Environment and Protected Areas

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March 23, 2023

File No.: 001-484778

Scott McLean
Executive VP, Operations
Rimrock Renewables Ltd.
900, 222 3rd Avenue SW
Calgary, AB T2P 0B4

Dear Mr. McLean:

Subject: Rimrock Renewables Ltd. – E*nvironmental Protection and Enhancement Act*
Application No. 001-484778 – Supplemental Information Request #2

Alberta Environment and Protected Areas (EPA) has reviewed the above application, particularly the February 13, 2023 *Rimrock Biodigester Facility (Application No. 001-484778) – Response to Alberta Environment and Protected Areas Supplemental Information Request (dated November 28, 2022)* (SIRR).

In addition, and in accordance with the *Industrial Release Limits Policy* (Policy), Rimrock Renewables Ltd. (Rimrock) will be required to consider the most effective demonstrated technologies (employing the principle of best available technology economically achievable) to minimize odour from the proposed facility. Examples of demonstrated technologies for odour abatement from similar operations include wet chemical scrubber, activated carbon filter, biofilter, bioscrubber and biotrickling filter. EPA requires that this Policy be contemplated by Rimrock in developing a response to the supplemental information request below.

In order to continue the technical review of Application 001-484779, please provide the following supplemental information to EPA:

1. Design plan and specifications of the pollution abatement equipment to collect and treat air from:
    a. the manure blend building;
    b. the digestate separation building;
    c. the solid digestate staging areas;
    d. the anaerobic cell in the liquid digestate pond; and
    e. the head space of the organic food resource tanks.

2. An updated air quality modelling report that reflects the construction and operation of the above pollution abatement equipment.

3. Design plan and specifications of the cover systems or other pollution abatement technologies selected for:
    a. the solid digestate storage area; and
    b. the anaerobic cell in the liquid digestate pond.

4. Design plan and specifications of the liquid digestate pond showing:
    a. slopes of berms;
    b. HDPE liners;
    c. cell dimensions and storage capacity factoring in slopes of berms and a free board of 1.0 metre;
    d. depths of aerobic layer, anoxic facultative layer and anaerobic layer of the facultative cell and the maturation cell;
    e. design criteria such as organic loading rates and performance indicators to be monitored for each cell; and
    f. protection against groundwater intrusion.

5. Measures to be taken to prevent odour from the facultative cell and the maturation cell.

6. Documentation to support implication (SIRR, PDF page 95) that the percentage of the total H_2S emission rate to be emitted at the liquid digestate pond surface is equal to BOD removal percentage at the pond.

7. Confirmation of the height above grade of the organic food resources tanks and the anaerobic digesters (SIRR Table 3, PDF page 82) that are partially underground.

8. Rationale for:
    a. selection of the methodology/approach (SIRR, PDF pages 94-98) for H_2S emission rate determination, the Department's literature review shows that mathematic modeling and direct measurement are conventional methods for similar studies;
    b. selection of the base H_2S emission factor of 2.77 ug/s/m^2 and 75% of H_2S emission reduction factor in developing H_2S emission rates from the digestate pond, review of the Reference Articles (SIRR, PDF page 96-97) indicates that the selected values are not representative of the proposed facility operation;
    c. assuming a zero H_2S emission rate for feedlot pens in the air quality modelling study, when sufficient evidence exists in the literature to the contrary;
    d. not modelling the volatile organic compounds (VOC) and other reduced sulfur compounds such as methyl mercaptan;
    e. not including H_2S and ammonia from the solid digestate staging and storage areas in the air quality modelling study; and
    f. not installing a double liner with leak detection system for the liquid digestate pond.

9. For minimization of odour from the proposed facility, an evaluation of the following:
    a. to release gas from the head space of the feedstock and digestate storage tanks to the RNG collection system instead of the atmosphere;
    b. to release digestate to the facilities regulated by the NRCB to reduce the digestate quantity to be stored at the proposed facility;
    c. to store the liquid digestate in covered tanks where gas from the head space can be released to the RNG collection system;
    d. to relocate the manure blend building to the adjacent feedlot and to pump hydrated manure directly to the digesters;
    e. to compost solid digestate at the proposed facility; and
    f. to remove H_2S or sulfide in the liquid digestate before it enters into the pond.

Please respond to the above supplemental information request directly to me no later than June 19, 2023. Should you have any questions or concerns please contact Ping Zhao at 403-297-8290 or at ping.zhao@gov.ab.ca.

Yours truly,

Ping.Zhao
Digitally signed by Ping.Zhao
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Ping Zhao, P.Eng.
Industrial Approvals Engineer