MassDEP
Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

February 26, 2018

Donald Ouillette, Director
Greenfield Department of Public Works
14 Court Square, 2nd Floor
Greenfield, MA 01301

Re: **Greenfield - Franklin County**
Pre-permitting Sludge AD

Dear Mr. Ouillette:

Thank you for visiting with MassDEP on February 9, 2018 to present your proposal to manage wastewater treatment plant sludge in the greater Greenfield area. This letter summarizes the project and identifies potential permitting pathway(s) for the proposed Anaerobic Digester. Representatives of the Western Regional office of Massachusetts Department of Environmental Protection's (MassDEP), Air Quality Program, Wastewater and Wetlands met with you and Greenfield's water and wastewater Superintendent and Montague's Wastewater Pollution Control Facility (WPCF) Superintendent. This summary is intended to facilitate the permitting of your project and provide you and your consultants, Commonwealth Resource Management Corporation with some clarity of the regulatory framework. MassDEP staff will be available to you and your consultant for further discussions regarding this project as it develops.

MassDEP recognizes and acknowledges that the options available to WPCFs for disposal of wastewater treatment residual sludge have dramatically decreased over the past years with the closing of regional landfills, composting facilities and incinerators. As a result, the cost to municipalities for sludge disposal have increased due to transportation costs to haul sludge greater distances and due to increased tipping fees, as demand for those remaining options increases. MassDEP has met with municipalities to explore cost saving options such as volume reduction and energy reducing alternatives such as AD, system modifications for reducing sludge volume and other options for the reduction of sludge disposal costs. MassDEP fully supports this proposal and encourages research and testing of innovative technologies and processes to meet this growing demand for cost effective and environmentally sound sludge disposal solutions.

The attached appendix includes a brief summary of the proposed project, and potential permitting options for completion of this project related to site assignment of the property, wastewater and/or solid waste permitting and air quality permitting (plan approvals), and other potential requirements. Please note that this letter is not intended to stipulate specific permitting

requirements but rather to inform you as to potentially applicable permits/approvals, as well as the protocols and criteria MassDEP utilizes during the review process.

Staff from MassDEP various programs will remain available to discuss this project with you and your consultant(s) to explore all opportunities for resolving this issue. MassDEP encourages comprehensive pre-permitting to streamline the application and review process. If you or your consultants have any additional questions or need any assistance as this project progresses, please feel free to contact me at 413-755-2119.

Sincerely,

Catherine V. Skiba, P.G.
Service Center Manager
Springfield Regional Office

CC: MassDEP WERO Marc Simpson, David Howland, Brian Harrington, Daniel Hall, Paul Nietupski
Montague Superintendent

Appendix 1

Project Summary

The project as proposed is to identify an appropriate host parcel of land, construct and operate an Anaerobic Digester to process sludge and potentially food waste in an effort to decrease the volume and weight of wastewater treatment sludge. Participating communities include Greenfield, Montague, Deerfield, South Deerfield, and Sunderland, and potentially others nearby. The cost of sludge disposal or incineration has become an increasingly large and unsustainable component of the annual budget and opportunities to reduce those costs are under reviewed.

The feed stock for the digester will consist of Waste Activated Sludge and primary sludge. Source Separated Organics will be considered if necessary to enhance the digestion process. The unique aspect of the proposal is to seed and consistently feed the digester with anaerobic sludge from other WPCF. In parallel to the proposed feasibility study of the AD unit, Greenfield and their consultant have been working with Dr. Chul Park of the University of Massachusetts who proposes to develop superior bacteria to enhance and shorten the digestion process through the seeding with anaerobic sludge.

While the MassDEP applauds this innovative approach, there is no guarantee that this process will be successful. The AD unit should be designed based on accepted engineering practices for the expected loadings from the five treatment plants. This will ensure sufficient capacity for the sludge generated by the users. Once the unit is operational, and assuming a successful pilot of the superior bacteria, the proponents could then approach the MassDEP to increase the AD unit capacity for future expanded use for other communities and/or potential food waste.

The proponents should also include redundancy in its design to ensure that it can reliably manage sludge as the treatment plants will continue to produce sludge regardless of operation of the AD. Contingency planning should also include alternative facilities to accept treatment plant sludge if the AD unit cannot accept sludge as well as alternative management of AD residuals if the proposed composting operation is unable to accept residuals at any time.

Site Assignment

The parcel of land on which the AD is located must be Site Assigned for that purpose. Site Assignment of a parcel shall be through either the Wastewater Management or through Solid Waste; each program has a specific procedure. Parcels located immediately adjacent to exiting WCPFs will seek Site Assignment through the wastewater management program. For remote parcels, the Site Assignment would be through the Solid Waste program. Three parcels of land were identified as potential host parcels for the AD unit. The former Meadows Golf Course and the Franklin Transit Management Facility are located immediately adjacent to the WPCF while the closed landfill is located approximately 0.5 miles from the WPCF.

Wastewater Management Program - Site Assignment through the Wastewater Management Program under Massachusetts General Law Chapter 83 Section 6 (MGL Ch 83 § 6) is applicable when a municipality is buying or taking land by eminent domain for treating or processing sewage. If the City currently owns or will acquire a parcel immediately adjacent to

the WPCF, that property will be site assigned under Ch 83 § 6 which may include a public hearing.

If constructed on a parcel contiguous parcel to the WPCF, the project itself would require a MassDEP permit *BRP WP 68 Treatment Works Modification.* This modification should include a discussion of any liquid discharges and their disposition. During our discussion, it was proposed that the digestate may be composted with the residual solids as opposed to being returned to the headworks of the WPCF. A brief discussion regarding the potential concentrations of metals followed. Returning liquid digestate to the headworks would require addition analysis and evaluation of the treatment works. If proposed to be used as a soil amendment, the potential concentration of metals in the residual sludge would be examined through the analysis of the residual sludge through permitting.

The solids generated from the process may be disposed as solid waste, or composted and repurposed as a soil amendment. If the solids are used as a soil amendment, you are referred to the MassDEP website for Residuals Management. Guidance is located at the following:

- https://www.mass.gov/how-to/wp-28-29-30-31-32-residuals-management, and
- https://www.mass.gov/service-details/residuals-biosolids.

MassDEP regulates the Land Application of Sludge and Septage (310 CMR 32.00) to ensure that biosolids are safe to use. *BRP WP 28, 29, 30, 31, 32 - Residuals Management,* are permits and approvals that comprehensively regulate the land application of sludge, sludge products (such as compost and pellets), and septage. A sampling and analysis plan *(BRP WP 28)* and determination of suitability for land application *(BRP WP 29)* are required for all approvals. A Type I sludge needs no further approvals for use but does require a renewal *BRP WP 93. BRP WP 30 and 31* are permits for application of Type II and Type III sludge on specific areas of application that are less than or greater than 0.5 acres, respectively and *BRP WP 32* is a renewal application.

Solid Waste Division – If the AD unit is constructed on the closed landfill or transfer station parcel, examination of the original Solid Waste Site Assignment issued through the Board of Health is necessary to determine if a Site Assignment modification through the Solid Waste Division is required. A remote parcel of land that is presently not site assigned will require Site Assignment through the Solid Waste Program. If Site Assignment or a modification is required, that process includes issuance of a Site Suitability Report by MassDEP to the host municipality and the Site Assignment through the local Board of Health which will include a public hearing.

Disposal of residuals from the AD unit at a landfill would not require a permit from MassDEP but may be dependent upon the quality of the residual sludge. If the residual material generated at a Solid Waste managed AD unit, and is repurposed for use other than at a landfill or land application under wastewater management, MassDEP may require a *Beneficial Use Determination* (BUD) from the Solid Waste Program. The BUD regulations at 310 CMR 19.060 establish levels of assessment for four categories of beneficial use. Similarly, the fee regulations at 310 CMR 4.00, et seq. were amended. These amended regulations would be applicable to reuse of any materials generated by this project that would otherwise be considered solid waste.

Air Quality

The discussion also included the intent to generate electricity through a small engine unit in an effort to reduce energy costs for operation of the AD unit. Based upon information provided, this

project will require review under the Air Quality Program, *MassDEP Comprehensive Plan Approval process.* MassDEP has neither had the opportunity to review an emissions profile or emission specifications for the equipment you are proposing to utilize for this project, nor a profile with the feed stock specific to this project. Therefore, we cannot at this time determine if the review will be a *Non-major* or *Major Comprehensive Plan Approval process* approval. It should be noted that all emissions generated from all aspects of the project must be included in the review. Any emission generated during the pre-process drying, the pyrolysis process, and burning the syngas must be included in the emissions profile.

The emissions from the unit and engineer/generator set may be compared with the emissions limitations set forth in 310 CMR 7.26(43) under the *Environmental Results Program.* In some instances previously proposed units have come close to the ERP limits but have not met them. Also, most manufacturers will not give emission guarantees that meet stringent ERP levels for engine which burn a biogas, since the biogas is not consistent in quality. Therefore, because the project involves biomass syngas and does not meet the emissions requirement of an ERP, you may be required to submit an application for a plan approval under 310 CMR 7.02 (5) *Comprehensive plan approval.* As noted, we are not able to determine if the review will be for a *Major* or a *Non-Major Comprehensive Plan Application for Fuel Utilization Facilities (June 2011)* which may be found on the MassDEP website:
http://www.mass.gov/dep/air/approvals/aqforms.htm.

Documentation of the emissions profile must be through submittal of manufacturer's guaranteed emissions. The emissions profile would have to be submitted based on pilot studies utilizing the sludge from Amherst and any other proposed WWTPs. The applicant will be required to demonstrate these emission levels are representative of Best Available Control Technology (BACT) and MassDEP will require the latest technology be reviewed at the time of the application submittal. BACT emissions guidance for an engine like you are proposing can be found at http://www.mass.gov/eea/docs/dep/air/approvals/bactadf.pdf.

Sound Modeling

In addition, MassDEP will require that a predictive sound model exercise be completed to demonstrate that the proposed facility meets the requirements of 310 CMR 7.10 and would not cause a nuisance noise condition as defined by MassDEP. Mitigation measures may be required as part of the Air Quality permit in order to prevent sound emissions which are preventable and to minimize the impacts from the facility. Additional information on MassDEP's noise policy can be found here: https://www.mass.gov/lists/massdep-air-quality-policies-guidance.

Other agencies and programs

Massachusetts Environmental Policy Act

MassDEP has not conducted a review of the Executive Office of Energy and Environmental Affair's (EOEEA) Massachusetts Environmental Policy Act Office (MEPA) thresholds. MassDEP does not administer the MEPA program and encourages you and your consultant to review the thresholds for filing with MEPA which are available in 301 CMR 11.00. Contact information for MEPA staff is available at:
http://www.mass.gov/eea/agencies/mepa/about-mepa/contact-us-generic.html

Wetlands

It is not clear if permitting is required under the Wetlands Protection Act for the short and long term proposals at this facility. Once a site is identified, if there are wetland resource areas, you may consider filing a Request for Determination of Applicability (RDA) with the Conservation Commission to confirm whether or not the project will impact wetland resource areas.

Construction and Demolition Activities

As you are aware, construction and demolition activity must conform to current Air Pollution Control Regulations. The regulation requires implementation of measures to alleviate dust, noise, and odor nuisance conditions that may occur during the construction and demolition activities. For reference, such measures must comply with the MassDEP's Bureau of Waste Prevention (BWP) Regulations 310 CMR 7.01, 7.09, and 7.10.

Construction Equipment

To the degree practicable, MassDEP recommends that you use contractors familiar with and participating in the MassDEP Diesel Retrofit Program. In addition, we reiterate that non-road engines are to be operated using only ultra low sulfur diesel (ULSD) with a sulfur content of 15 ppm pursuant to 40 CFR 80.510.

Solid Waste

As with all construction activities, work must comply with both Solid Waste and Air Quality Control regulations. The appropriate Solid Waste provisions addressing this include M.G.L. Chapter 40, Section 54.

MassDEP recommends that you consider all aspects of this project so as not to "segment" any of the aspects under wetlands, wastewater and air quality reviews or any MEPA thresholds. At this time, it was not determined if you will trigger MEPA thresholds.

Staff from MassDEP various programs will be available to discuss this project with you and your consultant(s). MassDEP encourages additional comprehensive pre-permitting to streamline the application and review process. If you or your consultants have any additional questions or need any assistance, please feel free to contact me at 413-755-2119.

Table 1. Potential Permits, Timelines, and Fees

This list is not intended to be all inclusive but rather a guide to permitting. Actual permit requirements will be dependent on final location, design of facilities and resource impacts.

Wastewater
Contact –Paul Nietupski 413-755-2218

Permit Form	Permit/Form Name	Timeline*	Fee
BRP WP 28	Sampling and Analysis Plan for Land Application of Residuals	72 days	N/A
BRP WP 29	Suitability for Land Application of Residuals	72 days	N/A
BRP WP30	Certification of Major Land Application Projects	96 days	N/A
BRPWW31	Certification of Minor Land Application Projects	96 days	N/A

* Timelines assume technically sufficient and approvable applications are submitted. Additional time may be required for supplemental submittals and review. No additional fees are required for supplemental review and Municipalities are exempt from filing fees.

Air Pollution Control
Contact – Marc Simpson 413-755-2115

Permit Code	Permit Name	Timeline*	Fee
BWP AQ 02	Non-Major Comprehensive Plan Application	96 days*	N/A
BWP AQ 03	Major Comprehensive Approval	132 days	N/A

Solid Waste Management
Contact – Daniel Hall 413-755-2212

Permit Code	Permit Name	Timeline*	Fee
BWP SW 01 or SW 38	Site Suitability Report or Major Modification of Site Suitability Report	81 days	N/A
BWP SW 41	Beneficial use Determination (BUD) - Use of Secondary Material in Restricted Applications	72 days	N/A

Wetlands
Contact –David Cameron 413-755-2138

Permit Form	Permit/Form Name	Timeline*	Fee
WPA Form 1	Request for a Determination of Applicability (wetlands)	21 days	N/A
WPA Form 2	Determination of Applicability	N/A	N/A
BRP WW 18 WPA Form 3	Notice of Intent	42 days	Variable/calculated
BRP WW 18 WPA Form 4	Abbreviated Notice of Intent	42 days	Variable/calculated
WPA Form 5	Order of Conditions	N/A	N/A
WPA Form 4a	Abbreviated Notice of Resource Area Delineation	21 days	Variable/calculated
WPA Form 4b	Order of Resource Area Delineation	N/A	N/A
WPA Form 8a	Request for a Certificate of Compliance	21 days	N/A