LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

1299 HARRISBURG PIKE
P.O. BOX 4425
LANCASTER, PA 17604
PHONE: (717) 397-9968
FAX: (717) 397-9973
www.lcswma.org

April 12, 2005

Mr. Rick Millard
Bureau of Air Quality
Pennsylvania Department of Environmental Protection
909 Elmerton Avenue
Harrisburg, PA 17110-8200

REF: Lancaster County Solid Waste Management Authority (LCSWMA)
Frey Farm/Creswell Landfill; Manor Township, Lancaster County
Landfill Gas to Energy Project – Bureau of Air Quality Permit Application

Dear Mr. Millard,

I am pleased to enclose one (1) original and two (2) copies of the Bureau of Air Quality permit application referenced above as prepared by LCSWMA in conjunction with our consultant (ARM Group Inc., Hershey, PA). The application includes:

- The DEP BAQ Compliance Review Form
- The DEP BAQ "Processes" Form
- The DEP BAQ State Only Permit Application Form
- The DEP General Information Form
- Act 14 Notifications
- A check in the amount of $1,700

Accordingly, I believe the application to be administratively complete and look forward to the Department's usual timely review such that this exciting project can proceed as soon as possible.

Please note, as indicated below, I have submitted a copy of this application directly to the Manor Township Supervisors.

Thank you for your efforts with this project. Feel free to contact me if I can provide additional information or be of further assistance in any regard.

Sincerely,

Brooks K Norris

Brooks K. Norris
Senior Manager-Technical Services

Enclosure

Cc: Manor Township Supervisors (w:enc.)
LCSWMA: Jim Warner; Bob Zorbaugh; Bob Eshbach (w:enc.)
PPL: Steve Gabrielle (w:enc.)
ARM: Brian Martz (w:enc.)

L:\WPDATA\BKN\WORD\CWFFGAS\BAQ application ltr.doc

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

1299 OLD HARRISBURG PIKE
P.O. BOX 4425
LANCASTER, PA 17604-4425
PHONE (717) 397-9968
FAX (717) 397-9973

Fulton Bank
LANCASTER, PA 17604
VOID AFTER 90 DAYS

60-142
313

CHECK NO. 1159834

DATE	AMOUNT
4/1/2005	$1,700.00

One Thousand Seven Hundred Dollars And 00 Cents

PAY TO THE ORDER OF
COMMONWEALTH OF PA
CAMERON STREET
HARRISBURG PA

TWO SIGNATURES REQUIRED

⑈1159834⑈ ⑆031301422⑆ 2018 25459⑈

1159834

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

VENDOR ID	NAME	ACCOUNT NO.	CHECK NO.	CHECK DATE
COMMO015	COMMONWEALTH OF PA		1159834	4/1/2005

VOUCHER	INVOICE	DATE	AMOUNT	DISCOUNT	OTHER	NET
	033105	3/31/2005	$1,700.00	$0.00		$1,700.00
			$1,700.00	$0.00		$1,700.00

COMMENT

PLAN APPROVAL APPLICATION

for the

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

FREY FARM-CRESWELL LANDFILL

regarding

Installation and Operation

of a

Landfill Gas Collection and Conveyance System

including an

Enclosed Flare

Prepared by:

Lancaster County Solid Waste Management Authority

1299 Harrisburg Pike

Lancaster, PA 17604-4425

and

ARM Group Inc.

1129 West Governor Road

Hershey, PA 17033-0797

April 2005

TABLE OF CONTENTS

Figures

Attachments

1. DEP Application Forms
    - General Information Form
    - Air Pollution Control Act Compliance Review Supplemental Form
    - Processes-Application for Plan Approval to Construct, Modify, or Reactivate an Air Contamination Source and/or Install an Air Cleaning Device
    - State Only Permit Application Form
2. Act 14 Notifications
3. Drawings

1. Introduction

The Lancaster County Solid Waste Management Authority (LCSWMA) owns and operates the Frey Farm Landfill (FFLF) located in Manor Township, Lancaster County, PA.

The FFLF has been permitted by the Pennsylvania Department of Environmental Protection (DEP) through the Bureau of Waste Management (permit number 101389) and has been operational since August 16, 1989. Additionally, the FFLF and the adjacent Creswell Landfill (inactive since 1989) are permitted by the Bureau of Air Quality (BAQ), as indicated in the Title V Permit (#36-05081) previously issued by DEP.

PPL Corporation (based in Allentown, PA) and LCSWMA have joined in an effort to implement a landfill gas-to-energy project at the FFLF. PPL is proposing to utilize landfill gas in a "green" project to provide electricity generated from a renewable source into their distribution system. Note that, separately, PPL has submitted a Plan Approval Application to the BAQ regarding the installation and operation of two (2) 1,600 kilowatt Caterpillar 3520 engines to generate electricity from the landfill gas. (Additionally, LCSWMA submitted a Minor Permit Modification request to the Bureau of Waste Management on March 4, 2005 regarding construction of the landfill gas collection and conveyance system.)

This BAQ Plan Approval Application has been prepared by LCSWMA in conjunction with its consultant (ARM Group Inc.; Hershey, PA) relative to installation and operation of both the landfill gas collection and conveyance pipe and the "control device" (i.e. enclosed flare) necessary at the PPL site for those times that the Caterpillar engines are not in operation.

This submittal contains all the information required for a Plan Approval Application. Section 2 ("Narrative") is a brief description of the project and includes a discussion of the landfill gas collection and conveyance system and the flare. Attachment 1 includes the "administrative" forms relative to a permit modification, (the DEP General Information Form, and the specific BAQ forms). Act 14 notifications have been provided in Attachment 2, while Attachment 3 contains drawings depicting the landfill gas collection and conveyance system.

As indicated previously to DEP staff, the time frame for this project is such that on or before December 31, 2005, the Caterpillar engines must be generating electricity to the grid. Accordingly, LCSWMA anticipates timely consideration from the Department such that construction activity can commence in short order.

2. Narrative

Landfill gas (LFG) from Frey Farm and Creswell Landfills will be collected through existing and future LFG collection wells and vents, and will be conveyed to the landfill gas to energy equipment (see Figure 1) through a network of HDPE conveyance piping. The wells, vents, and conveyance pipes were design to efficiently collect and convey LFG.

Design of the Frey Farm LFG collection wells and vents has been completed to capture gas in a manner considered most effective for the waste received at the landfill. Wells were generally spaced within a radius of influence distance not larger than 150 feet. Vents were also installed at each end of horizontal gas collection trenches that were constructed beneath the cap liner, along the outside edge of each final grade terrace. Wells and vents are installed only in areas of the Frey Farm Landfill that have been closed with a final cover system.

LFG collection wells exist within all lifts of the Creswell Landfill. The wells located in the Ravine and Eastern Lifts have been unused for approximately 7 years. The LFG wells in the Central and Western Lifts were installed in 2004 for connection and subsequent use with the subject project. Generally, these wells are located within a ROI of 100 to 150 feet.

The network of HDPE piping that constitutes the conveyance network will connect to all but five of the existing gas wells at the Frey Farm Landfill, and to one vent of the two installed on each end of the sub-liner gas collection trenches. The conveyance network will also connect to the existing wells located at the Creswell Landfill.

Connections to the Frey Farm Landfill will be made with prefabricated wellheads that contain valves and monitoring ports that will allow efficient operation and performance measurements at each well. The wells located at the Western and Central Lifts of Creswell Landfill are equipped with similar prefabricated wellheads. The wells at the Ravine and Eastern Lifts are considerably older and must be replaced with connection below existing grade so that LFG condensate doesn't block the LFG flow in the conveyance pipe. The connection will be made of HDPE or PVC pipe with a control valve and monitoring ports, so that control exists at each well. The well pipe will be extended above grade to allow access if performance measurements, or access is necessary.

A detailed study by SCS Engineers, PC dated January 12, 2003 was completed on behalf of the Lancaster Solid Waste Management Authority to critically evaluate the reasonable quantity of LFG that the waste stream received at Frey Farm and Creswell Landfills will produce. The results of that study predicted that approximately 819 scfm of LFG will be generated in 2005 by Frey Farm Landfill, that approximately 188 scfm of LFG will be generated in 2005 by Creswell Landfill. These flow rates of generated LFG

changed to a peak overall generation of 1,124 scfm by Frey Farm Landfill in 2021. Creswell will only generate a predicted flow rate of 23 scfm in 2021. The combined flow rate for each landfill in 2021 is the projected peak of LFG production of the combined sites.

The HDPE conveyance pipes were designed to convey LFG will minimal friction loss, and with consideration for the impacts to performance resulting from the formation of LFG condensate. Pipes installed within the waste limits are designed for installation at a minimum slope of 3%. Pipes installed outside the waste limits are generally designed for installation at a minimum slope of 2%. Select location of pipes installed outside the waste limits were installed at slopes as low as 0.5% for areas where the gas flow is in the direction of the downhill slope, and at 1% for areas where gas flow is in the uphill direction of the pipe slope. All pipes will be bedded with AASHTO #10 stone and a magnetic location tape to ensure proper installation in a well-drained and structurally competent backfill that can be reliably located in the future.

The HDPE collection pipes were evaluated for initial size based upon landfill gas velocity. Generally, flow velocities below 40 feet per second are efficient to convey landfill gas and not generate large frictional losses. The guidance utilized for the Frey Farm and Creswell pipes was to size pipes for velocities not greater than 30 feet per second. This conservative approach creates an inherent capacity for the LFG condensate to flow through a portion of the pipe cross-section without impacting the gas flow. The HDPE pipes were then evaluated for frictional performance through engineering calculations to further refine pipe sizes.

An enclosed flare (presented in schematic form on Figure 2) has been selected to accommodate the peak gas generation of 1300 scfm, which includes a 1.13 factor of safety over the peak generation projected for the combined landfills. The flare has been specified to attain the following performance criteria:

Parameter	Value
Number	1
Maximum LFG Flow	1300 scfm
Minimum LFG Flow	200 scfm
Maximum Btu Rate (HHV)	39 MMBtu/hr.
Minimum Btu Rate (HHV)	6.5 MMBtu/hr.
Flare Inlet Pressure: Maximum	5 in.-w.c.
Gas Composition Range:	25-60% methane 20-50% carbon dioxide 0-60% air
Moisture Content	saturated

Parameter	Value
Site Elevation	485 ft. M.S.L.
Pilot Gas	Propane
Maximum Stack Emissions	
NO_x (HHV)	0.06 lbs/MMBtu
CO (HHV)	0.20 lbs/MMBtu
Operating Temperature	1400 to 2000 °F
Minimum Residence Time	0.7 seconds @1600 °F

The flare shall provide a minimum 98 percent (by weight) destruction and removal efficiency of non-methane organic compounds (NMOCs) as measured by the U.S. Environmental Protection Agency (EPA) Method 25 or an outlet NMOC concentration that shall not exceed 20 ppmvd measured as hexane and corrected to 3 percent oxygen.

Base map from Safe Harbor USGS 7½ minute quadrangle dated 1955 and photorevised in 1990.

0 500 1000 2000 3000

SCALE IN FEET

Site Location Map

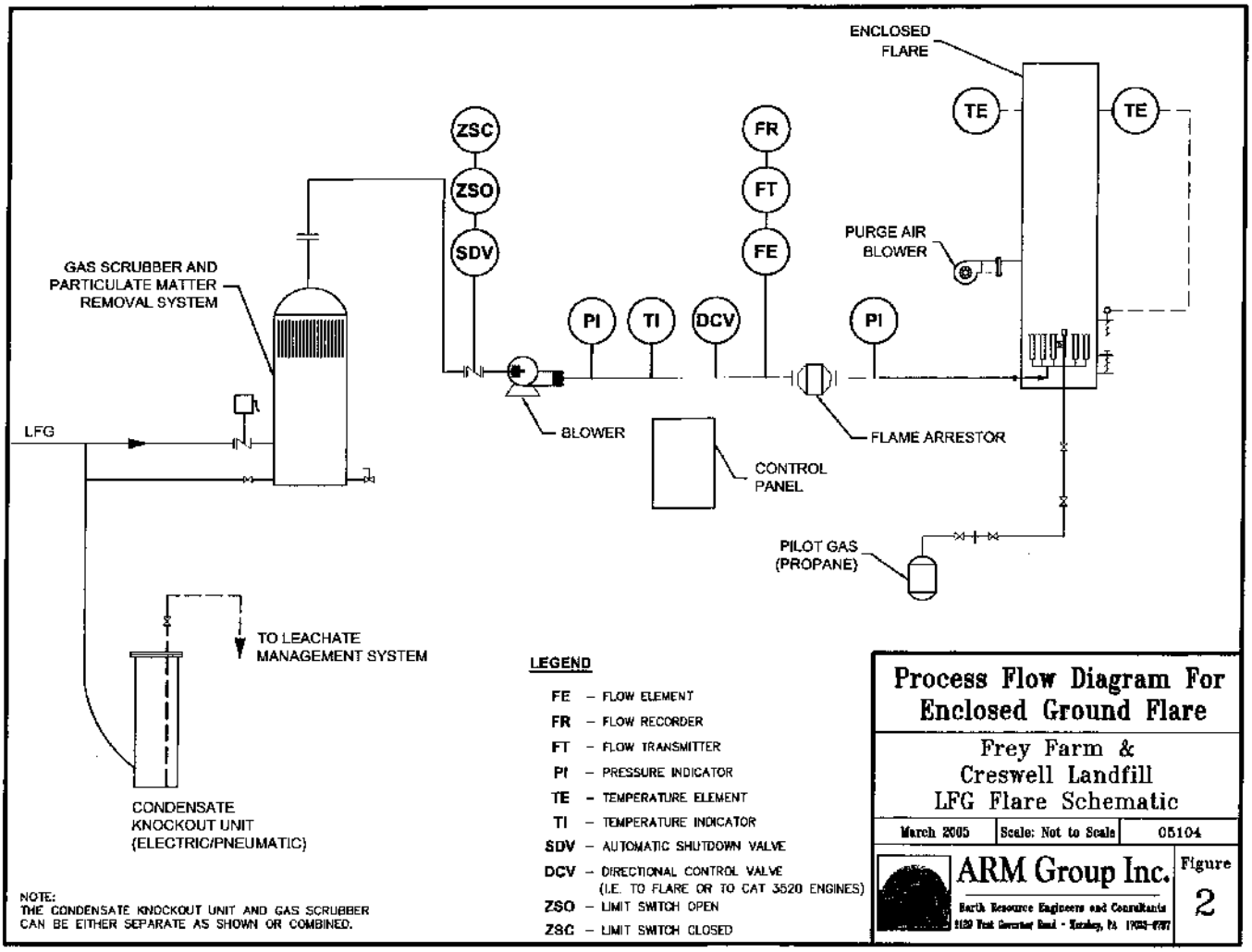
Frey Farm & Creswell Landfill
Manor Township
Lancaster County, PA

April 2005	Scale: 1" = 1000'	05104

ARM Group Inc.
Earth Resource Engineers and Consultants
1129 West Governor Road · Hershey, PA 17033-0797

Figure 1

R:\05104 LCSWMA Gas System Design_Drwg\Plan Approval\05104_fig1.dwg



NOTE:
THE CONDENSATE KNOCKOUT UNIT AND GAS SCRUBBER CAN BE EITHER SEPARATE AS SHOWN OR COMBINED.

LEGEND

- **FE** – FLOW ELEMENT
- **FR** – FLOW RECORDER
- **FT** – FLOW TRANSMITTER
- **PI** – PRESSURE INDICATOR
- **TE** – TEMPERATURE ELEMENT
- **TI** – TEMPERATURE INDICATOR
- **SDV** – AUTOMATIC SHUTDOWN VALVE
- **DCV** – DIRECTIONAL CONTROL VALVE (I.E. TO FLARE OR TO CAT 3520 ENGINES)
- **ZSO** – LIMIT SWITCH OPEN
- **ZSC** – LIMIT SWITCH CLOSED

Process Flow Diagram For Enclosed Ground Flare

Frey Farm & Creswell Landfill
LFG Flare Schematic

March 2005	Scale: Not to Scale	05104

ARM Group Inc.
Earth Resource Engineers and Consultants
1129 West Governor Road - Hershey, PA 17033-0797

Figure 2

3. Summary

The Lancaster County Solid Waste Management Authority (LCSWMA) is requesting that the Pennsylvania Department of Environmental Protection (DEP) Bureau of Air Quality (BAQ) approve this Plan Approval relative to installation and operation of both the landfill gas collection and conveyance system and the enclosed flare such that the gas-to-energy project can be implemented by PPL for the LCSWMA landfill located in Manor Township, Lancaster County.

LCSWMA respectfully requests the DEP's timely consideration of this application and that LCSWMA be provided with the opportunity to clarify any questions that arise during the review process in order that the Plan Approval be issued as expeditiously as possible.

Attachment 1

DEP Application Forms

8000-PM-IT0001 Rev 06/07/2002

FORM

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION
GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

Related ID#s (If Known)			DEP USE ONLY
Client ID#	4703	APS ID#	Date Received & General Notes
Site ID#	450744	Auth ID#	
Facility ID#	477357		

CLIENT INFORMATION

DEP Client ID#	Client Type / Code
4703	Authority/AUTH

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#
Lancaster County Solid Waste Mgm't Auth. (LCSWMA)	23-6006036	06-709-5828

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2
1299 Harrisburg Pike	

Address Last Line – City	State	ZIP+4	Country
Lancaster	PA	17604-4425	USA

Client Contact Last Name	First Name	MI	Suffix
Norris	Brooks	K.	

Client Contact Title	Phone	Ext
Technical Services Manager	(717) 397-9968	330

Email Address	FAX
bnorris@lcswma.org	(717) 397-9973

SITE INFORMATION

DEP Site ID#	Site Name
450744	LCSWMA Frey Farm Landfill

EPA ID#	Estimated Number of Employees to be Present at Site	10

Description of Site
Solid Waste Landfill

County Name	Municipality	City	Boro	Twp	State
Lancaster	Manor Township	☐	☐	☒	
County Name	**Municipality**	**City**	**Boro**	**Twp**	**State**
		☐	☐	☐	

Site Location Line 1	Site Location Line 2

Site Location Last Line – City	State	ZIP+4

Detailed Written Directions to Site
Route 441 South (of Columbia, PA) 8.5 miles to Landfill entrance on right

Site Contact Last Name	First Name	MI	Suffix
Eshbach	Robert		

Site Contact Title	Site Contact Firm
Landfill Manager	LCSWMA

Mailing Address Line 1	Mailing Address Line 2
3049 River Road	

Mailing Address Last Line – City	State	ZIP+4
Conestoga	PA	17604

Phone	Ext	FAX	Email Address
(717) 871-6420		(717) 871-6425	beshbach@lcswma.org

NAICS Codes (Two- & Three-Digit Codes – List All That Apply)
562212

6-Digit Code (Optional)
562212

Client to Site Relationship
SAME

FACILITY INFORMATION

Modification of Existing Facility

		Yes	No
1.	**Will this project modify an existing facility, system, or activity?**	☒	☐
2.	**Will this project involve an addition to an existing facility, system, or activity?**	☒	☐

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	MineDrainageTrmt/LandRecyProjLocation	
☐	Coal Ash Beneficial Use Operation		☒	Municipal Waste Operation	101389
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Anthracite		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Bituminous		☐	Residual Waste Operation	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Storage Tank Location	
☐	Encroachment Location (water, wetland)		☐	Water Pollution Control Facility	
☐	Erosion & Sediment Control Facility		☐	Water Resource	
☐	Explosive Storage Location		☒	Other: Air Quality Permit	36-05081

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	57	19	76	26	48

Horizontal Accuracy Measure Feet --or-- Meters

Horizontal Reference Datum Code
- ☐ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude Feet --or-- Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number Inch(es) = Feet
--or-- Centimeter(s) = Meters

PROJECT INFORMATION

Project Name
Landfill Gas Collection and Conveyance System

Project Description
Implement a landfill gas-to-energy effort with PPL

Project Consultant Last Name	First Name	MI	Suffix
Martz	Brian		

Project Consultant Title	Consulting Firm
Senior Engineer - Project Manager	ARM Group Inc.

Mailing Address Line 1	Mailing Address Line 2
1129 West Governor Road	

Address Last Line – City	State	ZIP+4
Hershey	PA	17033-0797

Phone	Ext	FAX	Email Address
(717) 533-8600		(717) 533-8605	bmartz@armgroup.net

Time Schedules	Project Milestone (Optional)
3/4/05	Submit Minor Permit Modification
5/31/05	Obtain DEP approval
6/1/05	Construction

1.	**Is this application for an authorization type on the list of authorizations affected by the land use policy?** **Note:** If "Yes", you must complete the following Land Use Information section, unless exempted by Questions 2 or 3 below. If "No", skip Questions 2 & 3 below as well as the following Land Use Information section. For referenced list, see Appendix A attached to the GIF Instructions.	☐	Yes	☒	No
2.	**For an Air program authorization only. All other authorizations continue with Question 3 below. Will the permit authorize the construction of facilities outside an existing permitted area?** **Note:** If "Yes", you must complete the following Land Use Information section unless exempted by Question 3 below. If "No", skip Question 3 below as well as the following Land Use Information section.	☐	Yes	☒	No
3.	**Have you attached or submitted municipal and county 'Early Opt Out' approval letters for the project?** **Note:** If "Yes" to Question 3, skip the following Land Use Information section. This should only be checked "Yes" if applicant is choosing the early opt-out option. Required approval letters described in the GIF Checklist and Instructions should be attached. If "No" to Question 3, continue with the following Land Use Information section.	☐	Yes	☐	No

LAND USE INFORMATION

Note: Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1.	**Is there a municipal comprehensive plan(s)?**	☐	Yes	☐	No
2.	**Is there a county comprehensive plan(s)?**	☐	Yes	☐	No
3.	**Is there a multi-municipal or multi-county comprehensive plan?**	☐	Yes	☐	No
4.	**Is the proposed project consistent with these plans?** If no plan(s) exists, answer "Yes".	☐	Yes	☐	No
5.	**Is there a municipal zoning ordinance(s)?**	☐	Yes	☐	No
6.	**Is there a joint municipal zoning ordinance(s)?**	☐	Yes	☐	No
7.	**Will the proposed project require a zoning approval (e.g., special exception, conditional approval, re-zoning, variance)?** If zoning approval has already been received, attach documentation.	☐	Yes	☐	No
8.	**Are any zoning ordinances that are applicable to this project currently the subject of any type of legal proceeding?**	☐	Yes	☐	No
9.	**Will the project be located on a site that has been or is being remediated under DEP's Land Recycling Program?**	☐	Yes	☐	No
10.	**Will the project result in reclamation of abandoned mine lands through re-mining or as part of DEP's Reclaim PA Program?**	☐	Yes	☐	No
11.	**Will the project be located in an agricultural security area or an area protected under an agricultural conservation easement?**	☐	Yes	☐	No
12.	**Will the project be located in a Keystone Opportunity Zone or Enterprise Development Area?**	☐	Yes	☐	No
13.	**Will the project be located in a Designated Growth Area as defined by the Municipalities Planning Code?**	☐	Yes	☐	No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0. (DEP Use/48y1)	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?** (DEP Use/4x70)	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?** (DEP Use/4x70)	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?** (DEP Use/4x70)	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?** (DEP Use/4z41)	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0. (DEP Use/48y1)	☐	Yes	☒	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?** (DEP Use/4x70)	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?** (DEP Use/4x70)	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?** (DEP Use/4x70)	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No

3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, site development for such activity, or the waste from such a well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0. (DEP Use/4z41)	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?** (DEP Use/4z41)	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*. (DEP Use/4z41)	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4z41)	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage. (DEP Use/4x66) **4.0.1 Total Disturbed Acreage** already permitted	☒	Yes	☐	No
5.0	**Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?** (DEP Use/4x66)	☐	Yes	☒	No
6.0	**Will the project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?** If "Yes", discuss in *Project Description*. (DEP Use/4x62)	☐	Yes	☒	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4x62)	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. (DEP Use/4x62) **8.0.1 Estimated Proposed Flow (gal/day)**	☐	Yes	☒	No
9.0	**Was sewage planning submitted and approved?** If "Yes", attach the Act 537 approval letter unless the submitted application is actually requesting Act 537 approval (Approval required prior to 105/NPDES approval). (DEP Use/4x61) **9.0.1 Is Act 537 Approval Letter attached?**	☐	Yes	☒	No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). (DEP Use/4X62) **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)**	☐	Yes	☒	No
11.0	**Does the project involve construction, modification or removal of a dam?** If "Yes", identify the dam. (DEP Use/3140) **11.0.1 Dam Name**	☐	Yes	☒	No
12.0	**Will the project interfere with the flow from, or otherwise impact, a dam?** If "Yes", identify the dam. (DEP Use/3140) **12.0.1 Dam Name**	☐	Yes	☒	No
13.0	**Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?** If "Yes", identify each type of emission followed by the amount of that emission. (DEP Use/4x70) **13.0.1 Enter all types & amounts of emissions; separate each set with semicolons.**	☐	Yes	☒	No

14.0	**Is an on-site drinking water supply (well), other than individual house wells, proposed for your project?** If "Yes", indicate total number of people served and/or the total number of connections served, if applicable. Also, check all proposed sub-facilities. (DEP Use/4x81)	☐	Yes	☒	No
	14.0.1 Number of Persons Served				
	14.0.2 Number of Employee/Guests				
	14.0.3 Number of Connections				
	14.0.4 Sub-Fac: Distribution System	☐	Yes	☐	No
	14.0.5 Sub-Fac: Water Treatment Plant	☐	Yes	☐	No
	14.0.6 Sub-Fac: Source	☐	Yes	☐	No
	14.0.7 Sub-Fac: Pump Station	☐	Yes	☐	No
	14.0.8 Sub-Fac: Entry Point	☐	Yes	☐	No
	14.0.9 Sub-Fac: Transmission Main	☐	Yes	☐	No
	14.0.10 Sub-Fac: Storage Facility	☐	Yes	☐	No
15.0	**Will your project involve purchasing water in bulk, excluding during the construction period?** If "Yes, name the provider. Also, indicate the daily number of employees or guests served. (DEP Use/4x81)	☐	Yes	☒	No
	15.0.1 Provider's Name				
	15.0.2 Number of Employees/Guests				
16.0	**Is your project to be served by public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project. (DEP Use/4x81)	☐	Yes	☒	No
	16.0.1 Supplier's Name				
	16.0.2 Letter of Approval from Supplier is Attached	☐	Yes	☐	No
17.0	**Will this project involve a new or increased drinking water withdrawal from a stream or other water body?** If "Yes", provide name of stream. (DEP Use/4x81)	☐	Yes	☒	No
	17.0.1 Stream Name				
18.0	**Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed. (DEP/Use4x32)	☒	Yes	☐	No
	18.0.1 Type & Amount Condensate; see permit application				
19.0	**Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?** (DEP Use/48y1)	☐	Yes	☒	No
20.0	**Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	20.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
21.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	21.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
22.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	22.0.1 Enter all substances & capacity of each; separate each set with semicolons.				

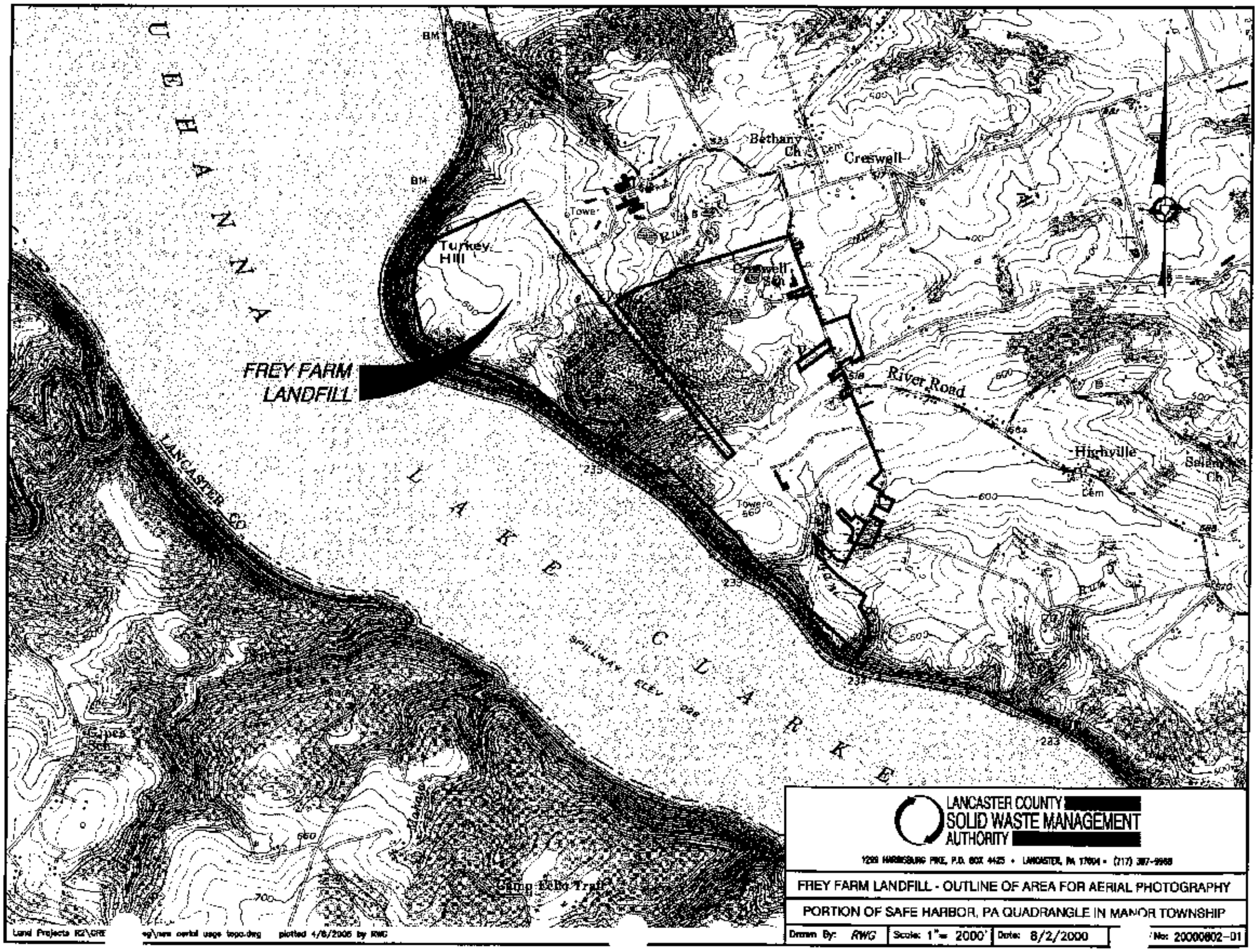
23.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	23.0.1 Enter all substances & capacity of each; separate each set with semicolons.				

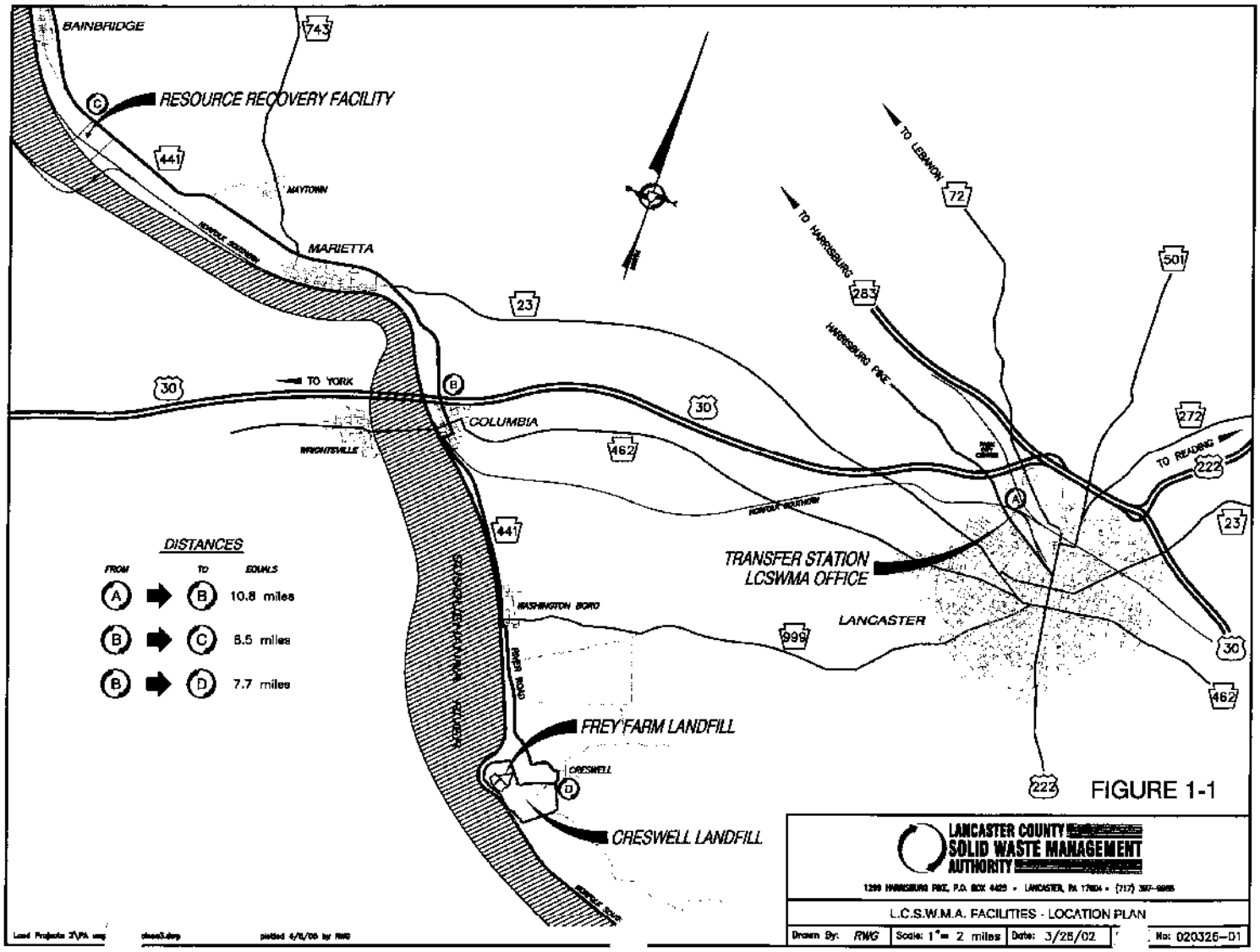
CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name Brooks K. Norris

Signature	Title	Date
Brooks K Norris	Technical Services Manager	March 4,2005


FREY FARM LANDFILL
Turkey Hill
Bethany Ch
Cem
Creswell
Creswell Sch
River Road
Highville
Cem
Salem Ch
Tower
LANCASTER CO
LAKE CLARKE
SPILLWAY ELEV 228
233
600
700
650
LANCASTER COUNTY
SOLID WASTE MANAGEMENT
AUTHORITY
FREY FARM LANDFILL - OUTLINE OF AREA FOR AERIAL PHOTOGRAPHY
PORTION OF SAFE HARBOR, PA QUADRANGLE IN MANOR TOWNSHIP
Drawn By: RWG
Scale: 1" = 2000'
Date: 8/2/2000
No: 20000802-01
plotted 4/6/2006 by RWG


BAINBRIDGE
743
RESOURCE RECOVERY FACILITY
441
MAYTOWN
MARIETTA
SUSQUEHANNA RIVER
23
TO YORK
30
COLUMBIA
WRIGHTSVILLE
462
441
TO LEBANON
72
TO HARRISBURG
283
HARRISBURG PIKE
501
272
TO READING
222
23
30
462
TRANSFER STATION
LCSWMA OFFICE
LANCASTER
WASHINGTON BORO
999
RIVER ROAD
FREY FARM LANDFILL
CRESWELL
CRESWELL LANDFILL
SUSQUEHANNA RIVER
223
DISTANCES
FROM
TO
EQUALS
A → B 10.8 miles
B → C 8.5 miles
B → D 7.7 miles
FIGURE 1-1
LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY
1299 HARRISBURG PIKE, P.O. BOX 4425 • LANCASTER, PA 17604 • (717) 397-6985
L.C.S.W.M.A. FACILITIES - LOCATION PLAN
Drawn By: RWG
Scale: 1"= 2 miles
Date: 3/25/02
No: 020325-01

2700-PM-AQ0004 Rev. 5/2001

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

AIR POLLUTION CONTROL ACT COMPLIANCE REVIEW FORM

Fully and accurately provide the following information, as specified. Attach additional sheets as necessary.

Type of Compliance Review Form Submittal (check all that apply)

☒ Original Filing
☐ Amended Filing

Date of Last Compliance Review Form Filing: ____/____/____

Type of Submittal

☒ New Plan Approval ☐ New Operating Permit ☐ Renewal of Operating Permit
☐ Extension of Plan Approval ☐ Change of Ownership ☐ Periodic Submission (@ 6 mos)
☐ Other: _____

Name of Applicant/Permittee/("applicant")
(non-corporations-attach documentation of legal name)
Lancaster County Solid Waste Management Authority - Frey Farm and Creswell Landfills

Address (Office) 1299 Harrisburg Pike; P.O. Box 4425
Lancaster, Pennsylvania 17604-4425

Telephone (717) 397-9968 **Taxpayer ID#** 23-6006036-1

Permit, Plan Approval or Application ID# 36-05081

Identify the form of management under which the applicant conducts its business (check appropriate box)

☐ Individual ☐ Syndicate ☐ Government Agency
☐ Municipality ☒ Municipal Authority ☐ Joint Venture
☐ Proprietorship ☐ Fictitious Name ☐ Association
☐ Public Corporation ☐ Partnership ☐ Other Type of Business, specify below:
☐ Private Corporation ☐ Limited Partnership

Describe below the type(s) of business activities performed.
The Lancaster County Solid Waste Management Authority manages the solid waste services of Lancaster County.

If applicant is a corporation or a division or other unit of a corporation, provide the names, principal places of business, state of incorporation, and taxpayer ID numbers of all domestic and foreign parent corporations (including the ultimate parent corporation), and all domestic and foreign subsidiary corporations of the ultimate parent corporation with operations in Pennsylvania. Please include all corporate divisions or units, (whether incorporated or unincorporated) and privately held corporations. (A diagram of corporate relationships may be provided to illustrate corporate relationships.) Attach additional sheets as necessary.

Unit Name	Principal Places of Business	State of Incorporation	Taxpayer ID	Relationship to Applicant

Pennsylvania Facilities. List the name and location (mailing address, municipality, county), telephone number, and relationship to applicant (parent, subsidiary or general partner) of applicant and all Related Parties' places of business, and facilities in Pennsylvania. Attach additional sheets as necessary.

Unit Name	Street Address	County and Municipality	Telephone No.	Relationship to Applicant

Provide the names and business addresses of all general partners of the applicant and parent and subsidiary corporations, if any.

Name	Business Address

List the names and business address of persons with overall management responsibility for the process being permitted (i.e. plant manager).

Name	Business Address
Brooks K. Norris;Sr. Mgr.-Technical Svcs	P.O. Box 4425, Lancaster, PA 17604-4425

Plan Approvals or Operating Permits. List all plan approvals or operating permits issued by the Department or an approved local air pollution control agency under the APCA to the applicant or related parties that are currently in effect or have been in effect at any time 5 years prior to the date on which this form is notarized. This list shall include the plan approval and operating permit numbers, locations, issuance and expiration dates. Attach additional sheets as necessary.

Air Contamination Source	Plan Approval/ Operating Permit#	Location	Issuance Date	Expiration Date
Frey Farm/Creswell Landfill	36-05081	3094 River Road, Conestoga, PA	4/20/00	4/30/05

Compliance Background. (Note: Copies of specific documents, if applicable, must be made available to the Department upon its request.) List all documented conduct of violations or enforcement actions identified by the Department pursuant to the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. Attach additional sheets as necessary. See the definition of "documented conduct" for further clarification. Unless specifically directed by the Department, deviations which have been previously reported to the Department in writing, relating to monitoring and reporting, need not be reported.

Date	Location	Plan Approval/ Operating Permit#	Nature of Documented Conduct	Type of Department Action	Status: Litigation Existing/Continuing or Corrected/Date	Dollar Amount Penalty
N/A						$
						$
						$
						$
						$
						$
						$
						$
						$
						$

List all incidents of deviations of the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. This list must include items both currently known and unknown to the Department. Attach additional sheets as necessary. See the definition of "deviations" for further clarification.

Date	Location	Plan Approval/ Operating Permit#	Nature of Deviation	Incident Status: Litigation Existing/Continuing Or Corrected/Date
N/A				

CONTINUING OBLIGATION. Applicant is under a continuing obligation to update this form using the Compliance Review Supplemental Form if any additional deviations occur between the date of submission and Department action on the application.

I, **being duly sworn according to the law depose and state, under penalty of law as provided in 18 Pa. C.S. §4944 and Section 9(b)(2) of the Air Pollution Control Act, 35 P.S. §4009(b)(2), that I am the representative of the Applicant/Permittee, identified above, authorized to make this affidavit. I further state that the information provided with this form, after reasonable inquiry, is true and complete to the best of my belief and that there are reasonable procedures in place to insure that documented conduct and deviations are identified and made part of the compliance review information contained in the Compliance Review Form.**

Signature

James D. Warner

Name (Print or Type)

Executive Director

Title

Sworn to and subscribed before me this 8th day of April, 2005.

Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Catherine A. Dougherty, Notary Public
Manheim Twp., Lancaster County
My Commission Expires June 8, 2008
Member, Pennsylvania Association Of Notaries

Affix Corporate Seal and
Attach Copy of Articles of Incorporation
(For Corporations, see Instructions, Instruction 4, regarding corporate seal and signatures.)

2700-PM-AQ0007 Rev. 7/2004

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Submit in Triplicate

PROCESSES

Application for Plan Approval to Construct, Modify or Reactivate an Air Contamination Source and/or Install an Air Cleaning Device

This application must be submitted with the General Information Form (GIF).

Before completing this form, read the instructions provided for the form.

Section A - Facility Name, Checklist And Certification

Organization Name or Registered Fictitious Name/Facility Name: Lancaster County Solid Waste Management Authority

DEP Client ID# (if known): _____

Type of Review required and Fees:

- ☒ Source which is not subject to NSPS, NESHAPs, MACT, NSR and PSD:.....$1,700
- ☐ Source requiring approval under NSPS or NESHAPS or both: .....$_____
- ☐ Source requiring approval under NSR regulations:.....$_____
- ☐ Source requiring the establishment of a MACT limitation: .....$_____
- ☐ Source requiring approval under PSD: .....$_____

Applicant's Checklist

Check the following list to make sure that all the required documents are included.

- ☒ **General Information Form (GIF)**
- ☒ **Processes Plan Approval Application**
- ☒ **Compliance Review Form** or provide reference of most recently submitted compliance review form for facilities submitting on a periodic basis: _____
- ☒ **Copy and Proof of County and Municipal Notifications**
- ☒ **Permit Fees**
- ☒ **Addendum A:** Source Applicable Requirements (only applicable to existing Title V facility)

Certification of Truth, Accuracy and Completeness by a Responsible Official

I, **Brooks K. Norris**, certify under penalty of law in 18 Pa. C. S. A. §4904, and 35 P.S. §4009(b) (2) that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate and complete.

(Signature): Brooks K Norris Date: April 12, 2005

Name (Print): Brooks K. Norris Title: Senior Manager - Technical Services

OFFICIAL USE ONLY

Application No. _____ Unit ID _____ Site ID _____

DEP Client ID #: _____ APS. ID _____ AUTH. ID _____

Date Received _____ Date Assigned _____ Reviewed By _____

Date of 1st Technical Deficiency _____ Date of 2nd Technical Deficiency _____

Comments: _____

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

New 1300 standard cubic feet per minute (scfm) enclosed flare for combustion of landfill gas collected from the Frey Farm and Creswell Landfill. The enclosed flare is back-up to combustion engines which are the primary destruction device for the Frey Farm and Creswell Landfill. The combustion engines are to be owned, operated, and permitted by PPL Distributed Generation, LLC.

Manufacturer	Model No.	Number of Sources
To be determined	NA	1
Source Designation	**Maximum Capacity**	**Rated Capacity**
ST-1	1300 cfm	1300 cfm

Type of Material Processed
Landfill Gas

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
78,000 cf	1,872,000 cf	13.10 MMcf	681.41 MMcfm

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
0	0	0	0

Seasonal variations (Months) From to

If variations exist, describe them

Flare is a back-up to a primary process, which consists of destructing the landfill gas with G3520C Caterpillar Gas Combustion Engines. The enclosed flare will be utilized during times when the engines are not in service. The intent is for the Combustion Engines to run continuously, so, as a result, no time was listed above for the Operating Schedule. All emissions data and performance criteria are presented for continuous flare operation as a worst-case emission scenario (i.e. "Potential to Emit" values).

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) Landfill	78,000 SCFH	681.41 X 10^6 SCF	Varies grain/100 SCF		500 Btu/SCF
Coal	TPH	Tons	% by wt		Btu/lb
Other *					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
To be determined		1

Description:
Burner will be housed within the enclosed flare device. Procurement of the flare has not been completed, and will likely be procured through a bidding process. The enclosed flare will be capable of the technical performance presented herein.

Rated Capacity	Maximum Capacity
1300 scfm	1300 scfm

4. Process Storage Vessels

A. For Liquids:

Name of material stored

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, Include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

3. Miscellaneous Information

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.
See Attached

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.
A thermocouple will be included to indentify whether the pilot flame is active.
An infrared flame sensor and three (3) thermocouples (lower, middle and upper elevations) will be included in the flare stack to monitor the operating temperature.
A programmable logic controller (PLC) capable of calculating LFG flow and combustion temperatures, at a minimum, and logging this data at every 15 minutes will be included with the flare.

Describe each proposed modification to an existing source.
N/A

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.
No fugitive emission points

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.
If the flare flame is not detected, the inlet control valve will close and the blower will cease operation. An automatic start up will begin once the thermocouples have returned to the restart temperature. If during the automatic start procedures a flare flame cannot be established, a "Failure Alarm" will be displayed. An autodialer will alert site personnel of the system malfunction in order to locate and fix the problem and reset the flare.
An intermittent propane pilot is used for initial start up. The pilot gas ignition will be sensed by a pilot flame thermocouple. Once the pilot proven is displayed, the pilot valve will be de-energized, combustion air dampers will become active, and the inlet control valve will begin to open. Once the main flame is proven, inlet control valves will be throttled to satisfy the combustion temperature setpoint.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: 06/13/05
ii. Expected completion date of construction/reconstruction/installation: 11/21/05
iii. Anticipated date of start-up: 11/21/05

Section C - Air Cleaning Device

1. Precontrol Emissions*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		-			
PM_{10}		-			
SO_x		-			
CO		0.79	8760	3.46	AP-42, Sect. 2.4.4, eqs. (3) & (4)
NO_x		-			
VOC		4.79	8760	20.98	AP-42, Table 2.4-2, note c, 39% of NMOC
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
S (reduced)		0.3	8760	1.314	AP-42, Sect. 2.4.4, assumed value p. 2.4-8, and eqs. (3), (4), & (7)

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No	Air dilution ☐ Yes ☐ No If yes, _____CFM
Forced Draft ☐ Yes ☐ No	Water cooled duct work ☐ Yes ☐ No
Other	
Inlet Volume _____ACFM @ _____°F _____% Moisture	Outlet Volume _____ACFM @ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued)

3. Settling Chambers

Manufacturer	Volume of gas handled _____ACFM @ _____°F	Gas velocity (ft/sec.)

Length of chamber (ft.)	Width of chamber (ft.)	Height of chamber (ft.)	Number of trays

Water injection ☐ Yes ☐ No	Water injection rate (GPM)

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

4. Inertial and Cyclone Collectors

Manufacturer	Type	Model No.
Pressure drop (in. of water)	Inlet volume _____ACFM @ _____°F	Outlet volume _____ACFM @ _____°F

Number of individual cyclone(s)	Outlet straightening vanes used? ☐ Yes ☐ No

Length of Cyclone(s) Cylinder (ft.)	Diameter of Cyclone(s) Cylinder (ft.)	Length of Cyclone(s) cone (ft.)

Inlet Diameter (ft.) or duct area ($ft.^2$) of cyclone(s)	Outlet Diameter (ft.) or duct area ($ft.^2$) of cyclone(s)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?

Describe any exhaust gas recirculation loop to be employed.

Attach particle size efficiency curve

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

5. Fabric Collector

Equipment Specifications

Manufacturer	Model No.	☐ Pressurized Design ☐ Suction Design
Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated? ☐ Yes ☐ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☐ No

Are temperature controls provided? (Describe in detail) ☐ Yes ☐ No

Dew point at maximum moisture _____ °F | Design inlet volume _____ SCFM

Type of Fabric

Material _____ ☐ Felted ☐ Membrane

Weight _____ oz/sq.yd ☐ Woven ☐ Others: List: _____

Thickness _____ in ☐ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P _____ CFM/sq.ft.

Filter dimensions Length _____ Diameter/Width _____

Effective area per filter _____ | Maximum operating temperature (°F) _____

Effective air to cloth ratio Minimum _____ Maximum _____

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled _____ ACFM @ _____ °F | Pressure drop across collector (in. of water). Describe the equipment to be used to monitor the pressure drop.

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other: _____

☐ Pneumatic Shakers ☐ Reverse Air Flow

Describe the equipment provided if dry oil free air is required for collector operation

Cleaning Initiated By

☐ Timer Frequency if timer actuated _____

☐ Expected pressure drop range _____ in. of water ☐ Other Specify _____

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

6. Wet Collection Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Relative Particulate/Gas Velocity (ejector scrubbers only)

Describe the internal features (e.g., variable throat, gas/liquid diffusion plates, spray nozzles, liquid redistributors, bed limiters, etc.).

Describe pH monitoring and pH adjustment systems, if applicable.

Describe mist eliminator or separator (type, configuration, backflush capability, frequency).

Attach particulate size efficiency curve.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____ °F	Outlet volume of gases handled _____ (ACFM) @ _____ °F _____ % Moisture

Liquid flow rates. Describe equipment provided to measure liquid flow rates to scrubber (e.g., quenching section, recirculating solution, makeup water, bleed flow, etc.)

Describe scrubber liquid supply system (amount of make-up and recirculating liquid, capacity of recirculating liquid system, etc.)

State pressure drop range (in water) across scrubber (e.g., venturi throat, packed bed, etc.) only. Describe the equipment provide to measure the pressure drop. Do not include duct or de-mister losses.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

7. Electrostatic Precipitator

Equipment Specifications

Manufacturer	Model No.	☐ Wet ☐ Dry ☐ Single-Stage ☐ Two-Stage

Gas distribution grids ☐ Yes ☐ No

Design Inlet Volume (SCFM) _____

Maximum operating temperature (°F) _____

Total collecting surface area _____ sq. ft. Collector plates size length _____ ft. x width _____ ft.

Number of fields _____ Number of collector plates/field _____

Spacing between collector plates _____ inches.

Maximum gas velocity _____ ft./sec. Minimum gas treatment time: _____ sec.

Total discharge electrode length _____ ft.

Number of discharge electrodes _____ Number of collecting electrode rappers _____

Rapper control ☐ Magnetic ☐ Pneumatic ☐ Other _____ Describe in detail

Operating Parameters

Inlet gas temperature (°F) _____

Outlet gas temperature (°F) _____

State pressure drop range (inches water gauge) across collector only _____

Describe the equipment

Volume of gas handled (ACFM) _____

Dust resistivity (ohm-cm). Will resistivity vary?

Power requirements

Number and size of Transformer Rectifier sets by electrical field

Field No.	No. of Sets	Each Transformer KVA	Each Rectifier KV Ave./Peak	Each Rectifier Ma DC

Current Density _____ Micro amperes/ft^2.

Corona Power _____ Watts/1000 ACFM

Corona Power Density _____ Watts/ft^2.

Will a flue gas conditioning system be employed? If yes, describe it.

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

8. Adsorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Adsorbent charge per adsorber vessel and number of adsorber vessels

Length of Mass Transfer Zone (MTZ), supplied by the manufacturer based upon laboratory data.

Adsorber diameter (ft.) and area ft^2.)	Adsorption bed depth (ft.)

Adsorbent information

Adsorbent type and physical properties.

Working capacity of adsorbent (%)	Heel percent or unrecoverable solvent weight % in the adsorbent after regeneration.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____ °F

Adsorption time per adsorption bed	Breakthrough capacity: Lbs. of solvent / 100 lbs. of adsorbent = _____

Vapor pressure of solvents at the inlet temperature	Available steam in pounds to regenerate carbon adsorber (if applicable)

Percent relative saturation of each solvent at the inlet temperature

Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

9. Absorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Tower height (ft.) and inside diameter (ft.)
Packing type and size (if applicable)	Height of packing (ft.) (if applicable)
Number of trays (if applicable)	Number of bubble caps (if applicable)

Configuration

☐ Counter-current ☐ Cross flow ☐ Cocurrent flow

Describe pH and/or other monitoring and controls.

Absorbent Information

Absorbent type and concentration.	Retention time (sec.)

Attach equilibrium data for absorption (if applicable)

Attach any additional information regarding auxiliary equipment, absorption solution supply system (once through or recirculating, system capacity, etc.) to thoroughly evaluate the control equipment. Indicate the flow rates for makeup, bleed and recirculation.

Operating Parameters

Volume of gas handled (ACFM)	Inlet temperature (°F)	Pressure drop (in. of water) and liquid flow rate. Describe the monitoring equipment.

State operating range for pH and/or absorbent concentration in scrubber liquid.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

10. ☐ **Selective Catalytic Reduction (SCR)**
☐ **Selective Non-Catalytic Reduction (SNCR)**
☐ **Non-Selective Catalytic Reduction (NSCR)**

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Design operating temperature (°F)

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., ammonia slip)

Operating Parameters

Volume of gases handled _____ (ACFM) @ _____ °F

Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____ °F To _____ °F

Reducing agent used, if any	Oxidation catalyst used, if any

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)

Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☐ Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	

Describe design features, which will ensure mixing in combustion chamber.

Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☐ Yes ☐ No
If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)

Describe the operation of the burner	Attach dimensioned diagram of afterburner

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____@ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

12. Flares

Equipment Specifications

Manufacturer	Type	Model No.
To be determined	☐ Elevated flare ☒ Ground flare ☐ Other _____ Describe	

Design Volume (SCFM)	Dimensions of stack (ft.)
1300	Diameter 9.5 Height 30 (max)

Residence time (sec.) and outlet temperature (°F)	Turn down ratio	Burner details
0.7 sec and 1600 F	5	To be determined

Describe the flare design (air/steam-assisted or nonassisted), essential auxiliaries including pilot flame monitor of proposed flare with a sketch. The flare will be equiped with a pilot flame and main flame monitor as well as stack temperature monitors at lower, middle and upper elevations.

Describe the operation of the flare's ignition system.

The flare will undergo a purge cycle prior to startup. The pilot fuel (propane) will be introduced to the stack and ignited. The pilot flame will be proven and landfill gas will be introduced to the stack through startup of the blowers. The main flame will be proven and the pilot gas will be shut off.

Describe the provisions to introduce auxiliary fuel to the flare.

Supplemental fuel will not be used to fuel the flare.

Operation Parameters

Detailed composition of the waste gas	Heat content	Exit velocity
50% methane, 50% carbon dioxide	500 Btu/cf	19.19 f/s

Maximum and average gas flow burned (ACFM)	Operating temperature (°F)
1300 cfm	1600 F

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

A local alarm will sound and the autodialer will contact the site personnel with the malfunction.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)
NMOC	6.53 lb/h	0.1307 lb/h	98%

Section C - Air Cleaning Device (Continued)

13. Other Control Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Volume (SCFM)	Capacity

Describe pH monitoring and pH adjustment, if any.

Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.

Attach efficiency curve and/or other efficiency information.

Attach any additional date including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Operation Parameters

Volume of gas handled

_____ ACFM @ _____ °F _____ % Moisture

Describe fully giving important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

14. Costs

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost
Flare	200,000	25,000	225,000	12,000

15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

No

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☐ YES ☒ NO
(If Yes, which subpart) _____

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which part) _____

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

Currently, the BAT to control landfill gas emissions into the atmosphere is combustion in a enclosed flare.

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last five (5) years for applicable PSD pollutant(s) if the facility is an existing major facility (PSD purposes).

N/A

Section D - Additional Information (Continued)

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (see other applicable dates in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate ***Yes*** or ***No*** if emission increases and decreases were used previously for netting	Source I. D. or Name	VOCs		NOx	
				Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets. N/A

b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be employed (if applicable). N/A

c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable). N/A

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below

☒ Monitoring ☒ Testing ☒ Reporting

☒ Recordkeeping ☒ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc): Compliance will be established in accordance with current DEP BAT requirements for landfills.

b. Monitoring device location: Refer to Answer to Monitoring, a.

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:
Refer to Answer to Monitoring, a.

Testing:

a. Reference Test Method: Citation Refer to Answer to Monitoring, a.

b. Reference Test Method: Description Refer to Answer to Monitoring, a.

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:
Refer to Answer to Monitoring, a.

Reporting:

a. Describe what is to be reported and frequency of reporting:
Refer to Answer to Monitoring, a.

b. Reporting start date: Refer to Answer to Monitoring, a.

Work Practice Standard:

Describe each: Refer to Answer to Monitoring, a.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}	84 lb/MMdscf CH4	2.44	10.67	Manufacturer & AP-42
SO_x		0.45	1.971	AP-42
CO	0.2 lb/MMbtu	5.733	25.11	equip. vendor estimate
NO_x	0.06 lb/MMbtu	1.720	7.53	equip. vendor estimate
VOC		0.0719	0.31	AIMS 2004; site specific
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number ST01

List Source(s) or source ID exhausted to this stack:
Frey Farm and Creswell Landfill

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 30
Grade elevation (ft.) 540

Stack diameter (ft) or Outlet duct area (sq. ft.)
9.5

f. Weather Cap
☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
100

Does stack height meet Good Engineering Practice (GEP)?
Yes

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. N/A

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	57	35	76	26	41

Stack exhaust
Volume 76.500 ACFM Temperature 1400 °F Moisture N/A %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
N/A

Exhauster (attach fan curves) 80 in. of water 69 HP @ 3550 RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section G - Attachments

Number and list all attachments submitted with this application below:

1. USGS Topographic Map with Site Location
2. Emission Calculations
3. Process Flow Diagram for Section B, Item 6.
4. Blower/Exhauster Design Datasheet with curve, for Section F, Item 2.

Pennsylvania Department Of Environmental Protection
Bureau Of Air Quality

Addendum A: Source Applicable Requirements

Describe and cite all applicable requirements pertaining to this source.
Note: A Method of Compliance Worksheet (Addendum 1) must be completed for each requirement listed.

Citation Number	Citation Limitation	Limitation Used
25 Pa. Code Chapter 127, Sections 401 - 464	*Operating Permit*	

Pennsylvania Department Of Environmental Protection
Bureau Of Air Quality

Addendum 1: Method of Compliance Worksheet

Section 1: Applicable Requirement

Federal Tax Id: *23-6006036/01* **Firm Name:** *Lancaster County Solid Waste Management Authority*

Plant Code: *23-6006036/01* **Plant Name:** *Frey Farm and Creswell Landfill*

Applicable Requirement for: **(please check only one box below)**

☐ **The entire site**

☐ **A group of sources, Group ID:** _____

☒ **A single source, Unit ID:** _____

☐ **Alternative Scenario, Scenario Name:** _____

Citation #: *25 Pa. Code Chapter 127*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: **(Check all that applies and complete all appropriate sections below)**

☒ **Monitoring** ☒ **Testing** ☒ **Reporting**

☒ **Record Keeping** ☒ **Work Practice Standard**

Note: *Compliance will be established in accordance with current DEP BAT requirements for landfills.*

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):** _____
2. **Monitoring device location:** _____
3. **Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:** _____
4. **How will data be reported:**

Section 3: Testing

1. **Reference Test Method Description:** _____

2. **Reference Test Method Citation:** _____

Section 4: Record Keeping

Describe what parameters will be recorded and the frequency of recording: _____

Section 5: Reporting

1. **Describe what is to be reported and the frequency of reporting:** _____

2. **Reporting start date:** _____

Section 6: Work Practice Standard

Describe any work practice standards: _____

Base map from Safe Harbor USGS 7½ minute quadrangle dated 1955 and photorevised in 1990.

N

0 500 1000 2000 3000

SCALE IN FEET

Site Location Map

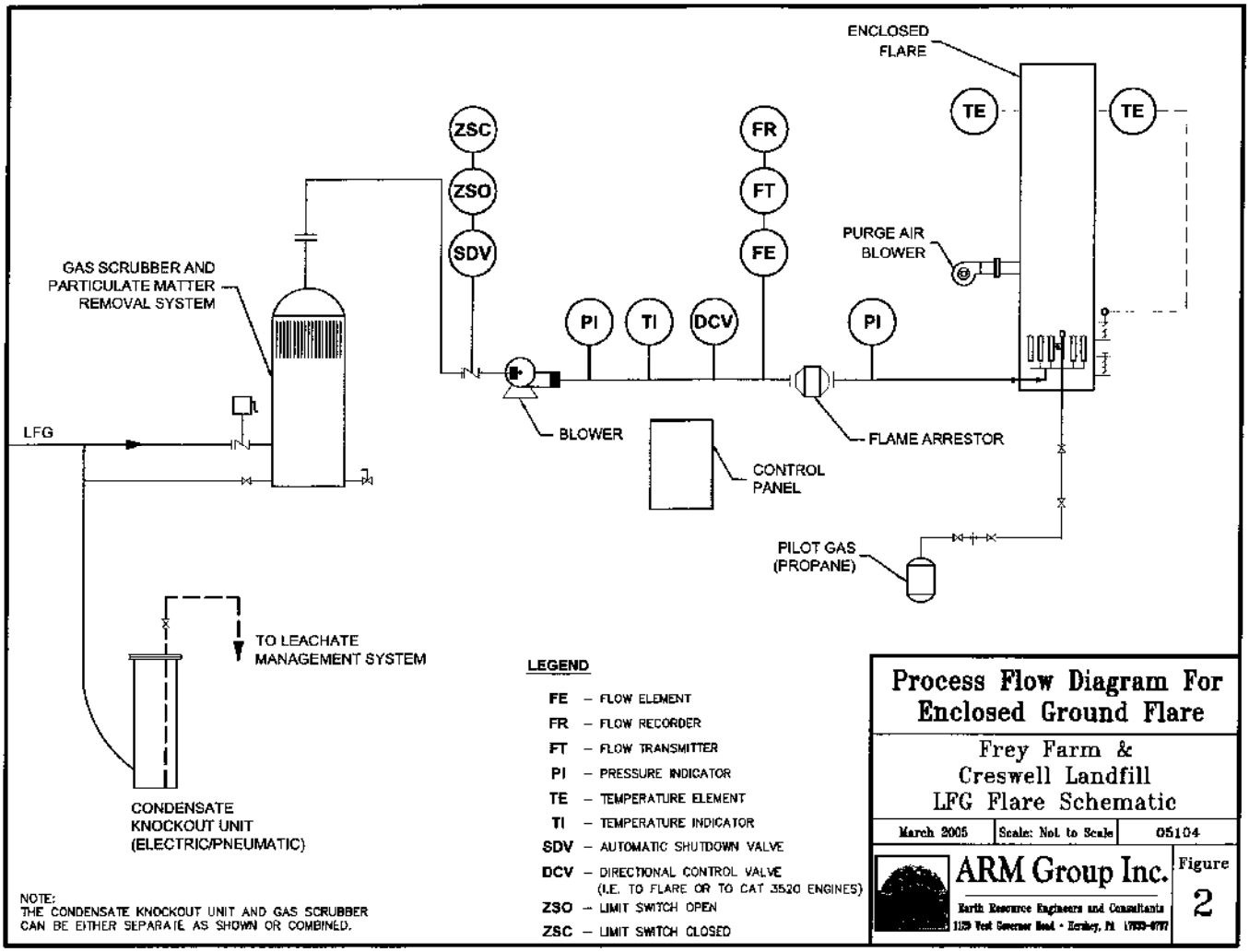
Frey Farm & Creswell Landfill
Manor Township
Lancaster County, PA

April 2005	Scale: 1" = 1000'	05104

ARM Group Inc.
Earth Resource Engineers and Consultants
1129 West Governor Road • Hershey, PA 17033-0797

Figure 1

R:\05104 LCSWMA Gas System Design_Drwg\Plan Approval\05104_fig1.dwg



LEGEND

- **FE** – FLOW ELEMENT
- **FR** – FLOW RECORDER
- **FT** – FLOW TRANSMITTER
- **PI** – PRESSURE INDICATOR
- **TE** – TEMPERATURE ELEMENT
- **TI** – TEMPERATURE INDICATOR
- **SDV** – AUTOMATIC SHUTDOWN VALVE
- **DCV** – DIRECTIONAL CONTROL VALVE (I.E. TO FLARE OR TO CAT 3520 ENGINES)
- **ZSO** – LIMIT SWITCH OPEN
- **ZSC** – LIMIT SWITCH CLOSED

NOTE:
THE CONDENSATE KNOCKOUT UNIT AND GAS SCRUBBER CAN BE EITHER SEPARATE AS SHOWN OR COMBINED.

Process Flow Diagram For Enclosed Ground Flare

Frey Farm & Creswell Landfill
LFG Flare Schematic

March 2005	Scale: Not to Scale	05104

ARM Group Inc.
Earth Resource Engineers and Consultants
1129 West Governor Road • Hershey, PA 17033-0797

Figure 2

Plan Approval Calculations
LCSWMA
Frey Farm and Creswell Landfills GCCS
Enclosed Flare

By: Brian Martz, 3/31/05
Reviewed: Kanishka Perera, 4/7/05

The following calculations are based upon a January 12, 2003 report by SCS Engineers, PC entitled Creswell/Frey Farm Landfills, Landfill Gas to Energy Feasibility Study, and with information from the 2004 AIMS submittal for Frey Farm and Creswell Landfills.

To complete the design of pipe sizes, blower, flare, and other gas transport structures, Greg McCarron, Project Director for SCS Engineers, PC instructed ARM during a March 30, 2005 phone conversation to utilize a maximum/peak composite (Creswell and Frey Farm LFs combined) LFG flow equal to 1,300 scfm, with 50% CH_4 and 50% CO_2

Design composition of LFG is: 50% CH_4
50% CO_2
Q_{LFG} = 1,300 scfm = 19.35 x 10^6 m^3/yr

Note: Based on the peak composite flow rate of 1,142 scfm predicted in the SCS report, calculating emissions with a design flow 1,300 scfm is conservative and creates an inherent factor of safety of approximately 1.13 for all emission results.

From AP-42 (eq.(3):

$$Q_P = 1.82\, Q_{CH_4}\, \frac{C_P}{1x10^6}$$

Where:

Q_P = emission rate of pollutant P
Q_{CH_4} = CH_4 generation rate
C_P = concentration of P in LFG
And, 1.82 in the above equation is a multiplication factor to obtain total gas flow from Q_{CH_4} when CH_4 = 55% of total and CO_2 = 45%. We assume CH_4 = 50% and CO_2 = 50%

Therefore, $$Q_p = 19.35 \times 10^6\, \frac{C_P}{1x10^6}$$

<u>P = Sulfer (s)</u>

Cs = 46.9 ppmV (AP-42, no site specific guidance)

$$Qs = 19.35 \times 10^6\ m^3/yr \left(\frac{46.9\, ppmV}{10^6}\right) = 907.5\ m^3/yr$$

Using PV = nRT

Where $P = 101.3\ {}^{KN}/_{m^2} \rightarrow$ AP - 42

$T = 298\ K \rightarrow$ AP - 42

$$101.3\ (907.5) = \frac{UMs}{32}\ (8.314)\ (298)$$

Ums = 1187.4 Kg/yr
Ums = 2617.74 1b/yr
Ums = 0.30 1b/hr

Where Ums = uncontrolled emission of elemental S

During combustion process $S + O_2 \rightarrow SO_2$
Controlled SO_2 emission is given by AP – 42, eq. (7)

$$CM_{SO_2} = Um_s \times n_{collection}/100 \times 2$$

For collection efficiency of 75% (Ref AP - 42)

$$CM_{SO_2} = 0.30 \times \frac{75}{100} \times 2$$

$$= 0.45 \text{ lb/hr}$$

Determination of NMOC Generation

NMOC generated during maximum LFG generation is obtained from the design total gas flow of 1,300 scfm and NMOC concentration of 340 ppmV for Creswell and 192 ppmV for Frey Farm.

Evaluating SCS estimation of LFG generation found that as a percent of total LFG at peak (during year 2021), Creswell contributes 6% and Frey Farm contributes 94% to the composite total LFG flow.

A potential estimate of uncontrolled emission of NMOC per manual application of AP-42 equations, given the above values, is calculated below:

P = NMOC

$C_{NMOC} = 0.06\ (340 \text{ ppm V}) + 0.94\ (192 \text{ ppm V})$

$C_{NMOC} = 200.9 \text{ ppm V}$

$C_{NMOC} = 19.35 \times 10^6 \ \frac{200.9}{1x10^6} = 3{,}887.4 \ m^3/yr$

$PV = nRT$, $P = 101.3 \ KN/m^2$, AP - 42 & $MW_{NMOC} = 86.18$, per AP - 42

$T = 298$ K , AP - 42

$101.3 \ (3887.4) = \frac{UM_{NMOC}}{86.18} \ (8.314) \ (298)$

$UM_{NMOC} = 13{,}698.7$ kg/yr = 30,198 lb/yr

$UM_{NMOC} = 3.45$ lb/hr of total generated NMOC as hexane at peak LFG generation

Assuming 98% destruction efficiency by the flare and 75% collection efficiency by the GCCS, the controlled NMOC emissions from the flare can be calculated per AP-42 eq(5), as follows:

$$\Rightarrow CM_P = \left[UM_P \cdot \left(1 - \frac{n_{col}}{100}\right)\right] + \left[UM_P \cdot \frac{n_{col}}{100} \cdot \left(1 - \frac{n_{em}}{100}\right)\right]$$

$$CM_{NMOC} = \underbrace{\left[3.45\left(1 - \frac{75}{100}\right)\right]}_{\text{Landfill}} + \underbrace{[3.45(.75)(1-.98)]}_{\text{flare}} = 0.8625 + 0.05175 \text{ lb/hr}$$

<u>P = VOC</u>

VOC emissions from FLARE would be 39% of NMOC (per AP - 42) for no co-disposal.

$\therefore$ VOC = 0.0518 lb/hr (0.39) = 0.0202 lb/hr

VOC emissions for total uncontrolled emission at landfill: 3.45 lb/hr (0.39) = 1.35 lb/hr

VOC emissions for total landfill (flare + LF) with flare: 0.914 (0.39) = 0.356 lb/hr

The LandGem output files contained in Appendix C of the SCS report that show the predicted quantities of LF-generated NMOCs at Creswell and Frey Farm Landfills were utilized in the below calculations. Inspection of the files found that the composite (Creswell and Frey Farm Landfills) quantity of NMOC predicted decreases over time. The decrease is due to the fact that the Creswell site produces a greater concentration of NMOCs per unit of gas than the Frey Farm LF. This is based on site specific testing and historical data from similar sites accumulated by SCS. This is a logical result when the fact is considered that Frey Farm LF receives/has received a large percentage of the overall total waste stream as inorganic MSW incinerator ash. Creswell LF did not receive the incinerator ash, and as a result the proportion of biodegradable material

typically found in MSW is likely greater in Creswell. The files at track the waste quantities received at both sites were thoroughly inspected and are assumed to support this overall concept.

As a result of having access to the NMOC output files from the LandGem models that are the design premise for the subject project, the best way to determine the uncontrolled emissions of NMOCs can be extracted from the LandGem output files. The below calculations will be completed for, and will utilize, values of NMOC generated at two different time periods. The first time period is the 2005 quantity of NMOC generated, which is the composite peak of NMOC generation. The second time period is the 2021 quantity of NMOC generated, which is when the composite peak LFG flow is generated.

P = NMOC

$UM_{NMOC,\,2005} = 9.65 \times 10^3\ m^3/yr = 34.59\ Mg/yr = 8.71\ lb/hr$

$UM_{NMOC,\,2021} = 8.84 \times 10^3\ m^3/yr = 31.699\ Mg/yr = 7.98\ lb/hr$

Using a destruction efficiency of 98%, and a collection efficiency of 75%, the controlled NMOC emissions are calculated for each time period as follows:

$$\Rightarrow CM_P = \left[UM_P \cdot \left(1 - \frac{n_{col}}{100}\right)\right] + \left[UM_P \cdot \frac{n_{col}}{100} \cdot \left(1 - \frac{n_{cnt}}{100}\right)\right] \quad \text{, per AP-42 eq(5)}$$

$CM_{NMOC,\,2005} = [8.71(1\text{-}0.75)] + [8.71(0.75)(1 - 0.98)]$

$CM_{NMOC,\,2005} = 2.1775\ lb/hr + 0.1307\ lb/hr$
landfill **flare**

$CM_{NMOC,\,2021} = [7.98(1\text{-}0.75)] + [7.98(0.75)(1 - 0.98)]$

$CM_{NMOC,\,2021} = 1.995\ lb/hr + 0.1197\ lb/hr$
landfill **flare**

The controlled and uncontrolled emission of VOCs can be approximated as a percentage of total NMOC emissions. AP-42 states with note c of Table 2.4-2 that for purposes not associated with NSPS/EG compliance reporting, where specific input parameters must be used regardless of actual site conditions, that the default VOC content at co-disposal sites is 85% by wt., and is 39% by wt. for unknown or sites without co-disposal. LCSWMA has used, as part of their AIMS reporting, 55% of total NMOC to predict the amount of VOC generated. For consistency and because 55% is a logical value considering the wastes received at FFLF and Cwell are a balance of residential, non-residential, and incinerated residential ash.

Therefore, VOC emissions from the flare are estimated to be:

P = VOC

$CM_{VOC, 2005}$ = 0.1307 lb/hr (0.55) = 0.0719 lb/hr

$CM_{VOC, 2021}$ = 0.1197 lb/hr (0.55) = 0.0658 lb/hr

$UM_{VOC, 2005}$ = 8.71 lb/hr (0.55) = 4.7905 lb/hr

$UM_{VOC, 2021}$ = 7.98 lb/hr (0.55) = 4.389 lb/hr

By inspection of the above calculations, the potential VOC emissions are declining

Uncontrolled Decline = $UM_{VOC, 2005}$ - $UM_{VOC, 2021}$
= 4.7905 lb/hr – 4.389 lb/hr
= 0.4015 lb/hr decline over years from 2005 to 2021

Controlled Decline = $UM_{VOC, 2005}$ - $CM_{VOC, 2021}$ - $CM_{NMOC, 2021, LF}$*0.55
= 4.7905 lb/hr – 0.0179 lb/hr – [2.1775(0.55)]
= 3.52 lb/hr decline in 2005 from uncontrolled to controlled

P = CO

C_{CO} = 141 ppm V (per AP-42)

Use SCS-given value for total LFG generation = 1,300 scfm

Q_{CO} = 19.35 x 10^6 m^3/yr $\left(\frac{141 ppmV}{1x10^6}\right)$ = 2,728.4 m^3/yr

PV = nRT

101.3 (2728.4) = $\frac{UM_{CO}}{28}$ (8.314) (298)

UM_{CO} = 3,123.56 kg/yr
UM_{CO} = 0.79 lb/hr

Proposed Enclosed Flare Emissions

LFG Flow Rate	1300 scf/min	
LFG Heat Value	500 btu/cf	
Methane	50%	
NMOC Destruction Efficiency	98%	
Safety Factor	5	
Gas Collection Efficiency	75%	AP-42
NMOC	0.1307 lb/h	

	Emission Rates		Emissions		
Contaminant	Value	Units	lb/h	lb/year	tons/year
CO[1]	0.2	lbs/mmbtu	5.733	50221	25.11
NOx[1]	0.06	lbs/mmbtu	1.720	15066	7.53
PM10[2]	85	lb/MMdscf CH4	2.437	21344	10.67
SOx[3]			0.450	3942	1.97
NMOC[4]			0.131	1145	0.57
VOC[5]			0.072	630	0.31

Notes
(1) Manufacturer's guarantee
(2) AP-42, Table 2.4-5, with safety factor (PM-10 SF=5; SOx SF=5) included
(3) SOx is determined for site specific data based on AP-42.
(3) NMOC is determined based on site specific parameters with 75% collection efficiency and 98% destruction efficiency.
(4) Per AP-42, VOC = 55% of NMOC for LCSWMA

Houston Service Industries, Inc.
7901 Hansen Rd • Houston, TX 77061
Phone: 713-947-1623 • 800-725-2291 • Fax: 713-947-6409
Web: www.houserv.com • E-mail: hsi@houserv.com

Blower / Exhauster Design Datasheet

Customer : Test

Datasheet No. : 6323
Date : 4/4/2005
Quote/Job No. :

Project :

Design Data

Inlet Conditions			Design Point			Other Information		
Volume	: 1300	SCFM @ 68°F	ICFM	: 1925.34	CFM	Molecular Wt	: 31.998206	
Bar Pressure	: 14.52	PSIA	Differential Press.	: 5.89	PSI	K-1/K Factor	: 0.2170799	
Inlet Press.	: 11.63	PSIA	Discharge Press.	: 3.00	PSIG	EAP	: 7.11	curve press.
Inlet Temp.	: 110	°F	Inlet Vacuum	: 80	inWC	Isentropic HP	: 41.87	HP
Humidity	: 100	%				RPM	: 3550	

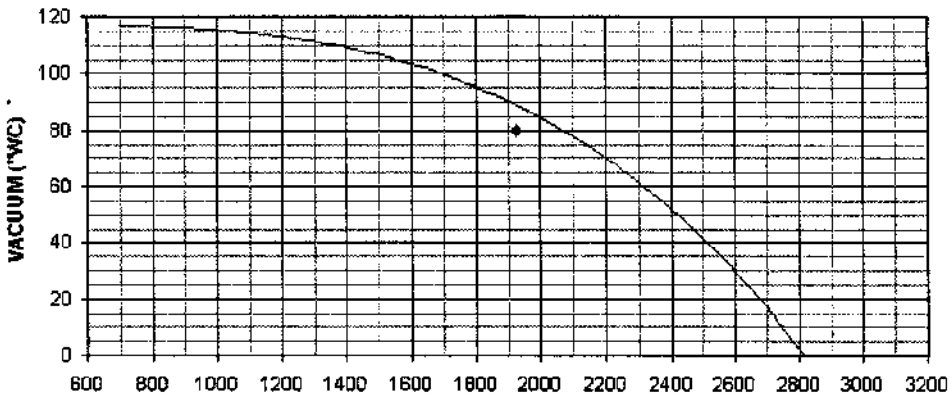
Gas Selections

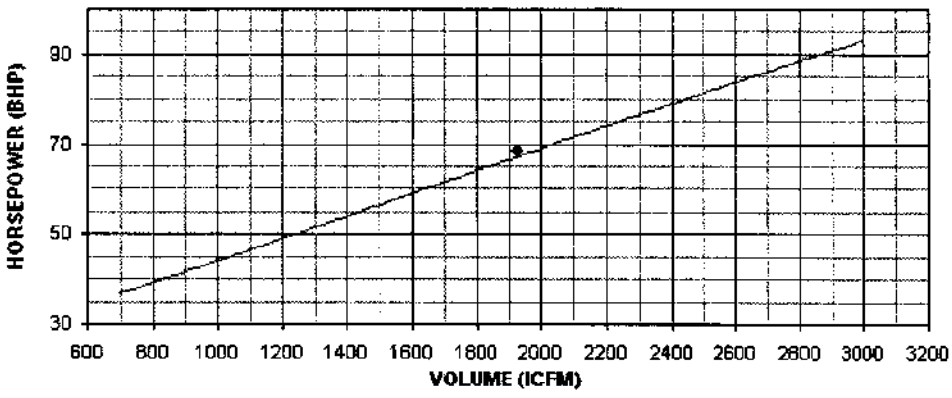
Gas	Pct	MW	CP	Gas	Pct	MW	CP
Carbon Dioxide (CO2)	60	44.01	0.205	Methane (CH4)	40	16.042	0.5933

Exhauster Data

Model : HSI 8207

Impeller(s)	: (7) 5011	
BHP	: 68.77	HP
Efficiency	: 65.43	%
Disch Temp	: 197.1	°F
Rise to Surge	: 2.28	PSI
Turndown	: 63.9	%





2700-PM-AQ0013 Rev. 1/2003

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTA LPROTECTION
BUREAU OF AIR QUALITY

STATE ONLY PERMIT APPLICATION

FOR OFFICIAL USE ONLY
State Only OP Number:
Reviewed by:
Date:
Comments:

Section 1 - General Information

1.1 Application Type

Type of permit for which application is made: (Check one)

☒ Initial
☐ Renewal Operating Permit No. _____
☐ Modification

1.2 Plant Information

Federal Tax ID: 23-6006036/01 **Firm Name:** Lancaster County Solid Waste Management Authority

Plant Code: _____ **Plant Name:** Frey Farm and Creswell Landfil

Permit Contact: Brooks K. Norris **Telephone:** (717) 397-9968

SIC Code: 4953 **Description of SIC Code:** Transportation and Utilities - Refuse Systems

County: Lancaster **Municipality** Manor Twp.

1.3 Mailing Information

Name: Brooks K. Norris **Title:** Senior Manager - Technical Services

Address: 1299 Harrisburg Pike
P.O. Box 4425
Lancaster, PA 17604

Telephone Number: (717) 397-9968

1.4 Certification of Truth, Accuracy and Completeness

This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete.

(Signed) _____ **Date:** April 12, 2005

Name (Typed): James D. Warner **Title:** Executive Director

Please read instructions carefully before completing this application.

Section 2 - Site Information

2.1 Facility Type

Is this facility a Synthetic Minor Facility? Yes ☐ No ☒

If yes, go to Section 2.2, "Synthetic Minor Facility".

If no, go to Section 3, "Site Inventory".

IMPORTANT: Note that all Synthetic Minor Facilities must be able to meet the proposed restriction(s) and/or limitation(s) immediately upon the submission of this application. By signing the Certification of Compliance in Section 9 of this application, the facility for which a Synthetic Minor Status is proposed will be deemed a Synthetic Minor Facility according to the restriction(s) and/or limitation(s) proposed upon receipt of the application by the Department, unless the Department determines that the facility is unable to meet the Synthetic Minor requirements at a later date.

2.2 Synthetic Minor Facility Information (to be completed by all facilities seeking Synthetic Minor Status)

Synthetic Minor Status for this facility can be taken at the: Source Level ☐ AND/OR Site Level ☐

If limitation(s) and/or restriction(s) can be taken at the site level (for all sources within this facility), complete the following questions, otherwise please go on to Section 3, "Site Inventory".

Synthetic Minor Status for the Entire Site is achievable through the following restrictions: (Please check all that apply and describe in detail what is/are proposed):

☐	Hours of Operation	
☐	Production/Throughput Rate	
☐	Type of Fuel	
☐	Fuel Usage	
☐	Control Devices	
☐	Emissions Limitiations	
☐	Other	

Describe how the elected restriction(s) will allow the facility to become a Synthetic Minor?

Note: If Section 2.2 is completed and there are no additional restrictions proposed at the source level, the applicant can omit Sections 4.5, 4.6 and 4.7 for all sources in this permit application.

2.3 Compliance Method for the Site (for Synthetic Minor Facilities only)

Complete this section only if limitation(s) and/or restriction(s) were proposed in Section 2.2.

a. Explain how you would demonstrate compliance with the restriction(s) and/or limitation(s) listed in Section 2.2:

b. Describe what is to be reported in the compliance report:

c. Reporting start date:

d. Indicate the frequency for submitting compliance report as explained above:

2.4 Potential Emission Estimates for the Site (for Synthetic Minor Applications only)

Provide the estimated potential emission for the site BEFORE and AFTER utilizing the proposed restriction(s) and/or limitation(s). Duplicate this page as necessary. Complete this section only if limitation(s) and/or restriction(s) were proposed in Section 2.2.

Pollutant or CAS No.	Potential Emission BEFORE taking Limitations (TPY)	Potential Emission AFTER taking Limitations (TPY)

*** Provide all supporting calculation methods as an attachment at the end of this application.**

Please read instructions carefully before completing this application.

Section 3 - Site Inventory

List all air pollution sources, control equipment, emission points and fuel material locations at this site. Duplicate this page as necessary. For renewals, only list sources not included in current permit.

Unit ID No.	Company Designation	Unit Type
LF001	*FUGITIVE DUST - LANDFILL OPERATIONS*	*Process*
LF002	*LANDFILL - FREY FARM SITE*	*Process*
Z01	*FUGITIVE DUST*	*Point of Air Emission*
Z02	*GAS EMISSIONS*	*Point of Air Emission*

Please read instructions carefully before completing this application.

Section 4 - Source Information

(Complete this section for each source at this site. Duplicate this section as needed).

For renewals, complete this section if a new source is listed in Section 3.1, "Site Inventory".

4.1 General Source Information

a. Source ID: LF001 b. Company Designation: Fugitive Dust - Landfill Operations

c. Source Type (check one): ☐ Combustion ☐ Incinerator ☒ Process

d. Plan Approval or Operating Permit Number: NA

e. Manufacturer: NA f. Model Number: NA

g. Source Description: NA

h. Rated Input: NA i. Installation Date: 1/1/1990

j. Exhaust Temperature 70 Units deg F k. Exhaust % Moisture 3 l. Exhaust Flow Volume: 1 ACFM

***Incinerators:* Complete the following additional information**

a. Incinerator Capacity: _____ Lbs/Hr b. Primary Burner Cap: _____ Units _____

c. Exhaust % CO_2: _____ d. 2nd Burner Cap: _____ Units _____

e. Incinerator Class: _____

f. Waste Type: _____ g. Waste BTU/Lb: _____

4.2 Exhaust System Components

Explain how the exhaust components are configured:

NOTE: Natural Minor Facilities can either complete the table below or attach a flow diagram showing all relationships for this source.

From Component Type	From Component Number	To Component Type	To Component Number	Percent Flow	Begin Date	End Date
Landfill Operations	LF001	Point of Air Emissions	Z01	100		

Please read instructions carefully before completing this application.

4.3 Source Classification Code (SCC) Listing for Standard Operation

Please DO NOT place restriction(s) and/or limitation(s) here. Provide all information as if no restriction(s) and/or limitation(s) are proposed. Proposed restriction(s) and/or limitation(s) should be given in Section 4.5.

Fuel	Associated SCC	Max Throughput Rate	Firing Sequence
Dust	3-99-999-99	60 lbs/hr	

4.4 Standard Fuel Physical Characteristics

Provide all information as if no restriction(s) and/or limitation(s) are proposed. Proposed restriction(s) and/or limitation(s) should be given in Section 4.5.

SCC/Fuel Burned	FML*	% Sulfur	% Ash	BTU Content (Units)
NA				

*FML = Fuel Material Location

Please read instructions carefully before completing this application.

4.5 Limitations on Source Operation (optional) (for Synthetic Minor Sources only)

☐	Hours of Operation	
☐	Production Throughput Rate	
☐	Type of Fuel	
☐	Fuel Usage	
☐	Control Devices	
☐	Emissions Limitiations	
☐	Other	

Describe how the elected restriction(s) will allow the facility to become a Synthetic Minor?

4.6 Compliance Method for this source (for Synthetic Minor Sources only)

Complete this section only if limitation(s) and/or restriction(s) were proposed in Section 4.5.

a. Explain how you would demonstrate compliance with the restriction(s) and/or limitation(s):

b. Describe what is to be reported in the compliance report:

c. Reporting start date: _____

d. Indicate the frequency for submitting compliance report as explained above: _____

4.7 Source Potential to Emit (for Synthetic Minor Sources only)

Give Potential Emission estimate for all air pollutants emitted at this source. Calculations for the Potential Emissions Estimate here should have included the restriction(s) and/or limitation(s) proposed in Section 4.5, if applicable.

Pollutant or CAS Number	Fuel/SCC	Emission/Activity Allowable per Unit	Calc. Method	Max. Capacity	Total Hours	Emission in TPY

Please read instructions carefully before completing this application.

Section 4 - Source Information

(Complete this section for each source at this site. Duplicate this section as needed).

For renewals, complete this section if a new source is listed in Section 3.1, "Site Inventory".

4.1 General Source Information

a. Source ID: LF002 b. Company Designation: Landfill - Frey Farm Site

c. Source Type (check one): ☐ Combustion ☐ Incinerator ☒ Process

d. Plan Approval or Operating Permit Number: NA

e. Manufacturer: NA f. Model Number: NA

g. Source Description: NA

h. Rated Input: NA i. Installation Date: 1/1/1990

j. Exhaust Temperature 70 Units deg F k. Exhaust % Moisture 3 l. Exhaust Flow Volume: 1 ACFM

Incinerators: **Complete the following additional information**

a. Incinerator Capacity: _____ Lbs/Hr b. Primary Burner Cap: _____ Units _____

c. Exhaust % CO_2: _____ d. 2nd Burner Cap: _____ Units _____

e. Incinerator Class: _____

f. Waste Type: _____ g. Waste BTU/Lb: _____

4.2 Exhaust System Components

Explain how the exhaust components are configured:

NOTE: Natural Minor Facilities can either complete the table below or attach a flow diagram showing all relationships for this source.

From Component Type	From Component Number	To Component Type	To Component Number	Percent Flow	Begin Date	End Date
Landfill	LF002	Point of Air Emissions	Z01	100		

Please read instructions carefully before completing this application.

4.3 Source Classification Code (SCC) Listing for Standard Operation

Please DO NOT place restriction(s) and/or limitation(s) here. Provide all information as if no restriction(s) and/or limitation(s) are proposed. Proposed restriction(s) and/or limitation(s) should be given in Section 4.5.

Fuel	Associated SCC	Max Throughput Rate	Firing Sequence
Solid Waste	3-99-999-99	245 Tons/hr	

4.4 Standard Fuel Physical Characteristics

Provide all information as if no restriction(s) and/or limitation(s) are proposed. Proposed restriction(s) and/or limitation(s) should be given in Section 4.5.

SCC/Fuel Burned	FML*	% Sulfur	% Ash	BTU Content (Units)
NA				

*FML = Fuel Material Location

Please read instructions carefully before completing this application.

4.5 Limitations on Source Operation (optional) (for Synthetic Minor Sources only)

☐	Hours of Operation	
☐	Production Throughput Rate	
☐	Type of Fuel	
☐	Fuel Usage	
☐	Control Devices	
☐	Emissions Limitiations	
☐	Other	

Describe how the elected restriction(s) will allow the facility to become a Synthetic Minor?

4.6 Compliance Method for this source (for Synthetic Minor Sources only)

Complete this section only if limitation(s) and/or restriction(s) were proposed in Section 4.5.

a. Explain how you would demonstrate compliance with the restriction(s) and/or limitation(s):

b. Describe what is to be reported in the compliance report:

c. Reporting start date: _____

d. Indicate the frequency for submitting compliance report as explained above: _____

Please read instructions carefully before completing this application.

4.7 Source Potential to Emit (for Synthetic Minor Sources only)

Give Potential Emission estimate for all air pollutants emitted at this source. Calculations for the Potential Emissions Estimate here should have included the restriction(s) and/or limitation(s) proposed in Section 4.5, if applicable.

Pollutant or CAS Number	Fuel/SCC	Emission/Activity Allowable per Unit	Calc. Method	Max. Capacity	Total Hours	Emission In TPY

Please read instructions carefully before completing this application.

Section 5 - Control Device Information (duplicate this section as needed)

For renewals, complete this section if a new control equipment is listed in Section 3.1

5.1 General Control Device Information

a. Control Device ID No.: _____ b. Company Designation: _____

c. Type: _____

d. Pressure Drop in H20: _____ e. Capture Efficiency: _____

f. Scrubber Flow Rate (GPM): _____

g. Manufacturer: _____ h. Model No.: _____

i. Installation Date: _____

j. Used By Sources _____

_____

k. Control Efficiency Estimates for this control device:

Pollutant or CAS No.	Efficiency Estimated	Basis for Efficiency Estimate

Please read instructions carefully before completing this application.

Section 6 - Stack/Flue Information (duplicate this section as needed)

6.1 General Stack/Vent Information

a. Unit ID No. Z01 b. Company Designation: Fugitive Dust

c. Discharge Type: Fugitive Emissions

d. Diameter (Ft): NA Height (Ft): NA Base Elevation (Ft): NA

e. Exhaust Temperature: 70 deg F Exhaust % Moisture: 3 Exhaust Velocity (Ft/Sec): NA

f. Exhaust Volume: 1 ACFM Exhaust Volume: NA SCFM

g. Distance to Nearest Property Line (Ft): NA

h. Weather Cap?: ☐ Yes ☒ No

i. Used By Sources: LF001

---

a. Unit ID No.: Z02 b. Company Designation: Landfill Gas Emissions

c. Discharge Type: Fugitive Emissions

d. Diameter (Ft): NA Height (Ft): NA Base Elevation (Ft): NA

e. Exhaust Temperature: 70 deg F Exhaust % Moisture: 3 Exhaust Velocity (Ft/Sec): NA

f. Exhaust Volume: 1 ACFM Exhaust Volume: NA SCFM

g. Distance to Nearest Property Line (Ft): NA

h. Weather Cap?: ☐ Yes ☒ No

i. Used By Sources: LF002

Please read instructions carefully before completing this application.

Section 7 – Fuel Material Location (FML) Information (optional)

7.1 Fuel Material Location Information

a. FML ID No.: _____ b. Name: _____

c. Capacity: _____ Units: _____ d. Fuel: _____

e. Maximum Fuel Physical Characteristics: If fuel is coal, what is the moisture content? _____

% Ash: _____ % Sulfur: _____ BTU Content: _____ Units: _____

f. Used By Sources: _____

_____

---

a. FML ID No.: _____ b. Name: _____

c. Capacity: _____ Units: _____ d. Fuel: _____

e. Maximum Fuel Physical Characteristics: If fuel is coal, what is the moisture content? _____

% Ash: _____ % Sulfur: _____ BTU Content: _____ Units: _____

f. Used By Sources: _____

_____

---

a. FML ID No.: _____ b. Name: _____

c. Capacity: _____ Units: _____ d. Fuel: _____

e. Maximum Fuel Physical Characteristics: If fuel is coal, what is the moisture content? _____

% Ash: _____ % Sulfur: _____ BTU Content: _____ Units: _____

f. Used By Sources: _____

_____

Please read instructions carefully before completing this application.

Section 8 – Alternative Operating Scenario (optional)

(Duplicate this section for each source participated in this alternative scenarios)

8.1 General Information

a. Alternative Operating Scenario Name or ID No.: _____

b. Source ID No.: _____ c. Source Name: _____

d. Source Type (check one): ☐ Combustion ☐ Incinerator ☐ Process

e. Give a brief description of this alternative scenario stating how it is different from the standard operation:

8.2 Operational Flexibility Request

Check all that apply.

☐ Alternative exhaust system component configuration.
If this box is checked, complete Sections 8.3 and 8.7

☐ Alternative type of fuel usage replacing or in addition to an existing fuel in standard operation.
If this box is checked, complete Sections 8.4 and/or 8.5 and 8.7

☐ Alternative process method replacing or in addition to a process SCC existing in standard operation.
If this box is checked, complete Section 8.6 and 8.7

8.3 Exhaust System Components

Specify the complete exhaust system component configuration for this alternative operating scenario.

From Component Type	From Component Number	To Component Type	To Component Number	Percent Flow	Begin Date	End Date

8.4 Source Classification Code (SCC) Listing for Alternative Operation

Give a complete listing of all fuels burned, products produced by a process or waste incinerated for this alternative operating scenario.

Fuel	Associated SCC	Max Throughput Rate	Firing Sequence

8.5 Alternative Fuel Physical Characteristics

Give a complete listing of all fuels physical characteristics for this alternative operating scenario.

SCC/Fuel Burned	FML	% Sulfur	% Ash	BTU Content (Units)

8.6 Alternative Process/Product Description

Give a complete listing of all fuels physical characteristics for this alternative operating scenario.

a. Briefly describe the change(s) in raw materials and/or process methods used in this operating scenario, if applicable:

b. Provide and briefly describe the process SCC associated with this alternative operating scenario:

Process SCC: _____ SCC Description: _____

c. Alternative Product(s): _____

Please read instructions carefully before completing this application.

8.7 Source Potential to Emit

Give Potential Emission estimate for all air pollutants emitted at this source for this operating scenario.

Pollutant or CAS Number	Fuel	Emission/Activity Allowable per Unit	Calc. Method	Max. Capacity	Total Hours	Emission In TPY

Please read instructions carefully before completing this application.

Section 9 – Certification of Compliance for Synthetic Minor Source

In order for this Synthetic Minor facility to avoid the Title V Operating Permit requirements, the applicant must agree to be bound by the emissions limitation(s) and/or restriction(s) contained in this application. In addition, the applicant must agree that these emission limitation(s) are enforceable by the Department, the Environmental Protection Agency and the citizens.

9.1 Schedule for Compliance Certification Submission

a. Frequency of submittal: _____

b. Beginning Date: _____

9.2 Certification of Compliance (for Synthetic Minor Facility only)

I certify and agree under the penalty of 18 Pa. CS 4904 and 35 PS 4009 (b) (2) that the sources covered by this application agree to implement the emission limitations and other requirements contained in this application and in all plan approvals and operating permits previously issued to the sources. I further certify and agree that the emission limitations and other requirements contained in this application and all plan approvals and operating permits issued to the sources covered by the application are enforceable by the Department, the Environmental Protection Agency (EPA), and the citizens.

(Signed) _____ Date _____

Name (Typed) _____

Attachment 2

Act 14 Notifications

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

1299 HARRISBURG PIKE
P.O. BOX 4425
LANCASTER, PA 17604
PHONE:(717) 397-9968
FAX: (717) 397-9973
www.lcswma.org

February 18, 2005

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Lancaster County Planning Commission
50 North Duke Street
P.O. Box 83480
Lancaster, PA 17608-3480

REF: Lancaster County Solid Waste Management Authority
Creswell/Frey Farm Landfill
Landfill Gas to Energy Project

Commissioners,

In short order, the Lancaster County Solid Waste Management Authority (LCSWMA) will be submitting a permit modification request to the Pennsylvania Department of Environmental Protection (DEP) regarding the implementation of a landfill gas to energy project at the LCSWMA Creswell/Frey Farm Landfill facility located in Manor Township, Lancaster County.

In accordance with DEP requirements, this written notice is being provided to notify you of this pending application. Comments on the application will be accepted by DEP for a sixty (60) day time period after DEP has received the LCSWMA submittal. Additionally, please note that LCSWMA is anticipating having a public meeting in Manor Township during the above referenced comment period to provide more detailed information to those in attendance.

Feel free to contact me if you have any questions or if I can be of additional assistance in any regard.

Sincerely,

Brooks K Norris

Brooks K. Norris
Technical Services Manag

cc: Jim Warner

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

LANCASTER COUNTY PLANNING COMMISSION
50 NORTH DUKE STREET
P.O. BOX 83480
LANCASTER, PA 17608-3480

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X HARRY MELLINGER ☐ Agen ☐ Addr

B. Received by (Printed Name) C. Date of De 2/21/0

D. Is delivery address different from Item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merch
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7003 1680 0007 1684 9293

PS Form 3811, August 2001 Domestic Return Receipt 102595-02

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

1299 HARRISBURG PIKE
P.O. BOX 4425
LANCASTER, PA 17604
PHONE: (717) 397-9968
FAX: (717) 397-9973
www.lcswma.org

February 18, 2005

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Manor Township Supervisors
Municipal Office
950 West Fairway Drive
Lancaster, PA 17603

REF: Lancaster County Solid Waste Management Authority
Creswell/Frey Farm Landfill
Landfill Gas to Energy Project

Supervisors,

In short order, the Lancaster County Solid Waste Management Authority (LCSWMA) will be submitting a permit modification request to the Pennsylvania Department of Environmental Protection (DEP) regarding the implementation of a landfill gas to energy project at the LCSWMA Creswell/Frey Farm Landfill facility located in Manor Township, Lancaster County.

In accordance with DEP requirements, this written notice is being provided to notify you of this pending application. Comments on the application will be accepted by DEP for a sixty (60) day time period after DEP has received the LCSWMA submittal. Additionally, please note that LCSWMA is anticipating having a public meeting in Manor Township during the above referenced comment period to provide more detailed information to those in attendance.

Feel free to contact me if you have any questions or if I can be of additional assistance in any regard.

Sincerely,

Brooks K Norris

Brooks K. Norris
Technical Services Manag

cc: Jim Warner

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MANOR TOWNSHIP SUPERVISORS
MUNICIPAL OFFICE
950 WEST FAIRWAY DRIVE
LANCASTER, PA 17603

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X E Rineer ☐ Age ☐ Add

B. Received by (Printed Name) E Rineer C. Date of D FEB 2 2 20

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merch
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7003 1680 0007 1685 4167

PS Form 3811, August 2001 Domestic Return Receipt 102595-0

Attachment 3

Drawings

Drawing too large to scan.

See Technical Services Department to view drawing.

drawing title

TITLE AND LOCATION SHEET

project title	
PERMIT MINOR MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA

drawing title

OVERALL SITE LAYOUT

project title	
PERMIT MINOR MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA

drawing title

FREY FARM CONVEYANCE SYSTEM PLAN

project title	
PERMIT MINOR MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA

drawing title

CRESWELL CONVEYANCE SYSTEM PLAN

project title	
PERMIT MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA

drawing title

DETAILS (SHEET 1 OF 3)

project title	
PERMIT MINOR MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO. SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA

drawing title

DETAILS (SHEET 2 OF 3)

project title	
PERMIT MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO. SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA

drawing title

DETAILS (SHEET 3 OF 3)

project title	
PERMIT MODIFICATION FREY FARM LF & CRESWELL LF GCCS	LANCASTER CO. SOLID WASTE AUTHORITY LANCASTER, PENNSYLVANIA