

**STATE OF VERMONT
PUBLIC UTILITY COMMISSION**

Petition of Salisbury AD 1, LLC for a Certificate	)	
of Public Good, pursuant to 30 V.S.A. § 231, to	)	
own and operate a renewable natural gas facility	)	
in Salisbury, Vermont, and for de minimis	)	Case No. 18-3449-PET
regulation, and to address motions to transfer and	)	
amend the 30 V.S.A. § 248 CPG for the facility	)	
that was issued in Case 8596	)	

AFFIDAVIT OF LYDIA LEE

1. My name is Lydia Lee.
2. My affidavit supports Salisbury AD 1, LLC's ("Salisbury AD 1") motion to amend the 30 V.S.A. § 248 CPG in Docket 8596 for a renewable natural gas facility to be located on the Goodrich Farm ("Farm") in Salisbury, Vermont (the "Project").
3. I am employed by Vanasse Hangen Brustlin, Inc. ("VHB") as a Senior Geologist/Project Manager. I am responsible for managing the environmental assessments and environmental permits related to Salisbury AD 1's revised Project.
4. I have worked as a consulting environmental scientist in Vermont since 2009. I have been working for VHB for over 7 years. For the past four years, I have served as a Senior Geologist/Project Manager for environmental service projects. Prior to that, I served in a technical role as an Environmental Scientist/Geologist. In my current role, I have been involved in completing and managing technical environmental studies and reports, evaluating and reviewing scientific data pertaining to water resources and quality, determining compliance with various state and federal regulatory requirements, and preparing applications for various environmental permits and authorizations. I worked on the project team and prepared supporting technical reports for another anaerobic digester project proposed by a different applicant, including a phosphorus assessment that evaluated that project's potential to reduce phosphorus in the watershed. I have also prepared several other technical documents and permit applications in support of other Section

248 projects, including the NYPA/VELCO PV20 Submarine Cable Replacement Project, various substation decommissioning projects, and the New England Clean Power Link (“NECPL”) HVDC transmission line project.

5. Before taking a position at VHB, I worked at another environmental consulting firm in Vermont for two years, where I focused on hazardous materials site assessments, contaminant hydrogeology, water supply testing, wetland plant assessments, and environmental permitting.

6. In 2007, I earned a Bachelor of Science degree with a major in Geology and minor in Chemistry from the University of Vermont. My educational training includes extensive scientific coursework and research. In 2009, I earned a Master of Science degree from the University of Vermont. My research thesis focused on the relationship between cyanobacteria blooms and sediment nutrient cycling, specifically Phosphorus, in Missisquoi Bay, Lake Champlain. I also served as Teaching Assistant and Research Assistant as part of the Master’s degree program.

7. I have a Professional Geologist License, issued by the State of New Hampshire, and have maintained this license through completion of continuing education requirements and abiding by the Code of Ethics of the American Institute of Professional Geologists.

I. INTRODUCTION

8. The Vermont Agency of Natural Resources (“ANR”) provided responses to the Project’s October 4, 2018 filing to the Public Utility Commission (“PUC” or “Commission”) on October 31, 2018. The purpose of my affidavit and supplemental information (provided as *Exhibits SAD1-3(Rov.), -20, -21, and -22*) is to provide responses (in part) to those comments and provide an update to the Commission regarding on-going conversations related to the Project with ANR and the Agency of Agriculture, Food, and Markets (“AAFV”).

9. On November 20, 2018, VHB provided ANR with supplemental information (by way of a memorandum and attachments) in response to ANR's October 31, 2018 filing. VHB's Supplemental Memorandum is provided as ***Exhibit SAD1-20***, and key points from the supplemental material and discussions are summarized herein. We also met with ANR (Marli Rupe, DEC Agricultural Water Quality Section Chief) on November 7, 2018, and with several staff from ANR and AAFM on November 28, 2018. We have now updated the November 20th memorandum based upon those discussions and the submittal of two collateral permit applications to the Vermont Department of Environmental Conservation ("DEC"): the Solid Waste Certification ("SWC") for Anaerobic Digesters and the Air Pollution Construction and Operating Permit. See ***Exhibit SAD1-20***.

II. WATER POLLUTION

10. Salisbury AD 1 is working with the host farm (the Goodrich Farm), ANR, and AAFM to address questions related to the management of additional nutrients (food waste) as an additional feedstock for the Project. As part of that effort, VHB prepared a Digestate Management Plan. This plan is included as ***Exhibit SAD1-22***.

11. The Digestate Management Plan includes the following key components:

- a. Salisbury AD 1 will retain a registered Technical Services Provider ("TSP") to work with the Goodrich Farm to manage nutrients in a manner consistent with its Nutrient Management Plan ("NMP") and environmental best management practices, so as to avoid an undue increase in soil phosphorus ("P") levels (i.e., above optimum soil test P levels).

- b. Salisbury AD 1 and the Goodrich Farm will provide ANR with access to the farm's Annual Large Farm Operating Report ("LFO") and NMP for the years that the Project is in operation.
 - c. Salisbury AD 1 intends to find a local market that will incorporate excess nutrient cake from the Project into a compost mix or similar product for use elsewhere. However, because the products captured from digester effluent by the facility are relatively new and markets are difficult to identify for a product that will not be available until 2020, firm contracts for selling excess nutrient cake cannot be finalized at this juncture. Therefore, as a contingency, the Project will commit to disposing excess cake at a landfill or waste management facility certified to accept such material to provide assurance that these materials will be appropriately managed.
12. The Digestate Management Plan also incorporates the following additional information, based upon discussions with ANR:
- a. Nutrient Recover Technology: Salisbury AD 1 is working with DVO, Inc. (<http://www.dvoinc.com/index.php>) to specify a phosphorus recovery system for the Project. DVO's systems can remove between 75% and 95% of P depending on the circumstances. The lower limit can be adjusted by reducing the running hours of the system. In general, P removal will be optimized to meet the nutrient needs of the farm fields. The P concentration in the liquid stored in the nutrient tanks and lagoons will be adjusted seasonally or annually to comply with the NMP.
 - b. Liquid Nutrient Management: Liquid nutrient will be transferred from the liquid nutrient storage tanks to other farm lagoons located closer to the fields where the liquid will be applied. Transfer of the nutrients via tanker trucks from the on-site storage locations to

- other locations on the farm is consistent with normal farming practices. Trucking will occur year-round as storage capacity is available in the farm's lagoons. As presented in the Digestate Management Plan (*Exhibit SAD1-22*), the increased volume of liquid (19.7 Mgal) resulting from Salisbury AD 1's operations compared to existing farm operations (15.1 Mgal, per the Farm's 2018 LFO Permit) would result in a minor increase in the depth of liquid spread over the farm's cropland. Liquid will be applied in accordance with the farm's NMP and Required Agricultural Practices ("RAPs"), so as to not cause liquid to pond on the ground surface and thereby pose a significant potential of runoff to waters of the State.
- c. Nutrient Cake Storage: The Project intends to truck excess cake off site daily. In addition, approximately two to three days' worth of storage is provided in the nutrient management building where the nutrient recovery system will be located.¹ The Project will also provide additional covered storage for approximately three days of nutrient cake production, through the use of on-site covered dumpsters (roll-offs or bins). Refer to the Site Plan Sheet C-1.01 provided as *Exhibit SAD1-3(Rev.)*. Nutrient cake would be provided to the Farm if requested, and the Farm would store or use it in a manner consistent with its LFO permit.
- d. As previously presented in Salisbury AD 1's October 4, 2018 filing, the Goodrich Farm currently uses two lagoons located at the Project area on the farm, and 3 lagoons located on other farm-owned lands. The Farm is also considering, apart from the Project, constructing two additional lagoons in order to store liquid nutrient closer to the fields prior to spreading. The Farm's five separate lagoons (plus the potential two new ones)

¹ Existing building; Building 9 on the Project Layout Comparison Plan, *Exhibit SAD1-3(Rev.)*.

allow for liquid nutrient “recipes” to be tailored to the needs of the fields based on soil test results and crop needs. This process will be tested and optimized through coordination with the Farm and its registered TSP.

13. Apart from the 248 amendment review process, the Goodrich Farm will apply for a minor amendment to its existing LFO permit to provide for the use of liquid and solid nutrient from the Project in accordance with its annual NMP. The LFO amendment application will be submitted approximately one year (or at an agreed-upon time with AAFM) prior to the Farm using either the liquid digestate or nutrient cake from the Project; Project-generated nutrients could not be used by the Farm prior to issuance of the amended LFO permit.

III. AIR POLLUTION

14. Salisbury AD 1 filed an Air Pollution Construction and Operating Permit (“Air Permit”) Application for the Project on November 21, 2018. The permit application (Permit ID AOP-18-051) can be viewed at <https://enb.vermont.gov/>.

15. The Air Permit Application and VHB’s Supplemental Memorandum (*Exhibit SAD1-20*) provide information on the backup generator and the Combined Heat and Power unit as requested by ANR.

IV. WASTE MANAGEMENT

16. Salisbury AD 1 filed an application for an Anaerobic Solid Waste Digestion Facility Certification on November 20, 2018. In specific response to ANR’s Comments, as presented in that application, there will be no tipping floor. See also *Exh. SAD1-20*. Food waste will arrive to the Project in a de-packaged, slurry or solid form, and no de-packaging equipment will be needed. All

food waste will be macerated, homogenized, and hydrolyzed in the hydrolyzer prior to going into the digester.

V. PUBLIC HEALTH AND SAFETY

17. In response to ANR's comments concerning the nutrient pipeline, VHB has prepared details of the nutrient pipeline that will cross an existing culvert, which provide information regarding the proposed materials and construction of the pipeline. See *Exh. SAD1-3(Rev.)*. The pipeline will consist of a small diameter plastic pressure pipe (High Density Polyethylene (HDPE) SDR17 or equivalent as required). The pipe will be installed via open trenching and laid within an envelope of sand bedding materials and buried at a depth and in a manner that will provide protection against surface structural loads associated with truck traffic. Design, construction, and testing of the pipeline will be performed in accordance with the standards for wastewater force mains as established in Appendix 1-A, Section 1-A-05 of the Vermont Environmental Protection Rules Chapter 1, Wastewater System and Water Supply Rules, 2007 (VT DEC WW Rules). Refer to *Exhibits SAD1-20* and *SAD1-3(Rev.)*.

18. Spill prevention and management related to other Project infrastructure is addressed in the affidavit and exhibits of Sol Maria Ucciani provided as part of this filing.

VI. WETLANDS

19. In response to ANR's comments concerning impacts to wetlands, grading for the Project's vehicle access area and stormwater infrastructure will require some minimal disturbance to the Class 2 wetland and wetland buffer. Refer to the Wetland Impact Exhibit, provided as an attachment to VHB's Supplemental Memorandum (*Exhibit SAD1-20*). In addition, the existing

farm culvert under the access road to the nutrient storage tanks will need to be replaced and the road widened to safely accommodate tanker trucks, which would result in minor direct permanent impacts to the wetland and intermittent stream. Currently, the channel has no connectivity to up- or downstream channels, as intervening wetlands are not saturated year-round. The channel segment itself is has been previously altered and is subject to intermittent flows.

20. Per communication by VHB with Zapata Courage from the DEC Wetlands Program, the anticipated impacts to the wetland and its buffer are expected to be authorized under an Individual Vermont DEC Wetland Permit.

21. Direct wetland and stream impacts are expected to be authorized under the Army Corps of Engineers Section 404 General Permit via Pre-Construction Notification of the Vermont General Permit.

VII. STREAMS

22. In response to ANR's comments concerning impacts to streams, as discussed above the nutrient pipeline will be designed, constructed, and tested in accordance with standards and specifications for a wastewater force main as established in Appendix 1-A of the VT DEC WW Rules, which incorporate the necessary environmental and safety requirements that would avoid the risk of a release or leak. Furthermore, the pipeline will be constructed below the intermittent stream channel and new culvert, preventing a direct release of liquid nutrient to the stream or wetland. Please refer to the Force Main Trench detail and Force Main Crossing at Culvert detail on sheet C-6.02 of *Exhibit SAD1-3(Rev.)*, which provide information regarding the proposed materials and construction of the pipeline. Also refer to VHB's discussion regarding the existing condition of the intermittent stream in *Exhibit SAD1-20*.

VIII. WATER POLLUTION (STORMWATER)

23. In response to ANR's comments concerning stormwater, please refer to sheets C-1.01 Final Design Site Plan, C-5.02 Erosion and Sediment Control Plan, C-5.03 Erosion and Sediment Control Details (*Exh. SAD1-3(Rev.)*). The sheets are part of the Project Design Plans, and depict the extent of soil disturbance, grading contours, and operational stormwater features.

24. Using the updated Project Plans, as required for the preparation of a Construction Phase Stormwater Discharge Permit application, VHB completed a project risk assessment and has determined that the Project would require an Individual Permit (INDC) and would be required to comply with an approved site-specific Erosion Prevention and Sediment Control ("EPSC") plan to manage stormwater runoff from areas of exposed soil during construction, as further described in *Exhibit SAD1-20*. The Project intends to prepare and file necessary application materials to DEC for the issuance of an INDC and it is anticipated that this permit will be issued.

25. As a result of implementation of EPSC measures, the Project will not result in unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition would result.

26. In response to ANR's comments, the proposed operational phase stormwater treatment practices are expected to include a combination of grass channels, deep sump catch basin, disconnection areas, and sediment forebays to achieve pretreatment of runoff prior to routing flows to two gravel wetlands for water quality treatment and peak flow control, as depicted on Sheets C-1.01 and C-6.01 of *Exhibit SAD1-3(Rev.)*. It is anticipated that authorization to discharge pursuant to GP 3-9015 will be issued by DEC for the Project.

IX. NUTRIENT TANK

27. ANR informed Salisbury AD 1 after meeting on November 28th that the proposed 5.3 Mgal Nutrient Storage Tank would be subject to a Chapter 43 permit, since it would have above-ground storage capacity of over 500,000 cubic feet (3.74 Mgal). Salisbury AD 1 has now revised the tank design, to consist of two smaller tanks that are each below the storage capacity threshold for requiring a Ch. 43 permit. The two tanks are sized at 2.5 Mgal each, and would be in the same location as the 5.3 Mgal tank. See *Exhibit SAD1-3(Rev.)*.

28. As presented in *Exhibit SAD1-7*, per the Farm's LFO permit, the required storage for the 180-day period when the Farm cannot spread the liquid nutrient is 11.6 Mgal. The currently proposed 5.0 Mgal of storage in the two smaller tanks, plus the existing total lagoon storage of 7.1 Mgal, equates to 12.1 Mgal, which provides sufficient storage capacity for 180 days of digestate production.

X. INFORMATION IN RESPONSE TO PUC HEARING OFFICER QUESTIONS

29. The following information is provided in response to the PUC Hearing Officer's questions asked during the November 20, 2018 Status Conference.

30. Will blasting need to occur to construct the hydrolyzer and digesters in their proposed location? The hydrolyzer will be constructed completely below grade with its base set at or near a depth of approximately 11 feet below site grades. The digester tanks are to be partially buried, with depths at approximately 14 feet below site grades. Salisbury AD 1 retained SW Cole Engineering, Inc. ("SW Cole") to complete a geotechnical investigation of the area. SW Cole's investigation determined that blasting within the hydrolyzer and digester area would likely be necessary. Auger refusal was encountered at 3.5 feet within a boring in the proposed hydrolyzer location. Rock coring

was completed in a nearby boring, which recovered moderately to severely weathered phyllite. As recommended by SW Cole, Salisbury AD 1 will engage a licensed blasting contractor to remove the bedrock as needed and prepare a Blasting Plan in accordance with ANR's Blasting Plan Guidance document (June 2017). Blasting will be completed in accordance with ANR's Best Management Practices for Blasting Activities to Avoid Environmental Contamination (December 2016). Pre-blast surveys will be completed on surrounding structures, water supply wells, and infrastructure prior to commencing blasting activities, and vibrations will be monitored during blasting activities in accordance with the Blasting Plan to be prepared by the licensed contractor.

31. Would the digestate be trucked within farm roads or on the main roads? Please include a map showing the location of the off-site lagoon locations. Currently liquid manure is trucked by the Goodrich Farm from the farmstead to the remote lagoon sites on a combination of farm roads and town roads. This would continue to be the case for the future digestate produced by the Project. Please refer to ***Exhibit SAD1-21.***

32. Please update the plans to show the groundwater well, gas lines to and from the Metering and Regulation building, and to show improvements to the existing farm access road, if any. The site plans have been revised to incorporate this information. An existing shallow dug well that is no longer in use, in addition to the proposed location for a new bedrock well, are depicted. See ***Exhibit SAD1-3(Rev.)***.

33. Facilities are located in close proximity to streams and wetlands. Confirm that these features and proposed facility locations have been reviewed and considered by ANR. The wetland and stream delineations were confirmed by ANR staff (Zapata Courage) on September 19, 2018. VHB held a follow-up meeting with Ms. Courage on December 6, 2018 to discuss the Project and proposed wetland and wetland buffer impacts due to site grading, stormwater infrastructure, and

access road improvements. Ms. Courage concurred that the activities should be able to be authorized under an individual Vermont Wetland Permit. In addition, at a meeting held with several ANR staff on November 28, 2018, ANR's representative indicated that the supplemental information provided to ANR on November 20, 2018 addressed ANR's concerns, and that issuance of a VWP for the Project would satisfy the Section 248(b)(5) criteria with respect to wetlands and streams.

34. The estimated water usage is significantly lower than what was proposed for the As Approved Project. Please confirm accurate estimates of water usage have been provided. The As Approved Project originally estimated a water usage rate of 1,200 gallons per day ("gpd") for process water for the gas upgrader. As described in Lincoln RNG's supplemental filing, the upgrader manufacturer and design was changed to the use of a WELTEC BIOPOWER system, which was estimated to require less than 10 gpd of process water. Salisbury AD 1's final project design proposes to use an Upgrader by DMT, which specifies a water usage rate of up to 400 gpd. Salisbury AD 1 therefore believes that it has provided an accurate estimate of the water usage rate for the final project design.

35. The estimated number of feedstock deliveries is significantly lower than what was proposed for the As Approved Project. Please confirm and explain the difference. The As-approved Project estimated 20 truckload deliveries of manure per day. As presented in the October 4, 2018 Affidavit of Maria Sol Ucciani, the Salisbury AD 1 Revised Project expects 8 deliveries of food waste per day. The Goodrich Farm is permitted for the construction of a new, large barn at its main farm area, which will result in the consolidation of the herd. Manure will be collected from the main farm barns into a manure storage tank, then into a solids separator, and then directly to the digesters. This avoids the need for delivery of manure by truck.

XI. COMMENTS RECEIVED BY ELECTRONIC MAIL FROM ANR ON 12/11/18

36. Do you have a sense of the overall volume of P-cake that will be produced annually? As presented in *Exh. SAD1-7* of the October 4, 2018 filing, approximately 32% (28.2 tons) of the P from the digestate will need to be exported from the farm. A 32% P reduction could be achieved with the DAF, resulting in the production of approximately 8,395 tons/yr of nutrient cake that would be exported from the farm (refer to the Mass Flow Diagram, provided as an attachment to *Exh. SAD1-7*). According to DVO, Inc., the volume of nutrient cake associated with this tonnage would roughly equate to approximately 38 cubic yards of cake per day, or approximately 13,870 cubic yards on an annual basis, depending on the operations of the DAF system.

37. Will the additional outside dumpster storage be covered? Yes.

38. How much nutrient cake does the Project anticipate providing annually to augment the fields, and where will it be stored until it's used? The annual crop requirement of the farm is 59.7 tons of P/yr (based on the farm's 2018 LFO permit), which would be supplied back to the farm in the form of digestate. The farm and its TSP will work with Salisbury AD 1 to determine if additional separation of the remaining digestate (i.e. that which is not exported from the farm) into liquid and solid fractions, would assist in the optimization of nutrient application at the Farm. Solids would be provided to the farm if requested, and stored on the farm at a designated location, or used in a manner consistent with the farm's LFO.

I, Lydia Lee, do hereby swear and affirm under the penalty of law that the information provided in my affidavit is accurate to the best of my knowledge and that I have personal knowledge of, and am able to testify as to the validity of the information contained in my testimony and attached exhibits.



Lydia Lee

STATE OF Vermont)
COUNTY OF Chittenden)

The foregoing instrument was signed and acknowledged before me this 12 day of December, 2018 at 40 Idx Dr, Suite 200, South Burlington, Vermont by Lydia Lee, who acknowledged the act to be her free act and deed.



Notary Public

Name of Notary: Caitlin "Rona" King

Commission Expires: 2/10/19

