



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

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September 7, 2012

Bob Berman, President
Urban Green Technologies Renewable Energy 7 LLC¹
111 E. Wacker Drive, Suite 2400
Chicago, Illinois 60601 FMF No. 39087

RE: BILLERICA – Solid Waste/COR
209 Pond Street
Shaffer Landfill
FMF# 39087
Solar – Photovoltaic (PV) Facility
Final Decision – Approval
Post-Closure Use Permit
Transmittal No. X241512

Dear Mr. Berman:

The Massachusetts Department of Environmental Protection, Northeast Regional Office, Bureau of Waste Prevention, Solid Waste Section ("MassDEP") has reviewed Urban Green Technologies Renewable Energy 7 LLC's ("UGT7") application for the post-closure use of the closed Shaffer Landfill (the "Landfill") located at 209 Pond Street in Billerica, Massachusetts. As discussed below, Shaffer Landfill is part of a federal Superfund site and was closed under the federal Superfund program.

The application, category BWPSW36, *Post-Closure Use – Major*, Transmittal Number X241512, was prepared and submitted to MassDEP on behalf of UGT7 by Geosyntec Consultants, Inc. ("Geosyntec") of Acton, Massachusetts. The application includes plans, revised through May 11, 2012, titled:

Shaffer Landfill
Pond Street
November 14, 2011
Meridian Associates, Inc.
Danvers, Massachusetts

¹ Records of the Massachusetts Secretary of State identify the official corporate name as UGT Renewable Energy 7, LLC

MassDEP's Bureau of Waste Site Cleanup Federal Superfund Section (BWSC) in MassDEP's Boston Office and the U.S. Environmental Protection Agency Region 1 Office (EPA) also reviewed and provided comments on the application.

MassDEP has determined that the application is administratively and technically complete and, subject to UGT7's compliance with the terms and conditions of this decision and permit, complies with 310 CMR 19.000, the Massachusetts Solid Waste Regulations (the "Solid Waste Regulations"). MassDEP issued a draft decision and permit approving the application on July 6, 2012 for public review and comment.

MassDEP accepted comments on the application and draft decision and permit until the comment period closed on August 8, 2012. David L. Johnson of Billerica, Massachusetts, Robert C. Kirsch, Esq. of Wilmer Hale of Boston, Massachusetts, and EPA submitted comments to MassDEP. As discussed in the Fact Sheet, included as Attachment A to this decision and permit, MassDEP has reviewed and considered the comments in this final decision and permit.

As discussed below, MassDEP approves the application and construction of the proposed 4.99 megawatt (MW) solar photovoltaic facility ("PV Facility") on the Landfill, subject to UGT7's compliance with the terms and conditions of this decision and permit. This decision and permit is a Post-Closure Use Permit, pursuant to 310 CMR 19.143 Post-Closure Use of Landfills.

BACKGROUND

The following provides a summary discussion of the history of the Landfill, the application, and the proposed PV Facility. Additional detail and discussion are provided in the Fact Sheet incorporated Exhibit A to this decision and permit.

History

The Landfill occupies approximately 63 acres on a 106 acre parcel of land within the approximately 552 acre Iron Horse Park federal Superfund Site ("Site"). Disposal of waste at the Landfill commenced circa 1946 and continued until circa 1986. Therefore, the Landfill is a facility subject to M.G.L. Chapter 111, § 150A and 310 CMR 19.000, the Massachusetts Solid Waste Regulations.

During the operation of the Landfill, solid waste was disposed of in two (2) distinct adjacent areas/mounds identified in the application as the "Residential Landfill" and "Commercial Landfill"².

² No evidence was found during the closure of the Landfill under EPA's Superfund Program of the routine segregation/separation of residential and commercial waste into separate areas at the Landfill.

In 1984 the Landfill was included on the National Priorities List (NPL) as Operable Unit 2 of the Iron Horse Park Superfund Site ("Site"). On June 27, 1991, the EPA issued a Record of Decision ("ROD") for the Site. The EPA approved the remedial design on September 14, 2000.

On April 19, 2001, United States District Court, District Court of Massachusetts, Eastern Division entered a Consent Decree in "Civil Action No. 95-10023MLW, 95-10027MLW" (the "Consent Decree") for the performance of certain response actions, including operation and maintenance ("O&M")³, to implement the federally selected remedy for the Landfill. The parties to the Consent Decree are the United States and the Commonwealth of Massachusetts as the Plaintiffs, and over forty (40) separate entities as defendants (the "Settling Defendants"). The Consent Decree identifies a subset of thirty-four (34) Settling Defendants, known as the Performing Settling Defendants, who are required to implement the EPA's selected remedy and perform O&M at the Landfill pursuant to the Consent Decree.

On May 23, 2005, pursuant to paragraph 13.f of the Consent Decree, the Performing Settling Defendants' obligation to perform O&M at the Landfill for forty (40) years commenced. Paragraph 14 of the Consent Decree provides, subject to certain conditions being satisfied, that MassDEP will perform the required O&M thereafter.

As discussed above, EPA selected the remedy for the Landfill under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and, as required, identified applicable or relevant and appropriate requirements of other federal, or State, laws and regulations, including the State regulation for closing and capping a landfill, found at 310 CMR 19.000. Accordingly, the Landfill was assessed and remediated under the direction of the EPA Superfund Program, with review and comment by MassDEP. As a result, pursuant to CERCLA, no state permits or approvals were required including, but not limited to, 310 CMR 19.000⁴. The federal remedial design approval did not identify or approve a specific post-closure use of the Landfill.

The EPA is not requiring a modification of the ROD, the remedy, or other process or approval pursuant to CERCLA for the proposed PV Facility. Because EPA does not consider the proposed PV Facility to be part of the federal remedy, the MassDEP has determined that this post-closure use of the Landfill is subject to the provisions of 310 CMR 19.000 including, but not limited to, the requirements for a post-closure use permit pursuant to 310 CMR 19.143 Post-closure Use of Landfills.

³ O&M includes, but is not limited to: inspection, maintenance, and repair of the landfill cap and appurtenances thereto, operation and maintenance of the landfill gas control and storm water control systems, and environmental monitoring of the Landfill.

⁴ Because MassDEP concurred with the federal selected remedy, as provided for in the Massachusetts Contingency Plan (the "MCP"), 310 CMR 40.0000, the Landfill was deemed to be "adequately regulated" for purposes of compliance with the MCP (*i.e.*, no separate State permit was required in connection with the selected remedy).

The Proposed Facility

The PV Facility will generate approximately 4.99 MW of electricity at full build-out and will consist of 20,016 modules attached to aluminum frames. The frames will be supported on concrete pads resting on shallow leveling pads of gravel on the ground surface. The leveling pads will typically extend approximately two (2) inches into the soil portion of the Landfill's cap. The application states that the maximum penetration of the soil cover will be six (6) inches.

The Landfill's cap from top to bottom consists of an upper eighteen (18) inch thick soil cover that consists of a six (6) inch layer of topsoil underlain by a twelve (12) inch vegetative support layer of soil. This upper soil layer is underlain by a geocomposite drainage layer that is underlain by the impermeable flexible membrane liner (an "FML"). As proposed, the leveling pads will, therefore, not fully penetrate the soil cover and, thus, will not impact the underlying geocomposite drainage layer or the impermeable FML cap beneath it.

Modules will be placed on slopes of up to twenty percent (20%) gradient (that is, at a slope of 5 feet horizontal to 1 foot vertical). The geotechnical analysis provided in the application documents that the module supporting system design maintains a Factor of Safety of at least 1.6⁵.

As designed, the modules' support system, including the gravel leveling pads, will not significantly alter the flow of storm water runoff or snow melt to the existing storm water control basins at the site. The storm water calculations included in the application were performed in accordance with current MassDEP requirements. In addition, for comparison with the existing storm water system design, Geosyntec utilized the rainfall averages utilized in the design calculations for the approved remedy.

Based on Geosyntec's calculations and conclusions, the application proposes that only minor modifications be made to the storm water basin discharge structures. Detailed design plans and specifications are not included in the application for these modifications.

The supporting frame will be approximately sixteen (16) inches above the ground surface. Therefore, the application provides that the Landfill surface be re-vegetated with a short growing, shade tolerant grass to eliminate the need for mowing the grass beneath the PV modules. The application documents the use of this approach at other PV facilities.

⁵ The solid waste regulations at 310 C.M.R. 19.112 require that landfill support structures be designed to an appropriate factor of safety. Factor of safety is the ratio of the actual strength achieved in a design to the highest load, under worst conditions expected, to be placed on the structure. For many support structures, standard engineering practice typically strives for designs meeting a 1.5 safety factor.

The modules will be constructed using “high transmission, low-iron” glass to minimize solar glare from the facility. This technology has been used on other solar PV arrays to minimize potential solar glare, including PV arrays installed in close proximity to airports.

The design provides for the installation of ten (10) inverters on the Landfill to convert the DC power from the modules to AC power for transmission to the regional electric power grid. The inverters will be installed on gravel leveling pads similar to those proposed for the solar PV array. Connection to the regional electric power grid will be made at Pond Street.

Power cables connecting the modules will, typically, be located above ground in “raceways” with supports set on the ground surface. At the northwest end of the site, the power cables will transition underground and cross beneath the site access driveway. The crossing point is located outside the limits of the Landfill cap. Upon crossing the driveway, the power cables will transition to overhead (25 feet minimum vertical clearance) to cross an El Paso natural gas pipeline located on the site. After crossing the natural gas pipeline, the power cables will return underground until reaching the existing overhead wires on Pond Street, where connection to the regional electric power grid will occur. UGT7 will conduct an electromagnetic interference (EMI) study to verify that the proximity of the power cables to the natural gas pipeline does not interfere with the pipeline’s cathodic protection.

Operation and Maintenance

As discussed previously, the Consent Decree provides that the Performing Settling Defendants are responsible for the O&M of the remedy and performance of environmental monitoring of the Landfill for 40 years. The EPA, in a June 13, 2012 letter to MassDEP, states in part, with regard to the Performing Settling Defendants obligation under the Consent Decree for the ongoing O&M of the remedy, that:

“The Settling Defendants obligations are not altered by the proposed solar facility. Moreover, should an issue arise with respect to the O&M at the Site, whether or not in connection with the proposed solar facility, EPA would look to the Settling Defendants to address any Site problems, including through enforcement options under the Consent Decree, if necessary. We would also support MassDEP in its efforts to do the same.”

A copy of the EPA’s June 13, 2012 letter is attached hereto as Exhibit B.

As discussed previously, the Consent Decree provides that at the conclusion of the Performing Settling Defendants forty (40) year period of performing O&M of the Landfill, once certain conditions have been satisfied, MassDEP will assume the responsibility for the O&M of the Landfill.

De maximis, Inc. of Waltham, Massachusetts (“de maximis”) currently oversees and administers the O&M of the Landfill for the Performing Settling Defendants⁶ including, but not limited to, implementation of the revised January 9, 2004, Operation and Maintenance Plan for the remedy (the “2004 O&M Plan”).

Appendix I to the application includes the proposed O&M plan for the PV Facility (the “Solar Development Plan”) and the 2004 O&M Plan. The Solar Development Plan includes, but is not limited to:

- the roles and responsibilities of the parties (UGT7, Performing Settling Defendants) under the plan,
- health and safety issues,
- maintenance of the infrastructure such as the PV panels and racking system,
- visual inspection of the landfill cap and its repair, if needed, and
- a schedule for performing the inspections.

The Solar Development Plan states, in part:

“The O&M activities in this plan are focused on the area under and adjacent to the solar development and its ancillary components and shall be performed in conjunction with the O&M activities presented in the 2004 O&M Plan”.

The 2004 O&M Plan specifies the operation, maintenance, and inspection requirements for the remedy including, but not limited to:

- the landfill cover system including the cap and storm water controls,
- settlement of the Landfill cap,
- the leachate collection system,
- the landfill gas control system,
- groundwater and landfill gas monitoring well maintenance,
- environmental monitoring, and
- site access and security.

This decision and permit allows UGT7 to operate the PV Facility until November 11, 2052 provided that UGT7 meets certain conditions. These include, but are not limited to that UGT7 on or before June 11, 2042 submit to MassDEP, for review and approval, a plan for the continuing implementation of the Solar Development Plan (that is, O&M of the PV Facility) at the Landfill, after the Settling Defendants’ obligations to perform O&M have ceased pursuant to the Consent Decree. The plan must in part discuss

⁶ The Performing Settling Defendants have retained de maximis, Inc. as the Supervising Contractor under the Consent Decree.

the impact, if any, on the O&M responsibilities of MassDEP pursuant to the Consent Decree and demonstrate that it will not increase MassDEP's cost to perform O&M at the Landfill pursuant to the Consent Decree.

Financial Assurance

Condition 10 of this decision and permit requires that UGT7 establish and fund a Financial Assurance Mechanism (FAM), a stand-by trust, with MassDEP as the sole beneficiary for corrective actions required to restore the Landfill's cap and appurtenances thereto as a result of the PV Facility. The FAM does not affect or change the obligations of the Performing Settling Defendants' pursuant to CERCLA and the Consent Decree to maintain the remedy at the Landfill including, but not limited to, the following activities:

- Inspect and maintain:
 - the Landfill's cap,
 - the storm water control system, and
 - the environmental monitoring systems (landfill gas, ground water, surface water, etc.);
- Operate, inspect, and maintain the landfill gas control system;
- Perform all required environmental monitoring (landfill gas, groundwater, surface water, etc.); and
- Submit routine inspection and monitoring report to MassDEP, EPA, the Town of Billerica Board of Health, and the Performing Settling Defendants.

In addition, this decision and permit requires that prior to commencing construction of the PV Facility UGT7 certify to MassDEP that UGT7 has adequate financing to construct and commence operation of the PV Facility.

This decision and permit does not relieve or limit the obligation of the Performing Settling Defendants to comply with the CERCLA and the requirements of the Consent Decree or to comply with all other applicable state, federal, and local statutes and regulations.

In addition, the Consent Decree prohibits certain uses of the site that would interfere with or harm the remedy that are binding on the Performing Settling Defendants. The Consent Decree further provides that the Performing Settling Defendants develop and implement long term institutional controls at the site. Condition 23 of this decision and permit requires that UGT7 cooperate with the Performing Settling Defendants in developing these institutional controls and that UGT7 adhere to them.

DECISION

MassDEP has determined the post-closure use proposed by UGT7's application complies, subject to the terms and conditions of this decision and permit, with the applicable requirements of 310 CMR 19.000, and the application demonstrates pursuant to 310 CMR 19.143(3) that PV Facility as proposed and approved by this decision and permit:

- Will not result in a disturbance of the Landfill cap that could cause an adverse impact to public health, safety or the environment;
- Will not impair the integrity or functioning of the final cover, the components of the containment system, the landfill gas control system, and the environmental monitoring systems; and
- Provides for the maintenance of the Landfill cap's storm water drainage facilities, basins, swales, and other erosion/sedimentation controls.

Therefore, in accordance with M.G.L. Chapter 111, § 150A and 310 CMR 19.143, MassDEP approves the application and issues this Post-Closure Use Permit subject to UGT7's compliance with 310 CMR 19.000 including, but not limited to section 310 CMR 19.043(5) Standard Conditions and the following conditions, imposed by MassDEP pursuant to 310 CMR 19.043(1) Items Subject to Conditions and 310 CMR 19.142(7) Additional Measures.

1. Pursuant to 310 CMR 19.043(5)(a) Duty to Comply, UGT7 shall comply at all times with the terms and conditions of the permit or approval, 310 CMR 19.000, M.G.L.c. 111, § 150 A and all other applicable state and federal statutes and regulations.
2. The construction, installation, maintenance, and decommissioning of the PV Facility shall be conducted under the supervision of an independent Massachusetts Registered Professional Engineer(s) ("Engineer of Record") who shall have sufficient qualified staff⁷ on-site to provide field supervision and quality assurance/quality control for the construction, installation, maintenance, and decommissioning of the PV Facility.
3. UGT7 shall submit to MassDEP, EPA, and the Town of Billerica Board of Health each month a status report ("Construction Status Report") on the status of construction activities at the PV Facility. The initial Monthly Report shall be submitted to MassDEP, the EPA, and the Town of Billerica Board of Health on or before October 15, 2012 but not later than seven (7) days before the date UGT7 starts

⁷ "Qualified staff" shall be under the direct supervision and employment of the Engineer of Record and shall be experienced in and familiar with the performance of construction activities, the design and construction of landfill caps and related systems.

construction of the PV Facility. The initial Construction Status Report shall include, without limitation:

- a. The projected schedule for the construction and start-up of the PV Facility including, but not limited to:
 - i. Commencement of construction,
 - ii. Major construction milestones,
 - iii. Completion of construction, and
 - iv. Start of operation of the PV Facility; and
 - b. The name and contact information of an on-site contact.
4. After submittal of the initial Construction Status Report, UGT7 shall submit each subsequent monthly Construction Status Report to MassDEP, the EPA, and the Town of Billerica Board of Health on before the 15th day of the month. Each such monthly Construction Status Report shall, without limitation:
 - a. Summarize the activities conducted at the Landfill during the prior thirty (30) days;
 - b. Identify the major activities UGT7 anticipates to perform during the next thirty (30) days; and
 - c. Identify any changes to the design of the PV Facility, the project schedule, and the on-site contact information (see also Condition 31).
5. As provided by 310 CMR 19.043(4) Financial Conditions prior to commencing construction of the PV Facility UGT7 shall certify to MassDEP, in compliance with 310 CMR 19.011, that UGT7 has adequate financing and funds for the construction and operation of the PV Facility.
6. Not less than seven (7) days prior to the start of construction of the PV Facility, UGT7 shall submit to MassDEP for its files, with a copy to the EPA and the Town of Billerica Board of Health, a health and safety plan(s). UGT7 shall maintain a copy of the health and safety plan and documentation that site personnel have been trained pursuant to the health and safety plan at the site. The health and safety plan shall include, but not be limited to:
 - a. Protocols for monitoring of landfill gas (methane, hydrogen sulfide, etc.) as needed;
 - b. Protocols for modifying work practices if landfill gas is detected at levels of concern (action levels);
 - c. Training and instructing all personnel working on the site regarding the potential health and safety hazards at the Landfill including, but not limited to those associated with landfill gas; and
 - d. Training and instructing all personnel how to comply with the conditions of this decision and permit and to perform authorized activities in a manner that is not hazardous to public health, safety, and the environment.
7. UGT7, the Engineer of Record, and UGT7's contractors are responsible to ensure all necessary precautions are taken to protect the health and safety of workers and the general public during the

construction and operation of the PV Facility and during its decommissioning in accordance with applicable state and federal statutes and regulations and this decision and permit.

8. Within thirty (30) days of the date of this decision and permit, UGT7 shall submit an application, category BWP SW45 *Alternative Review Process*, to MassDEP for review and approval, with a copy to the EPA and Town of Billerica Conservation Commission, that includes the detailed design plans and specifications for the modifications to the storm water control system proposed in the post-closure use application.⁸
9. UGT7 shall not commence construction of the PV Facility until it has submitted to MassDEP, EPA, and the Town of Billerica Board of Health the initial Status Report required by Condition 3 above, and the application for modifications to the storm water control system required by Condition 8, above.
10. UGT7 shall, prior to commencing construction of the PV Facility, establish a standby trust, with MassDEP as the sole beneficiary, for the decommissioning and removal of the PV Facility and restoration of the Landfill's cap, as necessary,. The standby trust shall be established in a form approved by the MassDEP, and shall provide that UGT7 fund the PV Facility Closure Cost, as approved by MassDEP pursuant to Condition 17 of this decision and permit, in accordance with the following schedule:
 - a. UGT7 shall place no less than 25% of the approved PV Facility Closure Cost into the standby trust within one (1) year of the date of MassDEP's approval of the construction certification report required by Condition 17 of this decision and permit, and
 - b. On no later than each annual anniversary of the approval referenced in Condition 10.a, above, UGT7 shall place additional funds into the standby trust at the rate of no less than 7.5% of the PV Facility Closure Cost per year, such that the standby trust shall be fully funded (i.e., funded at an amount equal to the PV Facility Closure Cost) on or before the tenth such anniversary.
11. Prior to commencing construction and decommissioning of the PV Facility, all landfill gas system components (such as vents, piping, etc.), landfill gas and groundwater monitoring wells, and other existing above ground structures on the Landfill's cap shall be flagged for visibility, and protective barriers shall be placed around such structures, as needed to prevent damage by vehicles accessing the site and from the construction activities.
12. Vehicles operating on the Landfill cap shall only be operated and parked on designated access roads, except for low-pressure construction equipment, which may operate off the access roads. All operators of vehicles entering the cap area of the Landfill shall, prior to their arrival, be instructed by

⁸ UGT7 should consult with the EPA and determine whether modification of the storm water basin design as proposed in the application requires EPA approval as a modification of the remedy (i.e., as an Explanation of Significant Difference or Letter of Non-Significance).

the Engineer of Record or his/her on-site designee and/or the contractor of the requirements of this decision and permit, to avoid damage to the landfill cap and appurtenances thereto.

13. All disturbance of the Landfill shall be limited to the proposed excavations and installations as depicted and described in the application and the approved plans and this decision and permit. Excavations shall be limited to the soil cover (that is, the topsoil and vegetative support layers). No excavations shall penetrate the geotextile drainage layer or the impermeable flexible membrane liner of the Landfill's cap (the "FML").
14. If the geotextile drainage layer or FML are damaged as a result of the construction, operation, or decommissioning of the PV Facility, UGT7 shall notify MassDEP, the EPA and the Performing Settling Defendants' Supervising Contractor⁹ without delay and in no case more than twenty-four (24) hours of UGT7 or its contractors becoming aware of the incident. UGT7's contractors shall without delay notify the Engineer of Record or his/her on-site representative upon encountering or damaging the geotextile drainage layer or the FML. This notification requirement is in addition to any other notification requirements required by statute or regulation including, but not limited to, 310 CMR 19.000 and 310 CMR 40.0000, or by the EPA.
15. UGT7 and its contractors shall adhere to and not violate the prohibitions on activity and use set forth in Section X. Access and Institutional Controls, Paragraph 29.b of the Consent Decree.¹⁰
16. Pursuant to 310 CMR 19.043(5) Standard Conditions, MassDEP and its agents and employees shall have the right to inspect the Landfill including, any equipment, structure or land located thereon, to take samples, to perform tests, and have access to and photocopy records, and to otherwise monitor compliance with this decision and permit and all environmental laws and regulations administered by MassDEP. This includes, but is not limited to, the area of the PV Facility. UGT7 shall provide MassDEP access to the areas of the Landfill occupied by the PV Facility and appurtenances thereto and shall, to the extent of its authority, fully cooperate with MassDEP accessing other areas of the Landfill in compliance with 310 CMR 19.043(5). UGT7 shall not interfere with or prevent MassDEP from accessing the Landfill pursuant to 310 CMR 19.043(5). This condition does not limit any other access right(s) that MassDEP possesses (such as, pursuant to other statutes or regulations).
17. No later than ninety (90) days after the date construction of the PV Facility is completed, but in no event less than thirty (30) days before the date UGT7 commences operation of the PV Facility, UGT7 shall submit to MassDEP for review a construction certification report ("Certification Report") prepared by the Engineer of Record. UGT7 shall submit the Certification Report as an application category BWP SW45 *Alternative Review Process*. UGT7 shall simultaneously send copies of the

⁹ Currently Thor Helgason of de maximis, Inc.

¹⁰ An electronic copy of the Consent Decree may be obtained by contacting John Carrigan of the MassDEP by email at John.Carrigan@state.a.us or Janet Waldron at Janet.Waldron@state.ma.us.

application to EPA, the Town of Billerica, and the Performing Settling Defendants Supervising Contractor. The Certification Report shall include, but is not limited to:

- a. As-built plans for the final as constructed PV Facility that incorporate all modifications and alterations, if any, made during construction. Such as-built plans shall clearly identify areas of unusual hazard, such as high voltage conduits;
- b. A narrative prepared by the Engineer of Record that discusses in part, any modifications made to the design of the PV Facility;
- c. An updated cost estimate for the FAM revised to reflect any changes in the cost for the decommissioning of the as-built PV Facility and the restoration of the Landfill cap and appurtenances thereto in areas impacted by the PV Facility to the original design approved by the EPA;
- d. The Solar Development Plan updated:
 - i. as necessary, to reflect the as-built PV Facility,
 - ii. to include procedures for the cleaning of the solar panels,
 - iii. to provide for the reporting and repair of all areas of erosion under the direction of the Engineer of Record,
 - iv. to include pages 1 and 2 of the Site Inspection Form, Shaffer Landfill – Billerica, Massachusetts included as Appendix A *Inspection Monitoring Form* of the 2004 O&M Form, and
 - v. to provide for completion of the daily log required by Condition 18 of this decision and permit;
- e. Documentation that UGT7 is coordinating its implementation of the Solar Development Plan with the implementation of the 2004 O&M Plan by de maximis Inc. on behalf of the Performing Settling Defendants. Such documentation may consist of, but is not limited to, a written agreement or contract between de maximis Inc. or other party identified by the Performing Settling Defendants and UGT7; and
- f. Pursuant to 310 CMR 19.011 certification of the Certification Report by UGT7 and the Engineer of Record.

18. UGT7 shall maintain, without limitation, the following records on-site at the PV Facility¹¹ and shall make such records available to MassDEP, EPA, and the Town of Billerica Board of Health upon request including copies thereof:

- a. A complete copy of this decision and permit and all application submittals, plans, protocols and attachments;
- b. A daily log of activities and conditions at the PV Facility including, but not limited to,
 - i. damage to the Landfill's cap and appurtenances thereto,

¹¹ After construction of the PV Facility is completed these records may be maintained at an off-site location, if approved by MassDEP.

- ii. maintenance and repairs to the PV Facility and Landfill cap and appurtenances thereto, and
 - iii. summary of any complaints received by UGT7 regarding the PV Facility or Landfill including, but not limited to the name, address, and contact number of the complainant (if provided), the nature of the complaint, and any actions UGT 7 took in response to the complaint;
 - c. Details of any incidents that resulted in the response of emergency personnel (fire, police, MassDEP Emergency Response personnel, etc.) to the PV Facility;
 - d. Copies of the Construction Status Reports;
 - e. Copies of O&M Inspection Reports; and
 - f. Records of any damage and repairs of the Landfill cap and appurtenances thereto within areas affected¹² by the PV Facility.
19. UGT7 shall familiarize the Town of Billerica's emergency response agencies (Fire, Police, etc.) and the Performing Settling Defendants' Supervising Contractor, with the PV Facility including, without limitation, potential hazards to responding personnel. UGT7 shall, prior to commencing operation of the PV Facility, provide documentation to MassDEP, EPA, and the Town of Billerica of the actions it has taken to comply with this condition.
20. UGT7 may commence operation of the PV Facility within thirty (30) days of the later of the date MassDEP receives, pursuant to Condition 17 of this decision and permit, the Certification Report or the date of MassDEP's receipt of the payment of the application fee by UGT7, unless:
- a. MassDEP approves an earlier date; or
 - b. Prior to that date MassDEP, notifies UGT7 in writing that the certification report is inadequate and additional information is required; or
 - c. Prior to that date MassDEP, notifies UGT7 that the PV Facility has not been constructed in compliance with this decision and permit, or the approved plans, except as modified in compliance with Condition 31 of this decision and permit.
21. UGT7 shall inspect the Landfill's cap and appurtenances thereto within the areas affected by the PV Facility¹² at the following frequencies and shall submit the inspection reports to MassDEP, the EPA, and the Town of Billerica Board of Health within thirty (30) days of the date of each such inspection.¹³ After major storm events (rain, wind etc.);
- a. Not less than monthly during the first year of operation of the PV Facility; and
 - b. Not less than quarterly after the first year of inspections of the Landfill's cap and appurtenances thereto in the areas affected by the PV Facility.

¹² Areas affected by the PV Facility include, without limitation, the actual area of the PV Facility and its components and areas outside of those impacted by the PV Facility.

¹³ This inspection requirement does not alter any requirement under the Consent Decree and 2004 O&M Plan regarding inspection of the Landfill by the Performing Settling Defendants.

22. UGT7 shall notify the MassDEP, EPA, the Billerica Board of Health, and the Performing Settling Defendants Supervising Contractor engineer¹⁴ without delay and in no case more than 24 hours of UGT7 or its contractor becoming aware of any damage to the geotextile drainage layer, the FML, the landfill gas control system, or significant erosion of the Landfill's cap or damage to the storm water control system, or the receipt by UGT7 of any complaint of off-site nuisance conditions attributed to the Landfill.
23. UGT7 shall cooperate with EPA, MassDEP, the Settling Defendants under the Consent Decree and, as applicable, their successors-in-title, in the development and implementation of future institutional controls for the Landfill and Iron Horse Park Superfund Site, as required by the Consent Decree, including without limitation in the form of a grant of environmental restriction and easement ("GERE"). It is the intent of MassDEP, subject to the agreement of EPA, that such restrictions include a permitted use or other appropriate provision providing for the operation of the PV Facility. Such obligation to cooperate shall include entering into agreements to subordinate any interests in land held by UGT7 to such future GERE and obtaining subordination agreements from any parties to whom UGT7 may have granted an interest in land to be subject to such future GERE, all as determined by EPA and/or MassDEP in accordance with the Consent Decree.¹⁵ UGT7 shall comply with such institutional controls, once implemented, as applicable.
24. UGT7 shall decommission and remove the PV Facility from the Landfill and restore those portions of the Landfill's cap including all appurtenances thereto, that require restoration due to the impact of the PV Facility, to the as-built condition certified by the EPA's Completion of Construction Certification dated February 10, 2004 on or before six (6) months of the date of ceasing operation of the PV Facility as specified in Conditions 28 and 29 of this decision and permit.
25. Not later than thirty (30) days prior to the date that decommissioning of the PV Facility and restoration of the Landfill's cap and appurtenances starts at the Landfill, UGT7 shall submit to MassDEP for its files, with a copy to the EPA, the Town of Billerica Board of Health, and the Performing Settling Defendants a notice of the planned decommissioning that contains a schedule identifying the proposed start date, completion date, and principle decommissioning and restoration activities. In addition, the notice shall include a health and safety plan(s). UGT7 shall maintain a copy of the health and safety plan and documentation that site personnel have been trained pursuant to the health and safety plan at the site. The health and safety plan shall include, but not be limited to:
- a. Protocols for monitoring of landfill gas (methane, hydrogen sulfide, etc.) as needed;
 - b. Protocols for modifying work practices if landfill gas is detected at levels of concern (action levels);

¹⁴ Currently Thor Helgason of de maximis, Inc.

¹⁵ As noted on page 1 of this decision and permit EPA has reviewed and commented on the application and the draft Post-Closure Use Permit.

- c. Training and instructing all personnel working on the site regarding the potential health and safety hazards at the Landfill including, but not limited to those associated with landfill gas; and
 - d. Training and instructing all personnel how to comply with the conditions of this decision and permit and to perform authorized activities in a manner that is not hazardous to public health, safety, and the environment.
26. Within ninety (90) days of the date of completing the decommissioning and removal of the PV Facility and restoration of the Landfill's cap and appurtenances affected by the PV Facility, UGT7 shall submit to the MassDEP, with a copy to the EPA, and the Town of Billerica Board of Health, a Closure Certification Report documenting the decommissioning and removal of the PV Facility and the restoration of the Landfill's cap and appurtenances thereto, to the as-built condition certified by the EPA's Completion of Construction Certification dated February 10, 2004. The Closure Certification Report shall, without limitation:
- a. Be prepared by a Massachusetts Registered Professional Engineer;
 - b. Be signed by the engineer and UGT7 pursuant to 310 CMR 19.011;
 - c. Include a narrative describing the condition of the Landfill's cap and appurtenances thereto before and after the decommissioning and removal of the PV Facility; and
 - d. Include as-built plans showing the final condition of the Landfill's cap and appurtenances thereto.
27. This decision and permit is effective on the date of execution by MassDEP as signed below, except as provided by the Notice of Appeal Rights below and 310 CMR 19.037(4)(b).
28. UGT7 may operate the PV Facility, except as otherwise provided in Conditions 29 and 30 of this decision and permit, until November 11, 2052 provided that:
- a. On or before November 11, 2040, UGT7 notifies MassDEP and the EPA of its intent to renew the Lease, the notice shall include a copy of the renewal notice provided by UGT7 to the Performing Settling Defendants pursuant to Article 14 "Term of the Lease Agreement" and a schedule for performing the inspection of the PV Facility and Landfill required by this condition; and
 - b. On or before August 11, 2041, an independent Massachusetts Licensed Professional Engineer (the "Engineer") conducts on behalf of UGT7 an inspection of the landfill cap within the area of the PV Facility, the appurtenances thereto (such as, but not limited to: storm water controls, landfill gas wells, monitoring wells, access roads etc.), and any other portions of the Landfill affected by the PV Facility; and
 - c. On or before November 11, 2041, UGT7 shall submit to MassDEP, for review and approval, a report prepared by the Engineer that, without limitation: describes the inspection, provides the results and findings of the inspection, and identifies any maintenance that should be performed of the Landfill cap and appurtenances thereto. The report shall be certified by the Engineer and UGT7 pursuant to 310 CMR 19.011; and

- d. On or before June 6, 2042, UGT7 shall submit to MassDEP, for review and approval, a plan for the continuing implementation of the Solar Development Plan at the Landfill after the Settling Defendants' obligations to perform O&M have ceased pursuant to the Consent Decree; and
 - e. UGT7 ceases operation of the PV Facility on or before November 11, 2052 and decommissions the PV Facility in compliance with Conditions 24, 25, and 26 of this decision and permit on or before September 1, 2053.
29. UGT7 shall cease operation of the PV Facility on or before November 11, 2042 and decommission the PV Facility in compliance with Conditions 24, 25, and 26 of this decision and permit on or before September 1, 2043, except as otherwise provided in Conditions 28 and 30 of this decision and permit.
30. This decision and permit shall expire on December 30, 2015 unless UGT7 has completed construction of the PV Facility on or before that date. Unless UGT7 applies for and MassDEP grants an extension to this date pursuant to 310 CMR 19.000.
31. UGT7 shall not deviate from this decision and permit and the approved design plans without prior written notice to MassDEP. MassDEP may require UGT7 to submit an application to MassDEP for review and approval for any modification/alteration to the design of the PV Facility that MassDEP determines is significant. In the event that MassDEP determines that a permit modification application is required, UGT7 shall submit such application in accordance with the schedule specified by MassDEP.
32. MassDEP reserves the right to amend, modify, suspend or revoke this decision and permit pursuant to 310 CMR 19.040 Department's Modification, Suspension, or Revocation of a Permit. This does not limit or restrict MassDEP from implementing any other applicable authority at the Landfill including, but not limited to authority pursuant to 310 CMR 40.0000.

NOTICE OF RIGHT TO APPEAL

Appeal. Any person aggrieved by the issuance of this decision and permit may file an appeal for judicial review of said decision and permit in accordance with the provisions of M.G.L. c. 111, s. 150A, and M.G.L. c. 30A, not later than thirty (30) days following the receipt of the final decision and permit. The standing of a person to file an appeal and the procedures for filing such appeal shall be governed by the provisions of M.G.L. c. 30A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the decision and permit by a court of competent jurisdiction, the decision and permit shall remain effective.

Notice of Action. Any aggrieved person intending to appeal this decision and permit to the Superior Court shall first provide notice to the Department of their intention to commence such action. Said notice of

intention shall include the Department file number and shall identify with particularity the issues and reasons why it is believed the decision and permit was not proper. Such notice shall be provided to the Office of General Counsel of the Department and the Regional Director for the regional office which processed the application. The appropriate addresses to which to send such notices are:

General Counsel
Massachusetts Department of Environmental Protection
One Winter Street – 3rd Floor
Boston, MA 02108

Regional Director
Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

No allegation shall be made in any judicial appeal of this decision and permit unless the matter complained of was raised at the appropriate point in the administrative review procedures established in those regulations, provided that a matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the environmental impact of the permitted activity.

If you have any questions regarding this matter, please contact David Adams at 978-694-3295.

Sincerely,

Sincerely,

David C. Adams
Environmental Engineer
Solid Waste Management

John A. Carrigan
Section Chief
Solid Waste Management

Date: _____

EHM/DCA/dca

Urban Green Technologies Renewable Energy 7 LLC
Shaffer Landfill, Post Closure Use
PV Power Generation Facility
Final Decision/Post-Closure Permit

Page 18 of 18

Attachment:

Exhibit A: Fact Sheet

Exhibit B: EPA letter, June 13, 2012

cc:

Town Manager
Town of Billerica
365 Boston Road
Billerica, MA 01821

Billerica Board of Health
365 Boston Road
Billerica, MA 01821

Billerica Conservation Commission
365 Boston Road
Billerica, MA 01821

Billerica Planning Board
365 Boston Road
Billerica, MA 01821

David J. Bonnett
Geosyntec Consultants, Inc.
289 Great Road, Suite # 105
Acton, Massachusetts 01720

David L. Johnson
113 Gray Street
Billerica, MA 01821

USEPA, attn:
Donald McElroy

MassDEP, attn:
Janet Waldron/BWSC/Boston
Andrew Cohen/OGC/Boston

EXHIBIT A

FACT SHEET

Project Identification

Facility: Shaffer Landfill

Address: 209 Pond Street
Billerica, Massachusetts 01862

Site Owner: Graypond Realty Trust

Address: % Wilmer Hale
60 State Street
Boston, Massachusetts 02109

Contact: Robert C. Kirsch, Esq.

Landfill O&M: Shaffer Landfill Performing Settling Defendants

Address: % de maximis, Inc.
35 Beaver Street
Waltham, Massachusetts 02452

Contact: Thor Helgasson, Trustee Shaffer Landfill Trust

Applicant: Urban Green Technologies Renewable Energy 7 LLC

Address: 111 E. Wacker Drive, Suite 2400
Chicago, Illinois 60601

Contact: Zachary Schulman

Facility Number: 39087

Regulated Object Number: 172342

Permit Number: none

Release Tracking Number: 3-0240_02

USEPA ID: MAD051787323

CERCLA Site ID: 0100524

Location¹⁶: Latitude/Longitude: 42°35' 3" North Latitude 71°14'49" West Longitude
MSPCS: 220,769 mE 925,990 mN Mainland Zone NAD83
UTM: 315,617 mE 4,717,088 mN Zone 19

Size of property: 106 acres¹⁷

Area of waste disposal: 63 acres

¹⁶ For reference only. Approximate midpoint between “Residential” and “Commercial” Landfills estimated from MassGIS.

¹⁷ Identified as 95 acres in the application text and as 106.1 acres on the plans included with the application (Assessor’s Lot 19-1) and in MassDEP records.

“Residential” Landfill: 25 acres

“Commercial” Landfill: 38 acres

MEPA: Project does not trigger any MEPA review thresholds.
Email - December 22, 2011 from Richard Bourre of EOEAA MEPA Office to David Bonnett of Geosyntec.

Current Application: Post-Closure Use - Major BWP SW36
Transmittal Number: X241512
Date: December 20, 2011
Received: December 21, 2011

Engineer of Record: Geosyntec Consultants, Inc.
289 Great Road, Suite # 105
Acton, Massachusetts 01720
David J. Bonnett, P.E.

Draft Decision: July 6, 2012

Capacity: 4.999 MW AC [estimated solar facility output/generating capacity]

Documents and Actions Related to this Application

Plans (Record Conditions): Shaffer Landfill
Pond Street
Billerica, Massachusetts
November 8, 2003
Meridian Associates, Inc.
Danvers, Massachusetts

Plans: Shaffer Landfill
Billerica, MA
9/99 revised through 2/02
ENSR
Acton, Massachusetts

Correspondence: U.S. Environmental Protection Agency to Performing Settling Defendants
Completion of Construction Certification
Iron Horse Park Superfund Site – OU2 – Shaffer Landfill

Issued: February 10, 2004

Massachusetts Department of Environmental Protection

Bureau of Waste Site Clean-up

Determination of “Working Properly and As Designed”

Issued: May 23, 2005

Report: Post-Closure Use Application
Shaffer NPL Landfill Solar Development
December 2011

Plan: Shaffer Landfill
Pond Street
November 14, 2011
Revised through December 19, 2011
Meridian Associates, Inc.
Danvers, Massachusetts

Plan: Ground Mount For Urban Green Tech At Shaffer Landfill
11/22/11
RBI Solar
Cincinnati, Ohio

Report: Town of Billerica
Special Permit Application
Response to Comments
Shaffer NPL Landfill Solar Development
December 2011

Correspondence: MassDEP to Applicant
December 28, 2011
Notice of Administrative Completeness
BWP SW36 – Major Modification of Post-Closure Use
Transmittal No.: X241512

Correspondence: Geosyntec Consultants to Town of Billerica Board of Health
January 17, 2012
Solar Facility – Shaffer Landfill, Pond Street, Billerica
Special Permit Peer Review Comments

Correspondence: Geosyntec Consultants to MassDEP
January 25, 2012
Supplemental Transmittal

BWP SW36 – Major Modification of Post-Closure Use
Iron Horse Park Superfund Site Operable Unit Two
Shaffer Landfill Solar Development
209 Pond Street, North Billerica, Massachusetts
Transmittal No X241512

Correspondence: MassDEP to Applicant
March 13, 2012
Notice of Technical Deficiency
BWP SW36 – Major Modification of Post-Closure Use
Transmittal No: X241512

Report: Post-Closure Use Application
Shaffer NPL Landfill Solar Development
May 2012
BWP SW36 – Major Modification of Post-Closure Use
Transmittal No: X241512

Plan: Shaffer Landfill
Pond Street
November 14, 2011
revisions through 5/11/12
Meridian Associates, Inc.
Danvers, Massachusetts

Correspondence: Wilmer Hale to MassDEP
May 29, 2012
Re: Financial Assurance
Lease Agreement (Solar Energy Easement Rights)

Email: Janet Waldron, MassDEP/BWSC to John Carrigan, MassDEP
Comments on Revised Post-Closure Application
June 21, 2012

Email: Don McElroy, EPA New England to John Carrigan, MassDEP
Comments on Revised Post-Closure Application
June 21, 2012

Email: John Carrigan, MassDEP to David Bonnett, Geosyntec
EPA and BWSC Comments on Revised Post-Closure Use Application
June 21, 2012

Email: David Bonnett, Geosyntec to John Carrigan, MassDEP
July 2, 2012
Response to USEPA's and BWSC's Comments
Date: June 29, 2012

Discussion

Background

The site is a former municipal solid waste (MSW) landfill located at 209 Pond Street, Billerica, Massachusetts. The Landfill sits on an approximately 106 acre parcel owned by Graypond Realty Trust, within the 552 acre Iron Horse Park Superfund Site. The parcel is identified as Billerica Assessor's Map 18, Lot 19-1.

Waste disposal activity started at the site circa 1946 and continued until circa 1986. During its operating period, wastes were disposed of in two (2) distinct adjacent mounds identified in the application as the "Residential Landfill" and the "Commercial Landfill". Correspondence previously reviewed by MassDEP as part of the assessment and remediation under the direction of Region 1 of the United States Environmental Protection Agency ("EPA") indicates that both areas were not solely restricted to a single class of waste (i.e., residential or commercial).

The site is abutted, in part, by Pond Street on the west, property of the Boston and Maine Railroad (aka Pan Am Railroad) to the north, and the (former) Middlesex Canal (aka Old Middlesex Canal) on the south. North of the site is the Lowell line of the MBTA commuter railroad. South of the site approximately 200 feet is a residential neighborhood. West of the site are former maintenance facilities of the Boston and Maine Railroad (Iron Horse Park). Access to the site and Landfill is from Pond Street.

In 1984 the Landfill was included on the National Priorities List (NPL) as Operable Unit 2 (OU 2) of the Iron Horse Park Superfund Site. The design and construction of the closure of the landfill was conducted by private parties under the authority and direction of the EPA pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup (BWSC) pursuant to M.G.L. Chapter 21E. Pursuant to the requirements of the USEPA, the design of the landfill closure (the “Remedy”) was prepared consistent with the MassDEP requirements established at 310 CMR 19.112, et seq., as established pursuant to M.G.L. Chapter 111, §150A and Subtitle D of the Resource Conservation and Recovery Act (RCRA).

Construction of the Remedy/closure of the landfill was conducted between 2001 and 2003. On February 10, 2004, the EPA certified construction of the Remedy (closure) as complete. MassDEP certified the closure was “Working Properly and As Designed” on May 23, 2005. Therefore, the Landfill is deemed a “closed landfill” pursuant to 310 CMR 19.045(4).

The landfill cap approved by the EPA and constructed pursuant to the Remedy consists from top to bottom of:

- 18 inches of soil cover (6 inches of topsoil underlain by 12 inches of vegetative support soil),
- A geocomposite drainage layer¹⁸,
- An impermeable 40 mil textured HDPE¹⁹ membrane (“FML”), and
- 12 inches common borrow grading/foundation layer

A network of 56 landfill gas extraction wells were installed in the landfill (24 at the “Residential Landfill”, 32 at the “Commercial Landfill”). 27 of the extraction wells (11 at the “Residential Landfill”, 16 at the “Commercial Landfill”) have the capability of also extracting leachate from the Landfill. Landfill gas from the extraction wells is conveyed to a flare located off Pond Street northwest of the “Residential Landfill”. Piping connecting the extraction wells to the flare is located within the vegetative support soil layer, above the FML and geocomposite layers.

Detention basins for the management of storm water from the site are located to the northwest of the “Residential Landfill” and southeast of the “Commercial Landfill”.

Pursuant to M.G.L. Chapter 111, §150A, no landfill may be dedicated to a new use following closure (post-closure use) unless approved by MassDEP.

At the time of submission of this application, December 21, 2011, MassDEP had approved the installation of photovoltaic (solar) electric power generating facilities at fourteen (14) landfills across the Commonwealth. The facilities ranged in size from 77 Kilowatts (KW), at the South Hadley Landfill, to 5.9 Megawatts (MW), at the Canton Landfill, and with a combined total capacity of approximately 29.5 MW. As of December 31, 2011, MassDEP had approved PV solar facilities at an additional six (6) landfills with capacities ranging from

¹⁸ A geonet laminated between 2 layers of 6 oz. non-woven geotextile fabric.

¹⁹ High Density Polyethylene.

578 KW, at the Fairhaven Landfill, to 4.0 MW, at the Barnstable Landfill, with a total approved projected capacity of 42.2 MW.²⁰

Application:

Urban Green Technologies Renewable Energy 7 LLC (UGT7) proposes to install a network of photovoltaic panels (solar cells) on the Landfill to generate electric power. As originally proposed in the application, the facility was designed for a projected capacity of 7.1 MW AC. Pursuant to restrictions imposed by National Grid the generating capacity of the facility has been reduced to 4.999 MW AC.

The proposed facility will consist of approximately 20,016 photovoltaic modules located generally on the top plateau plus southerly and easterly facing slopes of both mounds (“Residential Landfill” and the “Commercial Landfill”) of the landfill. Ten (10) 500 KW inverters and five (5) 25 KV transformers will be located at various points within the array to convert the DC power generated by the panels to AC power for connection to the grid. Interconnection to the power grid will occur on Pond Street at the northwest end of the site.

The manufacturers’ literature states that the modules produce 218 watts nominal power each (at 68°F and 800 W/m² irradiance), for a total power output of 4.363 MW DC²¹.

The photovoltaic panels will be constructed with “high transmission, low-iron” glass with a reflectance value of 8 percent or less to minimize solar glare from the facility. The application documents that this type of glass has been used to minimize solar glare from PV arrays at other locations including in the vicinity of airports.

Supports for the photovoltaic panels are designed for the following load conditions:

- Snow Load: 55 pounds per square foot (psf)
- Wind Load: 100 mph, 3 second gust
- Seismic: $S_s = 0.30$, $S_1 = 0.072$

Photovoltaic panel and wiring supports are designed to be placed on ground surface mount pads, minimizing the need for excavation of the vegetative cover of the landfill’s cap. The design specifications provided, in part that:

- Piping (conduit, etc.) will be supported on self-ballasting pads commonly used to support such piping on gravel roofing.
- Supports for the photovoltaic panels will be square concrete pads (approximately 30 inches x 30 inches) spaced up to approximately 18 feet on center [typical spacing 13 feet by 15 feet], weighing 355 to 475 pounds each, and placed on gravel leveling pads. The gravel leveling pads

²⁰ In 2012 additional facilities have been approved by MassDEP, including, but not limited to, in January 2012 at the Adams Landfill (1.1 MW) and the Agawam Landfill (1.98 MW).

²¹ Modules may produce 300 watts each at 77°F and 1000 W/m² irradiance, for 5.997 MW DC total.

will be placed, typically, two (2) inches into the existing topsoil surface. A framework of aluminum beams will connect the concrete pads to mount the photovoltaic panels.

- Inverters and transformers will be mounted on soil leveling pads placed, typically, two (2) inches into the existing topsoil surface.
- Soil removal for installation of gravel leveling pads will be limited to the upper topsoil layer of the landfill cover only.
- The estimated maximum limit of excavation will be 6 inches.
- Excavation to and exposure of the geotextile drainage layer and the FML is not proposed in the application or design plans.

Panels will be placed on slopes of up to 20 % (1 foot vertical to 5 feet horizontal). A structural analysis by Geosyntec has determined the Factor of Safety (FS)²² to be 1.6 at 20% and greater than 1.6 on shallower slopes.

Existing site access roads will be modified to improve vehicle turnaround at dead ends.

Storm water impinging on the photovoltaic panels will be allowed to flow unrestrained onto the grass covered ground surface below the lower edge of each panel. No controls are provided to reduce the energy of the water impacting the grass.

Rain water, snow melt, etc. will be collected by the existing storm water control system at the landfill and conveyed to the existing detention basins at the northwest and southeast ends of the landfill and wetlands adjacent to the landfill consistent with the current storm water discharge patterns as established by the “Remedy”.

The proposed installation will not require, and does not propose, substantive alteration to the existing grades or contours of the landfill surface including projected settlement as a result of the installation. The array’s supporting pads are so spaced that the pads will not materially alter the flow of runoff across the landfill surface. The modules, individually, create small areas of impervious surface discharging to the landfill surface. However, the modules are spaced so that no large area of uninterrupted impervious surface is created. Storm water running off of the modules will flow through the grassed surface, thereby dissipating the energy and retarding the velocity of flow.

To provide a conservative estimate of the impact of the array on the storm water controls Geosyntec conducted an analysis of the storm water controls. As part of this analysis Geosyntec estimated the

²² The Factor of Safety (FS) is a measure of the amount by which the strength of materials exceed the required minimum strength required for the design to be stable (i.e. the panels will not slide down the slope). The Factor of Safety is calculated by dividing the measured achieved strength of the material by the minimum required strength. Common engineering standards typically require a Factor of Safety of at least 1.5. However, other values for the Factor of Safety may be applied on a design specific basis.

modules will create a 50% impervious cover over the portions of the site on which the modules are located. Compliant with current MassDEP criteria, and consistent with the “USEPA Remedy”, storm water flow estimates are based on TP-40 estimates of rainfall.²³

Pursuant to 310 CMR 19.112, et al, and related MassDEP policies, a landfill is required to include storm water controls sufficient to manage the storm water generated during a 25 year/24 hour storm event and to pass without damage a 100 year/24 hour storm event. The 25 year/24 hour storm event as estimated by the Northeast Regional Climate Center (NRCC) is slightly lower than the 100 year/24 hour storm event as estimated pursuant to TP-40²⁴.

The storm water controls at the site are designed to manage a 100 year/24 hour storm event as estimated pursuant to TP-40. The application demonstrates the storm water controls will adequately manage storm water for a 25 year/24 hour storm event for both the TP-40 design event and current NRCC rainfall estimates. The storm water controls will be capable of passing the estimated storm water flow for a 100 year/24 hour storm event.

EPA recommended the use of the NRCC data as more current. However, EPA also recognized that the TP-40 is identified as an acceptable source for the rainfall totals in TR-55. However, EPA expressed the opinion that the NRCC data should be used in “new design efforts”. Geosyntec responded, on behalf of UGT7, that the rainfall data used was taken from the “Final (100%) Design Deliverable for Shaffer Landfill” dated October, 1999 as approved by the EPA and that the rainfall data, published in 1993, represents the most recent available NRCC data for Billerica. In addition, Geosyntec noted that the storm water analysis was done in part to assess the impact of the solar facility on the existing storm water system versus its existing design.

Based on the analysis of the storm water controls, the application proposes modifications to the existing detention storm water basins to reduce the peak rate of discharge. The application does not include detailed design plans and specification for the modifications. The proposed modifications to the detention basins include:

- Plugging of one (1) six (6) inch orifice at the base of the outlet standpipe in Basin #1.
- Plugging the existing six (6) perforated pipes at the bottom of Basin #2 and installing six (6) rows of one (1) inch perforations to the standpipe.

Pursuant to the proposed modifications, Geosyntec estimates the combined peak rate of discharge of storm water from the detention basins during a 25 year storm event will be decreased by 2 cubic feet per second (cfs). Geosyntec’s analysis demonstrates sufficient freeboard is available on both basins to retain the storm water from a 100 year storm event, while the combined peak rate of discharge from the basins will be decreased by 1.4 cfs.

²³ 25 year/24 hour rainfall = 5.3”; 100 year/24 hour rainfall = 6.6”.

²⁴ 6.0” NRCC 25 year/24 hour storm vs. 6.6” TP-40 100 year/24 hour storm.

Based on the information provided, the application documents the estimated impact of the Solar Facility on the current storm water system as designed, and proposes modifications to assure it continues to meet the original design requirements and that the rainfall amounts used in the storm water calculations are acceptable for this purpose.

The area beneath the panels will be re-vegetated with a short growing, shade tolerant grass to maintain a continuous vegetated surface and to eliminate the need for mowing of the grass beneath the PV arrays.

Geosyntec reports that photovoltaic array installations in New Jersey indicate shading from the arrays may benefit the growth of grasses under the arrays by cooling the soil and thus maintaining a higher soil moisture. As part of the operation and maintenance of the facility, the operator will conduct routine inspections of the facility including, but not limited to, identifying any impacts and/or damage to the landfill cap, including the vegetation.

Power from the array will cross a 16 inch El Paso natural gas pipeline prior to connection to the grid. The crossing will be made by overhead wire with a minimum 25 feet vertical clearance. The crossing is located on the landfill property but outside of the limits of the landfill cap. Upon start of electric power generation, an electromagnetic interference (EMI) study will be conducted to verify the system does not interfere with the pipeline's cathodic protection.

Urban Green Technologies Renewable Energy 7 LLC (UGT7) has entered a 20 year lease with the Shaffer PRP Group, with two options to extend the lease for an additional ten (10) years each. If UGT7 exercises both renewal options, the lease would extend twenty (20) years to November 11, 2052 for a total of 40 years. The lease provides that UGT7 will maintain the landfill cap within the area of the solar array in conjunction with the Performing Settling Defendants operation and maintenance of the Remedy.

In addition, Article 10 of the Lease requires that UGT7 remove the solar PV facility from the Landfill upon the expiration or termination of the lease. Article 3.6 provides that UGT7 establish and maintain an escrow account for the sole purpose of removing the installed equipment (that is, the solar PV facility) at the end of the lease term. The landfill cap will be restored to the condition as existing prior to placement of the array (i.e. to conform to the Remedy).

Public Comments

On July 6, 2012, MassDEP issued the draft decision and Post-Closure Use Permit for the proposed solar facility. Comments on the draft decision were received from the United States Environmental Protection Agency, Region 1 (EPA), Robert C. Kirsch, Esq. representing UGT7, and from David Johnson, 113 Gray Street, Billerica, Massachusetts.

A summary of the comments received from Robert C. Kirsch, Esq. and David Johnson, with MassDEP's responses is included as Attachment 1 to this Fact Sheet. The conditions of the approval and Post-Closure Use Permit have been amended in response to the comments received by MassDEP.

EPA's comments are reflected in the final final decision and permit and Post-Closure Use Permit, in particular addition of notification of the USEPA of the start of construction.

Attachment 1

Public Comment Summary Response

RESPONSE TO PUBLIC COMMENTS

Comments of Robert Kirsch, Esq.

On July 13, 2012, representatives of MassDEP and Attorney Robert Kirsch met, at his request, to discuss the draft Post-Closure Use Permit. During the meeting Attorney Kirsch provided MassDEP with his initial hand written comments on the draft Post-Closure Use Permit. On August 8, 2012, he submitted to MassDEP via email additional comments that, in part, modified his comments of July 13, 2012. The following is a summary of his comments (bold text) and MassDEP's responses (italicized text).

An overarching theme of Attorney Kirsch's comments is a concern about how potential investors may perceive certain conditions or wording of the decision and permit. In response, Mass DEP has reviewed the particular comments and sought to appropriately clarify and in some cases modify language in the final decision and permit. Should potential investors have particular questions regarding this final decision or permit, they may contact MassDEP directly.

1. **On page 3 of 14 of the Draft Decision, in the "History" section - I withdraw my comment, suggesting that some or all of the paragraph be eliminated.**

MassDEP Response:

Comment withdrawn

2. **At the bottom of page 5 of 14 of the Draft decision - the comment is intended to suggest that the final sentence on the page [highlighted in comments] may be read as inconsistent with earlier statements regarding the ongoing obligations of the PRPs. To clarify - I suggest deleting that sentence.**

MassDEP Response:

Sentence deleted as proposed for clarification.

3. **On page 6 of 14 of the Draft Decision the first paragraph imposes obligations that extend through the 40 year period of UGT's lease rights, although the draft elsewhere would end the permit in approximately 30 years. The concept in this paragraph is fine, and should be maintained. O&M should be coordinated with the Department, if the facility is there once DEP has responsibility for the O&M. The permit term should mirror the lease term available to UGT7. The Department has known of that lease term since November 2011, and never suggested it might issue a permit with a shorter term. All have relied on that. Shortening the term suddenly at this late stage will harm the value of the project and will not advance any objective of the applicable regulations. The Department will be protected by the need to coordinate.**

MassDEP Response:

The application submitted to MassDEP on December 21, 2011 states that UGT7 has leased the rights to the property for twenty (20) years with an option for an additional ten (10) years, a total of thirty [30] years). However the lease entered into by UGT7 and the Performing Settling Defendants on November 11, 2011, and provided to MassDEP on May 29, 2012 by Robert C. Kirsch, Esq. on behalf of UGT7, states in Article 4.0 Term, in part:

RESPONSE TO PUBLIC COMMENTS

“4.1 This Lease Agreement shall be for a term commencing on the Effective Date [November 11, 2011] and continuing until the twentieth (20th) anniversary of the Effective (the “Lease Term”). Provided no Monetary Default or Non-Monetary Default then exists, Lessee shall, upon 24 months’ prior notice before the then conclusion of the Lease Term, have two (2) year 10 year options to extend the agreement under the same terms. In such event, the PRP Group and Lessee shall extend the Lease Agreement evidencing the additional lease term. In no event shall the Lease Term extend beyond the (40th) anniversary of the Effective Date...”

Independent of the above, pursuant to the Consent Decree, the Performing Settling Defendants are responsible for performing O&M and environmental monitoring of the Landfill for forty (40) years. Thereafter, the Consent Decree provides that MassDEP will assume the O&M and environmental monitoring of the Landfill. To date the Performing Settling Defendants have conducted approximately eight (8) years of the required forty (40) years of O&M.

Should UGT7 or its successor(s) exercise the renewal options under the Lease, operation of the PV Facility at the Landfill would extend into the period when MassDEP has assumed the responsibility for the O&M and environmental monitoring of the Landfill. It is MassDEP’s responsibility to assure that the continued operation of the PV Facility at that time does not interfere with MassDEP’s responsibilities to perform the required O&M and environmental monitoring of the Landfill including and does not cause the Commonwealth to incur any additional expense pursuant to the Consent Order as a result of the PV Facility.

MassDEP has revised Conditions 28 and 29 of the final decision and permit, to clarify that UGT7 may operate the PV Facility until November 11, 2052 provided that UGT7 meets certain specified conditions. These include, UGT7 submitting to MassDEP on or before June 11, 2042 a plan for implementing the Solar Development Plan (that is, O&M of the PV Facility) after the Settling Defendants’ obligations to perform O&M have ceased pursuant to the Consent Decree. The plan must ensure that MassDEP’s cost to perform O&M at the Landfill pursuant to the Consent Decree will not increase as a result of the PV Facility.

- 4. On page 6 of 14 of the Draft Decision references in the second paragraph to FAM obligations under the consent decree should be deleted. Those requirements are not part of the permit. Referring to them in the permit tends to blur that fact and could confuse and unnecessarily concern those who might invest in the project. The middle sentence of the paragraph is relevant, and includes all that is needed.**

MassDEP Response:

See Response to Comment 5 Below

RESPONSE TO PUBLIC COMMENTS

5. With respect to the preceding comment and to emphasize a continuing theme of our comments - references to the Superfund Site and Consent Decree in the Draft Decision already have raised concerns among potential investors. We respectfully request that the Department take a hard look and eliminate all such references, except any that may be material to the Draft Decision.

MassDEP Response:

A discussion of the Consent Decree including the role of the Performing Settling Defendants is included in the Background discussion of the final decision and permit. References to the Consent Decree and Performing Settling Defendants in the Conditions of the final decision and permit is limited generally to reiterating that the final decision and permit does not affect the Performing Settling Defendants obligation to maintain the remedy at the Landfill including the areas affected by the proposed PV Facility. Inclusion of this discussion in the final decision and permit should clarify for all parties including potential investors the responsibilities of UGT7 at the Landfill under this final and decision permit versus those of the Performing Settling Defendants under the Consent Decree.

6. On page 6 of 14 of the Draft Decision references in the second paragraph to the FAM, the Decision and permit should be modified to make clear that the FAM is to secure only expenses related to the existence, operation and removal of the solar facility. References to restoring the cap all should include that limitation. Obligations beyond those relating to the solar facility are not the subject of the decision or permit. This is a further example of the confusion that results when the draft decision/permit strays into areas covered by the CERCLA/21E consent decree. Comments reflecting that confusion have been relayed to UGT by potential investors as they read the draft decision/permit.

MassDEP Response:

The final decision and permit has been modified to clarify that the obligation of UGT7 is for areas affected by the PV Facility, defined in the final decision and permit as:

"... the actual area of the PV Facility and its components and areas outside of those impacted by the PV Facility."

7. On page 7 of 14 of the Draft Decision, in condition 2, I withdraw my comment, suggesting that this condition be eliminated.

MassDEP Response

Comment Withdrawn

RESPONSE TO PUBLIC COMMENTS

8. **Proposed modification to Condition 2, “Pursuant to 310 CMR 19.043(5)(a) Duty to Comply this decision does not relieve UGT7 or the Performing Settling Defendants from their several, separate obligations to comply with all other applicable federal and state laws and regulations....”**

MassDEP Response:

Condition 2 (now Condition 1) has been revised to reflect the wording of 310 CMR 19.043(5)(a) and to require that pursuant thereto UGT7 provide MassDEP access to the PV Facility and appurtenances thereto, and not impede MassDEP access to other areas of the Landfill. This does not alter any other access rights that MassDEP may have.

9. **On page 7 of 14 of the Draft Decision, in condition 3, I withdraw my comment, suggesting that this condition be eliminated.**

MassDEP Response:

Condition 3 has been deleted. The responsibilities of the Performing Settling Defendants under the Consent Decree are discussed in the Background section of the final decision and permit.

10. **On page 8 of 14 of the Draft Decision, in condition 10, the references to damage should be tied expressly to the construction, operation or removal of the facility. Any notice should include the Supervising Contractor for the PRPs, Thor Helgason of de maximis, Inc.**

MassDEP Response:

MassDEP has revised Conditions 14 and 22 of the final decision and permit to include notice to the Performing Settling Defendants’ Supervising Contractor (de maximis, Inc.) and to clarify it applies to activities associated with/resulting from the construction, operation, or removal of the PV Facility.

11. **On page 9 of 14 of the Draft Decision, condition 14 should be deleted. UGT does not have the right to grant access for any purpose beyond those associated with the solar system. DEP already possesses the rights sought in this condition, under the Consent Decree. This request will raise unnecessary questions for those reading the permit.**

MassDEP Response:

Condition 16 of the final decision and permit replaces Conditions 13 and 14 of the draft decision and permit. Condition 16 has been revised to clarify MassDEP’s access rights to the Landfill under 310 CMR 19.043(5) and UGT7’s obligation to provide MassDEP access to the areas of the PV Facility and to not impede MassDEP access to other areas of the Landfill.

12. **On page 10 of 14 of the Draft Decision, condition 16 has a number of issues. Please refer to the proposed language I delivered to the Department on July 13 for condition 16(c). We request that this condition require an as-built and certification by a MA engineer. Such an extensive second round of review and approval is not something UGT has found in any other re-use permit issued in the Commonwealth or nationally. The condition, as drafted, inserts enough uncertainty into the**

RESPONSE TO PUBLIC COMMENTS

process as to eliminate the interest of many possible investors. The condition seems to be modeled on an enforcement condition; that has no place here. The landfill has been closed and the cap functioning well for nearly a decade. Please eliminate these aspects of this condition. The Department still has more than adequate recourse under the permit and the Consent Decree. Proposed Revision (7/13/12):

“Within ninety (90) days of completion of the construction of the PV facility, UGT7 shall submit as an application category, BWP SW45 *Alternative Review Process* to MassDEP for review and approval, with a copy to EPA, a construction certification report that includes, but is not limited to:

.....(c) ***If there have been changes in the design plans pursuant to Section 15,*** An updated cost estimate for the decommissioning of the as-built PV facility and the restoration of the Landfill cap and remedy to the original design as approved by the EPA,”

MassDEP Response

MassDEP has revised Condition 16 (now Condition 17) to clarify the scope and purpose of the Certification Report and the “updated cost estimate”. The Certification Report is a requirement in other MassDEP approvals of renewable energy facilities on closed landfills and is a requirement pursuant to 310 CMR 19.107 Construction Certification.

On page 10 of 14 of the Draft Decision, please see the proposed language for condition 17 delivered to the Department on July 13. Proposed Revision (7/13/12):

“MassDEP reserves the right to amend, modify, suspend, or revoke this permit pursuant to 310 CMR 19.040 for discharges or releases for which UGT7 is responsible, if UGT7 fails to eliminate or cure (after notice) the causes under 310 CMR 19.040.” This does not limit or restrict MassDEP from implementing any other applicable authority at the Landfill including, but not limited to authority pursuant to 310 CMR 40.0000.

Possibly add – “for UGT7’s failure to comply with its obligations under this permit”.

MassDEP Response:

MassDEP has inserted a new Condition 32 that states MassDEP’s authority pursuant to 310 CMR 19.040 to modify, suspend, or revoke a permit issued pursuant to 310 CMR 19.000. MassDEP has modified Condition 17 (now Condition 29) to clarify its application to modifications to the PV Facility proposed or made by UGT7.

13. On pages 10-11 of 14 of the Draft Decision, please see the proposed language for condition 18 delivered to the Department on July 13. Condition 18 – Proposed Revision (7/13/12):

“UGT shall cooperate with EPA; MassDEP; the Settling Defendants and, as applicable, their successors-in-title; in the development and implementation of future institutional controls for the

RESPONSE TO PUBLIC COMMENTS

Landfill and Iron Horse Park Superfund Site, as required by the Consent Decree, including without limitation in the form of a grant of environmental restriction and easement ("GERE") **that is not inconsistent with the continued operation of the PV facility.** Such obligation to cooperate shall include entering into agreements to subordinate **confirm that** any interests in land held by UGT7 **are subject** to such future GERE and obtaining subordination **confirmation** agreements from any parties to whom UGT7 may have granted an interest in land **to that such interest shall** be subject to such future GERE, all as determined by EPA and/or MassDEP in accordance with the Consent Decree **consistent with the continued operation of the PV facility.** UGT7 shall comply with such institutional controls, once implemented, as applicable."

MassDEP Response:

MassDEP has revised Condition 18 (now Condition 23) to clarify UGT7's obligation in the development and implementation of institutional controls. This includes the following with regards to the PV Facility and any future institutional controls:

"..., it is the intent of MassDEP, subject to the agreement of EPA, that such restrictions include a permitted use or other appropriate provision providing for the operation of the PV Facility...."

14. On page 11 of 14 of the Draft Decision, please see the proposed language for condition 19 delivered to the Department on July 13. In addition, the conditions to be restored should reflect the conditions in existence when UGT begins work at the landfill. This re-use permit should make certain that the condition of the cap after the solar project is gone is the same as it was when it arrived. A re-use permit should not require the permittee to address changes for which it has no responsibility or with respect to which it has no connection. Proposed Revision (7/13/12):

"Except as provided in Condition 22 of this permit UGT7 shall decommission and remove the PV Facility from the Landfill and restore the Landfill's cap and all appurtenances thereto to the as-built condition certified by the EPA's Completion of Construction Certification dated, February 10, 2004 on or before or [[Date, 2042 (6 months after permit expires)]], **or to such later date as is 6 months after the date to which expiration of the Certificate has been extended pursuant to Section 22 below.**"

MassDEP Response

Conditions 28 and 29 of the final decision and permit provide UGT7 with approximately 8 months to complete the decommissioning and removal of the PV Facility after the cessation of operation.

On page 11 of 14 of the Draft Decision, please see the proposed language for condition 20 delivered to the Department on July 13. Proposed Revision (7/13/12):

"Within ninety (90) days of the date of completing the decommissioning and removal of the PV Facility and restoration of **those portions of** the Landfill's cap **as to which soil removal and gravel emplacement was originally made by UGT7.** UGT7 shall submit to the MassDEP, with a copy of the EPA, a Closure Certification Report documenting the decommissioning and removal of the PV Facility and the restoration of the Landfill's cap and remedy to the as-built condition certified by

RESPONSE TO PUBLIC COMMENTS

the EPA's Completion of construction Certification dated, February 10, 2004. The Closure Certification Report shall, without limitation:

1. Be prepared by a Massachusetts Registered Professional Engineer,
2. Be signed by the engineer and UGT7 pursuant to 310 CMR 19.011,
3. Include a narrative describing the condition of **those portions of the** Landfill's cap and appurtenances thereto **as to which soil removal and gravel emplacement was originally made by UGT7** before and after the decommissioning and removal of the PV Facility, and
4. Include as-built showing the final condition of the Landfill cap."

MassDEP Response

See MassDEP response to Comment 6, above

15. **General Comment: Obligations between the PRP Group and the Department are addressed in the Consent Decree and its related documents. Including such obligations in this permit is not necessary, and a possible cause of confusion and concern for potential investors. This permit should relate only to the obligations of UGT, especially in light of the correspondence from both the PRPs and that of EPA regarding the obligations of the PRPs under the Decree.**

MassDEP Response

See MassDEP's response to Comment 5, above.

RESPONSE TO PUBLIC COMMENTS

Comments of David L. Johnson

On August 6, 2012, Mr. David Johnson submitted, via email, comments to MassDEP on the draft Post-Closure Use Permit. MassDEP received a hard copy of Mr. Johnson's comments by mail on August 7, 2012. The following is a summary of his comments (bold text) and MassDEP's responses (italicized text).

Mr. Johnson's comment letter consists of two sections, the first "Background Information" comments on the interactions of UGT7, representatives of the Town of Billerica, the Performing Settlement Defendants relative to the Landfill and the proposed PV Facility. The second section, "Comments for Consideration" provides specific comments on the draft decision and permit and UGT7's application.

"Background Information"

This section does not provide direct comments on the content of the application or the draft decision and permit. Therefore, MassDEP is not commenting on the discussion in this section, except for the two following comments, which are relevant to the application and draft Post-Closure Use Permit.

In paragraph 2, on page 2 in discussing MEPA's decision to not require an Environmental Impact Report for the proposed PV Facility, Mr. Johnson comments that:

"However, because of the MEPA decision [[not to require an EIR for the PV Facility]], no current evaluation was performed to make a determination that the site could withstand the rigors of this massive construction effort, or provide continued environmental protection against given the increased pressures from the massive increase in runoff (Approximately 12 acres of solar panels surfaces draining to ~3/4 acre surface of the current site and drained to storm water reservoirs with outflows directly to surrounding wetlands)." [[Inserted for clarity]]

MassDEP Response:

MassDEP disagrees with this statement. As discussed in the final decision and Post-Closure Use Permit, 310 CMR 19.143(2) requires that any person proposing to use a landfill for any purpose following closure of a facility shall submit plans for the post-closure use to MassDEP for review. 310 CMR 19.143(3) requires in relevant portion, that the applicant demonstrate that relative to the proposed post-closure use:

- Any alteration of the landfill contours is necessary to the proposed use and will not result in an adverse impact to the public health, safety, or the environment;*
- The integrity of the final cover, the components of any containment system and the functioning of the facility's monitoring systems are not impaired; and*
- Drainage facilities, ponds, swales, ditches, and other erosion/sedimentation controls are maintained.*

RESPONSE TO PUBLIC COMMENTS

As discussed in the final decision and permit and accompanying Fact Sheet, UGT7 has demonstrated to MassDEP that the proposed PV Facility complies with 310 CMR 19.143(3). This has included, but is not limited to, modifications to the design of the proposed PV Facility by UGT7 in response to comments from the Town of Billerica Board of Health and Planning Board and from MassDEP and EPA including, but not limited to, MassDEP's March 13, 2012 Notice of Technical Deficiency. UGT7's application included detailed analyses of the impact of the proposed PV Facility including, but not limited to, the following:

- *Appendix D - Proposed PV Site Plans,*
- *Appendix G - Storm Water Control Calculations, and*
- *Appendix H – Geotechnical Calculations (Settlement, Slope Stability, Bearing Capacity, and Pipe Strength).*

With regards to the storm water runoff, while the total area covered by solar panel may exceed 12 acres, the area of any individual panel is less than 21 square feet in projected area on the ground surface. Rain (or snow melt) from each panel drops directly to the ground without running onto adjacent panels. Thus, the impact of run-off from the panels is distributed across the site and not concentrated in any one area.

Last paragraph, page 2:

In the last paragraph page 2, Mr. Johnson requests that a single party be designated with the authority and responsibility to react to and correct problems at the Landfill.

MassDEP Response:

As discussed in the final decision and permit and Fact Sheet, the final decision and permit does not relieve the Performing Settling Defendants of their responsibilities under CERCLA and the Consent Decree including, without limitation, performing O&M and maintaining the remedy at the Landfill including within the area of the PV Facility. In addition, the final decision and permit requires in part that UGT7 perform O&M relative to the PV Facility and coordinate this with the Performing Settling Defendants. MassDEP and EPA have authorities both under and independent of the Consent Decree to take actions at the site when warranted. This multi-layer of authority enhances the prospect that problems will be dealt with rapidly and responsibly by UGT7 and the Performing Settling Defendants.

"Comments for Consideration"

The following summarizes Mr. Johnson's specific comments on the draft decision and permit (bold text) with MassDEP's responses (italicized text).

RESPONSE TO PUBLIC COMMENTS

1. Construction Financial Assurances and Oversight

Mr. Johnson comments that financial assurance should be required for the construction of the PV Facility and that the construction should be overseen by a MassDEP or EPA Engineer.

MassDEP Response:

- *The final decision and permit requires*
 - *Pursuant to 310 CMR 19.000, the oversight of the project by an independent Massachusetts Registered Professional Engineer;*
 - *Notification and, when necessary, approval of design changes by MassDEP;*
 - *Submittal of monthly Construction Status Reports;*
 - *Notification in the event of unanticipated events (damage to cap, emergency incidents etc);*
 - *UGT7 certify prior to commencing construction that it has sufficient funds available to construct and start facility operation;*
 - *UGT7 establish a Financial Assurance Mechanism (FAM) for performing corrective actions, if needed, to restore the Landfill's cap and appurtenances thereto as affected by the PV Facility.*
- *In addition, the project will be subject to periodic unannounced site visits by MassDEP and the EPA to monitor construction activities.*
- *In addition, as stated in the final decision and permit, and EPA's June 13, 2012 letter to MassDEP²⁵, the Post-Closure Use Permit does not remove or limit the Performing Settling Defendants' ultimate obligation to maintain the site including, but not limited to the area of the PV Facility pursuant to the Consent Decree as stated by EPA in their, June 13, 2012, letter to MassDEP included as Attachment A to the final decision and permit.*

2. Remediation Response Mechanism

MassDEP Response:

The final decision and permit requires notification of emergency conditions to MassDEP, EPA, and the Town of Billerica. In addition, it does not limit UGT7 and the Performing Settling Defendants of their obligation to comply with any other notification requirements (such as may be applicable under 310 CMR 40.000, CERCLA, and Consent Decree). With regards to notification specifically for the occurrence of odors, MassDEP notes that the PV Facility as designed should not impact the landfill gas control system or penetrate the impermeable landfill cap.

Any odors would normally be associated with penetration or failure of the cap or damage to the landfill gas system. Both conditions would require notification under the final decision and permit. In

²⁵ Included as Attachment B to the final decision and permit.

RESPONSE TO PUBLIC COMMENTS

addition, the final decision and permit has been modified to provide that the Solar Development Plan require that:

- MassDEP, EPA, the Billerica Board of Health, and de maximis, Inc. be notified in the event that UGT7 receives a complaint regarding off-site odors from the Landfill, and*
- UGT7 maintain a log of any complaints that it receives regarding the PV Facility and Landfill.*

3. Scheduled Inspections

MassDEP Response:

The Solar Development Plan includes a schedule for the inspection of the PV Facility upon completion. The final decision and permit provides that inspections be conducted not less than once a month during the first year of operation and not less than quarterly, thereafter. The final decision and permit also clearly states that the inspections pursuant to the Solar Development Plan do not limit or impact the frequency of inspections that the Performing Settling Defendants must conduct pursuant to the 2004 O&M Plan and the Consent Decree. UGT7 is also required to coordinate the implementation of the Solar Development Plan with the Performing Settling Defendants' implementation of the 2004 O&M Plan and with MassDEP's future implementation of O&M at the Landfill.

4. Adequate Plans

MassDEP Response:

As discussed in the final decision and permit, the attached Fact Sheet, and above UGT7's application demonstrates that the proposal meets the requirements of 310 CMR 19.143 Post-Closure Use.

5. Site Repair Activities

The O&M Plan should be modified to require that the location of any erosion of the landfill cap be recorded including the location, type and extent to evaluate the cause and determine more complete and effective runoff and storm water controls may be implemented.

MassDEP Response:

Condition 17 of the final decision and permit requires, in part, that the Closure Certification Report include a final Solar Development Plan updated:

- to reflect the as-built PV Facility,*
- to include procedures for the cleaning of the solar panels,*
- to provide for the reporting and repair of all areas of erosion under the direction of the Engineer of Record,*

RESPONSE TO PUBLIC COMMENTS

- *to include pages 1 and 2 of the Site Inspection Form, Shaffer Landfill – Billerica, Massachusetts included as Appendix A Inspection Monitoring Form of the 2004 O&M Form, and*
- *to include documentation that UGT7 is coordinating its implementation of the Solar Development Plan with the implementation of the 2004 O&M Plan by the Performing Settling Defendants.*

6. Safety – Safety of Emergency Response Personnel

MassDEP Response:

Condition 18 of the final decision and permit requires that UGT7 familiarize the local emergency response agencies (Fire, Police, etc.) with the PV Facility and associated risks and provide, prior to commencing operation of the PV Facility, documentation to MassDEP of the actions it has taken to comply with this requirement.

7. Solar Panel Cleaning

MassDEP Response:

See response to Comment 5, above.

EXHIBIT B

EPA LETTER TO MassDEP

June 13, 2012



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1 – NEW ENGLAND**

5 Post Office Square, Suite 100 (OES 04-2)
Boston, MA 02109-3912

RUTHANN SHERMAN
direct: (617) 918-1886

OFFICE OF
ENVIRONMENTAL STEWARDSHIP

BY ELECTRONIC FILE

June 13, 2012

Andy Cohen, Senior Counsel
Office of General Counsel
Massachusetts Department of Environmental Protection
One Winter Street, 3rd Floor
Boston, Massachusetts 02108

Re: Shaffer Landfill/Iron Horse Park Superfund Site
Operation and Maintenance Obligations
UGT Renewable Energy 7 LLC Proposed Solar Facility

Dear Andy:

I am writing on behalf of the Environmental Protection Agency (EPA) to confirm our position that the construction and operation of the proposed solar facility at the Shaffer Landfill does not change the obligations of the Settling Defendants at the Shaffer Landfill/Iron Horse Park Superfund Site (the Site).

The landfill cap, constructed from 2001 to 2003, is a component of the federally approved response action for the Site. Under the Consent Decree for the Site, entered in the United States District Court in 2000 (the Consent Decree), the Settling Defendants are required to perform the ongoing operation and maintenance (O&M) of the remedy.

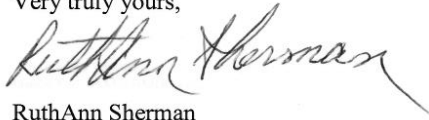
UGT Renewable Energy 7 LLC, which is leasing development rights from the Settling Defendants, has applied to the Massachusetts Department of Environmental Protection (MassDEP) for a post-closure use permit for the construction and operation of a solar facility at the Site. EPA has reviewed the proposal and provided MassDEP with its technical comments.

The Settling Defendants' obligations are not altered by the proposed solar facility. Moreover, should an issue arise with respect to the O&M at the Site, whether or not in connection with the proposed solar facility, EPA would look to the Settling Defendants to address any Site problems, including through enforcement options under the Consent

Shaffer Landfill/Iron Horse Park Superfund Site
Operation and Maintenance Obligations
June 13, 2012

Decree, if necessary. We would also support MassDEP in its efforts to do the same.
Please let me know if you have any questions.

Very truly yours,



RuthAnn Sherman
Senior Enforcement Counsel

Cc: Don McElroy, EPA RPM
Janet Waldron, Project Manager, BWSC, MassDEP-Boston
John Carrigan, Section Chief, BWP, MassDEP-NERO
Robert Kirsch, for Settling Defendants