

May 4, 2017

Mr. James D Warner, Executive Director
Lancaster County Solid Waste Management Authority
1299 Harrisburg Pike
Lancaster, PA 17604-4425

Re: Phase II Technical Review
Major Permit Modification
Frey Farm Landfill Vertical Expansion/ Increase in Daily Volumes
Permit No. 101389
Manor Township, Lancaster County

Dear Mr. Warner:

The Department of Environmental Protection (DEP) has completed a Phase II technical review of the Frey Farm Vertical Expansion (FFVE) application and subsequent submissions dated April 3, 2017 and April 24, 2017. Please respond to the following comments:

- A. **April 3, 2017 Response – Cover Letter – Page 3; and Attachment #2 – ARM Response (Including HDR Response) – Pages 33/34:** It is mentioned that LCSWMA will perform an additional benthic macroinvertebrate assessment in April 2017 and will coordinate the survey with a DEP biologist. Please forward the report when finalized.
- B. **April 3, 2017 Response – Attachment #2 – ARM Response (Including HDR Response):**
 1. Page 11, Item 3.b.1) – Please submit a site map which includes the section lines for the MASW Profiles (i.e., Figure 4 and Figure 5) and the ER Profiles (i.e., Figure 6 and Figure 7) documented in the 2010 Wind Turbine Report.
 2. Page 16, Item 3.c.1) – The label for former Spring SP-01 was included on drawings in the April 24, 2017 submittal, but the location point was not. Please include the Spring SP-01 location on Phase II Sheet 14 and Sheet 18, like Spring SP-02. Note: The original Spring SP-01 was located approximately 60 feet southeast of wells FFMP013W and FFMP014W, as noted on the July 27, 1989 REWAI Groundwater Contour Map that was included with DEP correspondence dated January 25, 2017. FFMP001 is the extended outfall for Spring SP-01 and not the actual former spring location.
- C. **April 3, 2017 Response – Exhibit 2 – Updated Site Deterministic Seismic Analysis:**
 1. Page 16, Table 5 – LCSZ-3 column accelerations should indicate lower values as highlighted:

	LCSZ-1	LCSZ-2	LCSZ-3
Distance to Frey Farm Landfill	10 km	20 km	9 km
Magnitude	5 (Mw)	6 (Mw)	4.6 (Mw)
Depth	5 km	5 km	5 km
1.0 s Max. Response Acceleration	0.017g	0.062g	0.0082g (not 0.082g)
1.0 s Min. Response Acceleration	0.009g	0.039g	0.0063g (not 0.063g)
1.0 s Target Response Acceleration	0.014g	0.043g	0.0075g

D. April 3, 2017 Response – Exhibit 9 and 10 – Response to Technical Review

Comment 15, regarding Volume 1, Form J, Attachment J-2: The applicant states that off-spec protective cover may be accepted by the design engineer, as he deems appropriate. What will be the course of action if the design engineer does not accept a load of off-spec protective cover? Are there procedures in place for rejecting material already delivered to the work site if needed?

E. April 3, 2017 Response – Exhibit 11 – MSE Berm Inspection Form: The response indicates that the inspections will be conducted but the “Engineer of Record” will only be contacted if there is a problem. It is recommended that a professional engineer licensed in the State of Pennsylvania specializing in erosion prevention, sedimentation control, collection and diversion channel maintenance, site vegetation, and landfill/MSE Berm design conduct the inspection/assessment for: stormwater management, erosion, vegetation, tension/cracks, toe heaving, geogrid, bulging/sagging, top surface penetration, road surface, guide rail, safety fence, animal damage, and vandalism.

F. April 3, 2017 Responses – Exhibit 12 (Table 18-1) and Exhibit 13 (Table 1):

1. Wells FFMP031W, FFMP032W, FFMP035W, FFMP036W, FFMP037W, FFMP038W and FFMP039W drilling logs indicate Top of Casing (TOC); whereas the tables indicate Top Inside Casing (TIC). Please revise tables or logs, whichever is appropriate.
2. Include in both tables the description information for the superscript numbered items.
3. Include well designations in both tables for each location (e.g., upgradient or downgradient).
4. Wells FFMP02SW and FFMP02DW, drilled in 1989, were documented in Exhibit 12 (Table 18-1), Exhibit 13 (Table 1), and the Phase I Form 8 Municipal Waste Landfills Baseline Ground Water Analyses reporting forms; however, they were documented as Wells OBFF-2S and OBFF-2D in Exhibit 13 (Appendix D - Well logs). Wells FFMP02SW, FFMP02DW, OBFF-2S and OBFF-2D were included on the Exhibit 13 Groundwater Sampling and Analysis Plan (GW SAP) Site Map (Sheet 1) and other permit application maps (i.e., Phase I Sheet 8, Sheet 10, Sheet 13, Sheet 14; Phase II

Sheet 14, Sheet 18, and possibly others.). If Well Locations FFMP02SW and FFMP02DW are nonexistent and LCSWMA is planning to use the original observation (OB) wells as these monitoring points, the inappropriate well locations should be removed from these maps and labeled with the proper well names. The well names and well specifications in both tables noted above, well logs, and purge forms should be similar. Additionally, if the proposed replacement monitoring well OBFF-2S becomes dry due to the total depth being more shallow than FFMP014W (i.e., 22.6 versus 29 feet below ground surface, respectively), deepening may be necessary in the future at Well Location OBFF-2S in order to monitor the shallow groundwater in this area in close proximity of the original Spring SP-01 location.

G. April 3, 2017 Response – Exhibit 13 – Groundwater Sampling and Analysis Plan (SAP):

1. Please include a section in the SAP pertaining to sampling protocol for collecting groundwater samples from the Act 101 wells, including the locations with carbon filtration systems due to the River Road volatile organic compound contaminated groundwater plume.
2. Is Well FFMP04AW, noted in Exhibit 12 (Table 18-1) and Exhibit 13 (Table 1), the same as Well FFMP04A which is noted in Exhibit 13 (Appendix D – Well Logs)? The Purge Form indicates different total depth and top of casing (TOC) depths/elevations. Please explain these discrepancies?

	FFMP04AW Exhibit 12 Table 18-1 and Exhibit 13 TABLE 1	FFMP04AW Exhibit 13 Appendix C Purge Form	FFMP04A Exhibit 13 Appendix D Well Logs
Total Depth (FT BGS)	299	148.50	299
Measuring Point Elevation (FT MSL)	558.60 (TIC)	560.72 (TOC)	558.60 (TIC) 559.0 (TOC)
Open rock Interval (FT BGS)	49 - 299	Not included	49 - 299

3. Appendix C: Frey Farm Landfill Blank Purge Forms:
 - a. The TOC measurements on the field purge forms appear to be TIC measurements, due to comparison of the data with the actual well logs (Exhibit 13, Appendix D). If this is correct, please modify the purge forms and the LCSWMA field database records.
 - b. Field purge forms pertaining to Form 18 Water Quality Monitoring System replacement wells pertaining to the FFVE will need to be added to the GW SAP when groundwater monitoring begins at these locations. For the currently

existing replacement wells, please submit Purge Forms for these locations. In the future when new replacement wells are drilled, please revise the SAP to include the newly drilled well locations.

4. Please include revisions for the well location/name discrepancies, previously noted via Item F.4., in the SAP so that all the well data documents match up.

H. Miscellaneous:

1. **April 3, 2017 Response – Exhibit 13 - GW SAP Sheet 1; and April 24, 2017 Response – Sheet 14:**
 - a. A well location greater than the required 200 feet of the permitted disposal area was allowed for replacement well FFMP037W due the original well FFMP029W being located within the proposed limit of disturbance for proposed support/ancillary features. If groundwater monitoring well FFMP029W is no longer in the way due to revisions to the proposed plan for the Leachate Treatment operation, it is recommended that well FFMP029W not be abandoned but continue to be used as a Form 18 sampling point.
2. **April 24, 2017 Response – Sheets 14, 17, 18 and 19:** Please include the Geologic Section Lines A-A', B-B', C-C', D-D' on the Phase II Sheets 14, 17, 18 and 19, similar to DEP's May 5, 2016 request (i.e., Item 13.b), which noted: *"please include on the Phase II drawings, Sheets 14, 17, 18, and 19: the Section Lines for Cross-Sections A-A', B-B', C-C', D-D', and E-E' (documented on the Phase I drawing, Sheet 10 – Composite Historic High Groundwater Contour Map) and the locations of Spring SP-01, former Spring SP-02, the groundwater monitoring wells...."* To differentiate between the final grade section lines documented on the Phase II - Sheet 10 - Final Grade Plan, it is recommended that a different color be used for the geologic section lines.
3. **April 24, 2017 Response – Sheet 21 – Cross Section 25:** The groundwater documented on Cross Section 25 is at a higher elevation on Sheet 14 (Critical Cross Sections) than on Sheet 21. Please explain?
4. **April 24, 2017 Response – Sheet 22 – MSE Berm Cross Sections 3:** In accordance with §273.252(b) of the Department's Municipal Waste Regulations, for unconfined aquifer situations, at least an 8-foot separation distance needs to be maintained between the bottom of the subbase of the liner system and the regional groundwater table. The regional groundwater table may not be artificially lowered. The Department understands that LCSWMA is no longer requesting a review of an ash-filled MSE Berm; but would like to point out that the proposed MSE Berm in many areas (i.e., Phase II Sheet 22: Cross Sections 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, etc.) does fall within the 8-foot separation distance.

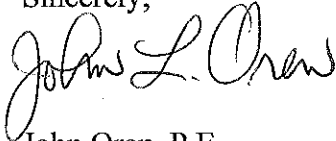
5. **April 24, 2017 Response to Technical Review Comment 35, regarding Volume 3 of 4, Sheet 36:** Please propose additional gas wells to the non-expansion areas of Cells 1 and 6.
6. **Volume 4, Form 28, Bonding Worksheet G:** Please revise Line 1 to account for any additional gas wells added to the non-expansion areas of Cells 1 and 6.
7. **Volume 4, Form 28, Bonding Worksheet H:** Please review the annual report costs offered in Lines 3 through 12 to ensure that they are recurring annual costs and not less frequent costs. The Department calculates that the total for Worksheet H should be \$571,609 as based upon the annual costs presented in Lines 3 through 12.
8. **Volume 4, Form 28, Bonding Worksheet L:** Please revise this worksheet to account for all bond revisions since the original submission of this permit application. Please note that the contingency fee rate in Line 18 is 10% for bond subtotals of between \$5 million and \$10 million dollars.
9. **Form 37 – Certification of Construction Activity:**
 - a. In June 2012, LCSWMA submitted well documentation and a Form 37 Certification of Construction Activity for the modified upgradient well FFMP002. LCSWMA requested that the submittal for the other modified and newly drilled wells noted in the April 17, 2012 and June 7, 2012 proposals be deferred until after the permitting of the FFVE, but prior to operation, because this requirement was relevant to permitted facilities. LCSWMA included well documentation in the FFVE permit application but not a Form 37 signed/sealed by a Professional Geologist licensed in the State of Pennsylvania. Please submit the revised documents (i.e., Form 18, GW SAP: Table 1 and Purge Forms) as requested above and the Form 37.
 - b. For replacement wells not yet drilled (i.e., FFMP033W and FFMP034W), well installations should be conducted at least one year prior to landfill encroachment upon this area and monitored for Form 8 baseline parameters for at least two consecutive quarters prior to abandonment of the well being replaced. LCSWMA will be required to submit well construction and lithologic logs, an updated Form 18, and a Form 37 within 30 days of drilling. The Department must receive Form 37 before Form 18 monitoring points can be put into service.
10. **Leachate Storage Tanks:** Please provide a written conceptual description of the two proposed one (1) million gallon leachate storage tanks, including containment measures and high level alarms.
11. **Phase I: Sheet 8 – Geologic Map and Sheet 9 – Composite Historic High Groundwater Contour Map:** Please revise Sheet 8 and Sheet 9 with the modified MSE berm and the former Spring SP-01 and Spring SP-02 locations. Note: The

original Spring SP-01 was located approximately 60 feet southeast of wells FFMP013W and FFMP014W, as noted on the July 27, 1989 REWAI Groundwater Contour Map that was included with DEP correspondence dated January 25, 2017. FFMP001 is the extended outfall for Spring SP-01 and not the actual former spring location.

12. June 17, 2016 – LCSWMA Response document – Attachment 6.5 - Drawing Plan View and Cross-Sections: Please provide revised Sheet 1 (Section Location Plan) and Sheet 2 (Landfill Cross Sections) due to the modified MSE Berm location.

If you believe that any of the stated deficiencies are not significant, instead of submitting a response to that deficiency, you have the option of asking DEP to make a decision based on the information with regard to the subject matter of that deficiency that you have already made available. If you choose this option with regard to any deficiency, you should explain and justify how your current submission satisfies that deficiency. Please keep in mind that if you fail to respond, your application may be denied. If you have any questions, you may contact this office at 717.705.4706.

Sincerely,



John Oren, P.E.
Permitting Section Chief

cc: Manor Township
Lancaster County Planning Commission