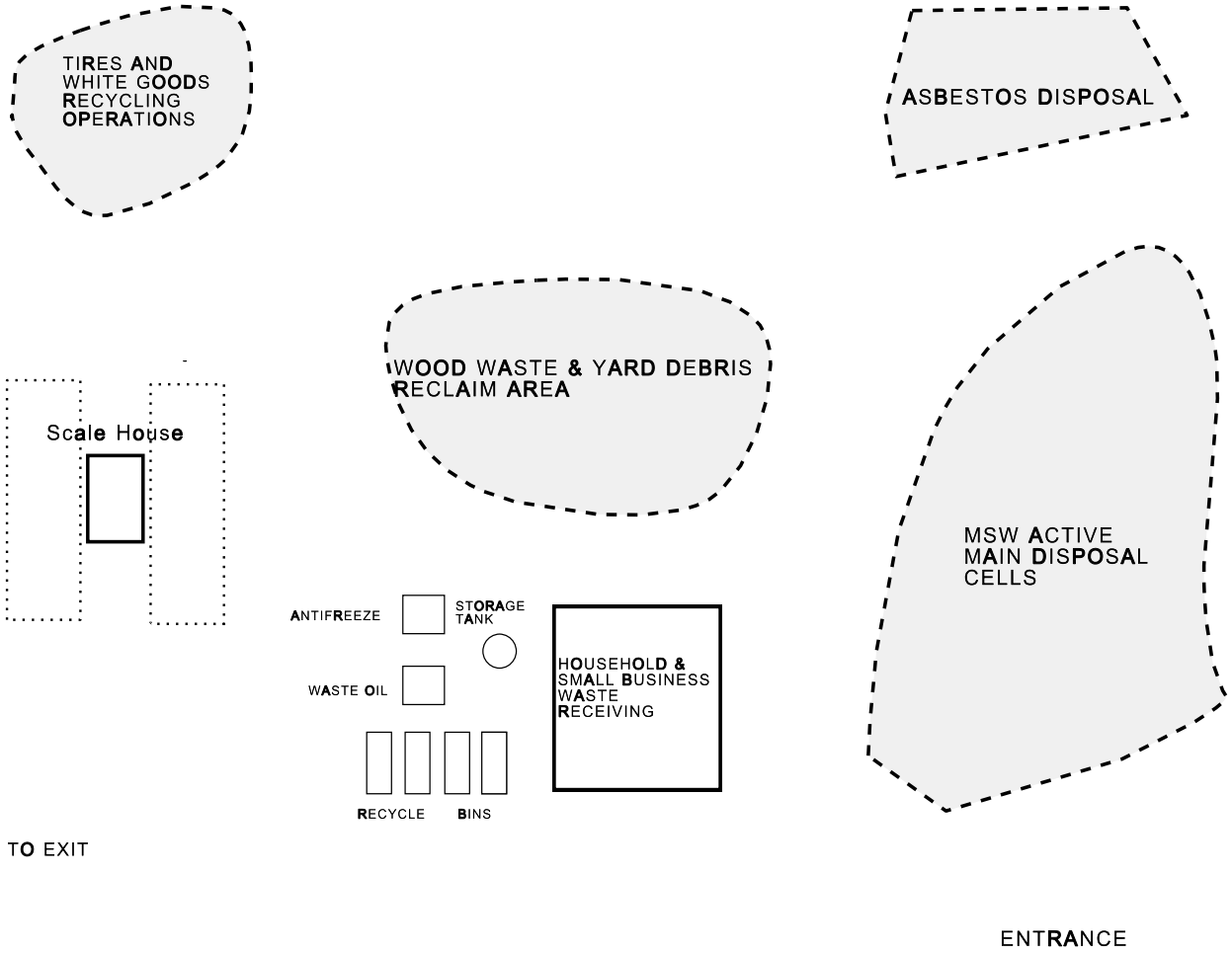

Figure 1. Landfill Operations Flow Diagram

(Not to scale)

Figure 2. Facility Site Layout