VERMONT

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December 21, 2016

Annette Smith
Vermonters for a Clean Environment (VCE)
789 Baker Brook Road
Danby, VT 05739

VIA Email: vce@vce.org

Subject: Complaint 9/19/2016, Kingdom Community Wind Project, Lowell
Request for Stormwater Permit Revocation, Deerfield Wind, Searsburg/Readsboro

Dear Ms. Smith,

In a letter dated, September 19, 2016, addressed to Jen Duggan, Vermont Agency of Natural Resources (ANR) General Counsel, you expressed water quality concerns and questioned the current condition and function of the permitted stormwater management system at the Kingdom Community Wind (KCW) Project in Lowell. The concerns identified in the letter were accompanied by photos taken on the subject property by representatives of VCE. The Stormwater Program reviewed the issues identified by VCE and offers the following response.

As discussed herein and as related specifically to this complaint, the KCW Project, operated by Green Mountain Power Corporation (GMP) is subject to Vermont Stormwater Discharge Permit #6216-INDS, Vermont Wetlands Permit #2008-364, and an individual Vermont Water Quality Certification.

The KCW Project is also subject to additional requirements and conditions as included in the Certificate of Public Good (CPG) issued by the Department of Public Service, and other conditions that may be required by other state and federal regulations, not addressed herein.

Stormwater Wet Pond Function: VCE commented that most of the wet ponds on the project site are dry and are not performing their functions as designed.

The Department's Stormwater Program is aware that some of the wet ponds designed as part of the overall stormwater treatment system do not regularly sustain a permanent pool, which may be further influenced by periods of seasonally dry conditions. Many of the wet ponds however do sustain a permanent pool and thus displace the contributing water quality treatment volume via the structural outlet structure. In addition, it should be noted that ponds are designed to maintain available storage above the water quality volume design elevation for control of precipitation events through the 100-year 24-hour storm event. Permanent pool conditions may be further influenced by: (1) lower than predicted contributing runoff volumes due to blasted rock, and the pervious nature of contributing areas; (2) stormwater runoff contributing to the wet ponds being infiltrated through the bottom of the basins, through permeable rock and underlying soils; and (3) short-circuiting of contributing stormwater runoff

through the basin embankment before reaching the outlet structure due to the permeable nature of embankment material.

In cases at the KCW Project where stormwater wet ponds are not able to sustain a permanent pool at the design water quality volume elevation, the Stormwater Program has requested additional evaluation by the permittee. While the basins were constructed in accordance with the approved project design, the permittee is required to assess whether there is short-circuiting, or whether the contributing stormwater runoff is receiving treatment via infiltration through the bottom of the basin, rather than through displacement of a permanent pool. If the permittee determines that stormwater runoff is short-circuiting without the required treatment or control, the basins may be lined to address the issue, under specific recommendation of their designer.

The Department's Stormwater Program is not aware of this condition resulting in water quality impacts to waters. There have been seeps identified outside of wet pond embankments or below outlet structures, and in some cases these can be characterized as iron seeps. The permittee is actively engaged in addressing the issue. Iron seep control is discussed in further detail below.

Alternative Stormwater Treatment Practices (STPs) – Level Spreaders and Vegetated Buffers: VCE commented that the level spreaders require continuous clean-out, and that the sediment removed from the practices likely contains metals, and is deposited uphill on the site and seeded.

Stormwater Discharge Permit #6216-INDS, which was issued by the Department for the project, requires annual inspection, maintenance, and reporting. This permit condition ensures that the system, including the alternative design stormwater treatment practices (STPs), in this case level spreaders, are cleaned. The Department's Stormwater Program would not characterize the stormwater runoff from the site as having a higher than expected concentration of metals as compared to other development. Removal of sediment deposited in level spreaders and wet pond pre-treatment forebays as part of ongoing maintenance can be placed elsewhere on the project site and stabilized, provided the material is not deposited into water resources or placed in their protected buffers. The Stormwater Program is not aware of the required maintenance resulting in impacts to waters, wetlands, or buffers.

Iron Seeps: VCE commented that acid mine drainage in the form of iron seeps is occurring in numerous locations on the mountain, with no remediation taking place.

As also noted above, the Department's Stormwater Program is aware of a few incidents where iron seeps have developed on the project. Iron seeps are a common occurrence when development results in the precipitation of iron through oxidation when present within rock or soils, and is not limited to the mountain environment. Wetlands Permit #2008-364, issued for this project, referenced the implementation of iron seep control plan protocols (Findings 16.D.i.) for the wetland and stream impacts that could not be avoided by the project. The protocols were identified as a measure to offset the impact to the presumed uses of these wetlands and streams. The Iron Seep Control Plan was included in the Vermont Wetlands Permit application, Appendix 6, which identified at-risk areas on the project site, and called for in the field identification of additional at-risk areas following tree clearing, for where the iron seep control measures would be implemented. It is the Department's understanding that iron seep control protocols, involving the use of limestone, were implemented during construction of the project and were successful in locations where implemented.

The Department's Stormwater Program has been working with the permittee on evaluating the cause of, and measures for addressing the iron seeps that have developed post-construction in these few locations at the project site. The Department will require the permittee to address iron seeps in select locations during next construction season.

New Stream Channels below STPs: VCE commented that new stream channels are being cut at the ends of level spreaders and dry wet ponds, resulting in ongoing release of sedimentation.

The alternative STP design, authorized under Stormwater Discharge Permit #6216-INDS, incorporates the use of level spreaders and a 150-foot vegetated buffer below each spreader, to manage, treat, and control stormwater runoff from impervious surfaces. The discharge permit requires that the permittee monitor the performance of the alternative STP component of the overall stormwater management plan, which is ongoing in accordance with the issued permit. If any alternative STP is identified as not meeting the requirements, conventional stormwater treatment practices would be substituted as required.

The Department's Stormwater Program is aware of certain level spreaders that have required maintenance or repair following large storm events, specifically to ensure that stormwater discharge from the level spreaders is evenly distributed over the level lip and through the 150-foot vegetated buffer. In cases where erosion is documented within the 150-foot vegetated buffer, the erosion or channelization requires repair and stabilization. The Stormwater Program does not characterize areas requiring maintenance or repair as stream channel erosion. Furthermore, any erosion noted at basin outlets would also require repair and stabilization as necessary in accordance with inspection and maintenance requirements of the issued permit.

Stream Channel Erosion: VCE commented that existing stream channels are being overwhelmed resulting in the ongoing release of sediment to waters.

The VCE complaint did not identify specific locations to substantiate the noted issue, but provided general photos and provided a large-scale overview map of the project with identified locations of "irreparable harm." There is little context given or detail provided on the locations to distinguish whether (1) there is an impact to streams; or (2) whether the noted issue is in fact the result of the project. Monitoring to assess project impacts on water quality has been conducted, in accordance with Department protocols, which is downstream of intermittent drainage, where physical and biological information can be collected. This downstream physical and biological data is reflective of impacts up gradient in the watershed if present. Water quality monitoring thus far has not indicated that the project has resulted in violations of Vermont Water Quality Standards.

Herbicide Use: VCE commented that herbicides used to control invasive species on the project site are being applied next to high elevation waters.

As required by Condition 1.I. of the Vermont Wetlands Permit and Condition E.ii. of the Vermont Water Quality Certification, inspection and control of invasive species shall follow the "Kingdom Community Wind Invasive Species Monitoring Plan," dated June 2011. The use of herbicides for invasive species control is allowable under certain specified conditions. There is no indication from the photos provided by VCE that herbicide applications were carried out in close proximity to wetlands or streams. ANR also reviews annual reports submitted by the permittee, to further evaluate the locations of all herbicide applications and the status of the invasive species monitoring and control at the project site.

Wetland Hydrology: VCE commented that a wetland on the project site that previously that held water is now dry during the summer of 2016 as a result of the project.

There does not appear to be anything in the photos provided by VCE that is indicative of project related wetland impacts. The photos however may suggest annual or seasonal fluctuation in hydrology or wetland condition. The area shown in the photos is outside of the area of project clearing or project related disturbance, referenced to be in the vicinity of Turbine #8. The Department may consider further evaluation of the existing wetlands surrounding the project footprint as it deems necessary.

Summary: Data collected for monitoring KCW Project water quality impacts indicated streams draining the project area continue to meet the Vermont Water Quality Standards. The alternative STP design consisting of level spreaders and vegetated buffers, in addition to the conventional STPs, are being monitored, as required by Stormwater Discharge Permit #6216-INDS. The system, like all stormwater systems, requires routine inspection and maintenance. The Stormwater Program is committed to ensuring that the permittee addresses identified issues such as iron seeps, stormwater system operation, inspection, and maintenance. The Stormwater Program has met with representatives of GMP, and their consultant VHB, to discuss several items, including identified iron seeps and ongoing level spreader monitoring.

If you have any further questions or concerns, or require additional information related to the KCW Project in Lowell or the Deerfield Wind project in Searsburg and Readsboro, please don't hesitate to contact me.

Sincerely,

Kevin Burke
Environmental Analyst
Stormwater Program

cc: Jen Duggan, ANR General Counsel
Elizabeth Schilling, DEC Associate General Counsel
Laura Lapierre, Vermont Wetlands Program Manager