

Walker, Elizabeth (AIR)

From: Arif, Syed
Sent: Tuesday, January 05, 2010 10:55 AM
To: Walker, Elizabeth (AIR)
Subject: FW: Trail Ridge Energy - Response to April 26 Correspondence
Attachments: Trail Rideg Energy FDEP-DARM Arif 05-8-06.doc

From: David Derenzo [mailto:dderenzo@derenzo.com]
Sent: Tuesday, May 09, 2006 5:49 AM
To: Arif, Syed
Subject: Trail Ridge Energy - Response to April 26 Correspondence

Syed:

The attached document with attachments has been sent by FAX (850-922-6979). The original document will be sent by overnight carrier.

David

Derenzo and Associates, Inc.

Environmental Consultants

May 8, 2006

Mr. Syed Arif, P.E.
Bureau of Air Regulation
Division of Air Resource Management
Department of Environmental Protection
STATE OF FLORIDA
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Subject: Trail Ridge Energy, L.L.C.
DEP File No. 0310358-004-AC (PSD-FL-374)
Response to April 26, 2006 request for information

Dear Mr. Arif:

Derenzo and Associates, Inc. (Derenzo and Associates), on behalf of Trail Ridge Energy, L.L.C (Trail Ridge Energy), is submitting to the Florida Department of Environmental Protection, Division of Air Resource Management (FDEP-DARM) information that was requested by the regulatory agency on April 26, 2006.

Attachment A provides for reference the April 26, FDEP-DARM communication.

Item 1 – Project Operating Permit

A Title V Operating Permit for the landfill stationary source that consists of two sections (one for the landfill operations and one for the electricity generation operations) is acceptable to Trail Ridge Energy. Trail Ridge Energy understands that each section of the Title V Operating Permit would have its own separate responsible official and that a primary responsible official would be designated for the entire source that would be responsible for all appropriate reporting and compliance certifications.

Waste Management is the current holder of the Title V Operating Permit that has been issued the Trail Ridge Landfill by the FDEP-DARM and has designated a company responsible official. Waste Management is aware of the need to pursue a Title V Operating Permit that has two sections (as previously specified) based on the issues that recently occurred with the submittal of an air permit application for an enclosed utility flare at the Trail Ridge Landfill (and discussions between Waste Management and Derenzo and Associates representatives).

Trail Ridge Energy has submitted an Air Construction Permit Application to the FDEP-DARM that has been certified with its responsible official (Scott Salisbury). Mr. Salisbury

will be the individual designated as the responsible official for the electricity generation facility section of the stationary source Title V Operating Permit.

Trail Ridge Energy has requested that the City of Jacksonville, which owns the land on which the landfill is operated, provide it with a letter that specifies the City of Jacksonville has issued Trail Ridge Energy permission to construct and operate a landfill gas (LFG) fueled electricity generation facility on land leased from the Trail Ridge Landfill. This document will:

1. Be submitted to the FDEP-DARM as soon as it is received by Trail Ridge Energy; and
2. Provide the stationary source approval for the FDEP-DARM to complete its review and issuance of the Air Construction Permit (NSR Permit) for the proposed project.

Activities are being pursued to identify the individual that should be designated the primary responsible official for the landfill stationary source (e.g., City of Jacksonville).

After the Air Construction Permit has been issued for the proposed project (Trail Ridge Energy), permit application documents will be submitted to the FDEP-DARM to request that the Title V Operating Permit issued the stationary source be modified to incorporate the new air pollutant emission processes. This permit application will include information on the primary responsible official for the entire stationary source.

Item 2 – New Utility Flare Emission Impacts

The ambient impact analyses (Appendix I) for the proposed LFG fueled electricity generation processes will include appropriate potential regulated air pollutant emissions for the new enclosed utility flare.

Item 3 – CAT 3520 PM10 BACT

Derenzo and Associates contacted representatives from RETEC (Colorado), which prepared the air permit application for the Bio Energy Texas, LLC (Bio Energy Texas) project, to obtain information on the basis for the CAT 3520 0.148 g/bhp-hr PM10 emission value. This permit was reviewed and issued by the Texas Commission on Environmental Quality (James Linville, PE of the Air Permits Division, Combustion Team is a contact for LFG fueled electricity generation permits, 512-239-1261).

The CAT 3520C gas IC engine PM10 emission limit of 0.148 g/bhp-hr that has been specified for the Bio Energy Texas LFG fueled electricity generation facility is based on emission factors presented in Table 2.4-5 of *Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources, Fifth Edition* (USEPA AP-42). These data specify a

particulate matter emission factor for LFG fueled IC Engines of 48 pounds per million dscf of methane.

The AP-42 Emission Factor Rating that is associated with the 48 pounds per million dscf of methane value is E, which is defined as a poor factor developed from C- and D rated test data and there may be reason to suspect that the facilities tested do not represent a random sample of the industry. There also may be evidence of variability within the source category population. A review of the background data that was used to develop the 48 pounds per million dscf of methane value indicates that this emission factor is based on a single test (i.e., no. of data points = 1).

Therefore, the fact that Bio Energy Texas LFG fueled electricity generation facility has been permitted with a PM₁₀ emission limit of 0.148 g/bhp-hr is not a basis for a determination that the value is BACT (i.e., the test data used to develop the value do not represent a random sample of the industry and there may be evidence of variability within the source category population).

Attachment B provides information from AP-42.

Trail Ridge Energy has submitted permit application data to the FDEP-DARM for its proposed electricity generation facility that indicate and justify that BACT for PM₁₀ emitted from LFG fueled engines (CAT 3520C) is 0.24 g/bhp-hr. This value is supported by data on LFG fueled IC engines that are presented in the USEPA RBL Clearinghouse for LFG fueled IC engines (i.e., permitted PM₁₀ emissions rates that range from 0.04 to 0.34 g/bhp-hr).

Information previously submitted to the FDEP-DARM states that:

Operational experience obtained by Caterpillar, Inc. and users of its LFG fueled IC engines indicates that PM-10 emissions for LFG fueled IC engines are dependent on engine operating hours. While PM-10 emissions from the operation of new LFG fueled IC engines have been initially tested to be very low (i.e., <0.06 g/bhp-hr) subsequent measurements on the same equipment that are representative of increased engine operating hours indicate the presence of higher emission levels. The increased PM-10 emissions (from new engine operating conditions) has been attributed to particulate contributions from crankcase lubrication oil aerosols, which is the result of normal wear on piston rings and seals (i.e., not additional particulate contributions from the source of the LFG fuel).

Trail Ridge Energy representatives recorded in 2001 and a portion of 2002 the average daily crankcase oil consumption for CAT 3616 gas IC engines operated on LFG. Particulate (PM₁₀) emission tests that were performed on these engines indicate that the results of the initial compliance tests (that reflect new engine operations) varied from results of subsequent compliance tests (over a three year period) by a maximum value of approximate 300 % (300% increase). The results of the same tests indicate that the highest PM₁₀ emission measurement

exceeds the permitted limit (over a three year period) by a maximum factor of approximately 3.

The PM10 emission limit for these CAT 3616 gas IC engines was initially set at a value <0.1 g/bhp-hr. This value was obtained from the results of tests performed on new identical engines operated at another landfill. Caterpillar does not provide particulate emission guarantees for the CAT 3616 gas IC engine, which is also the case for the CAT 3520C gas IC engine. Therefore, in the absence of operational and emission compliance experience with this equipment (which was newly introduced to the LFG energy development market in the mid 1990s like the CAT 3520C engine was in 2005 with ordering allowed in early 2005 for delivery in late 2005) as presented in the preceding text, the identical equipment test results (which served as the basis for the permitted limit) were believed to be representative of particulate emissions that would occur over all engine operating conditions (which proved not to be the case for the reasons specified).

Therefore, based on the preceding information and the previous permit application data submitted to the FDEP-DARM, PM10 BACT for the CAT 3520C gas IC engine is 0.24 g/bhp-hr.

Item 4 – Proposed Project Ambient Air Impact Analyses

Initial ambient impact analyses have been completed for the proposed LFG fueled electricity generation processes and new enclosed utility flare. However, based on new guidance that was recently issued by the Federal Landfill Manager on appropriate Class I visibility impact analyses, FDEP-DARM representatives were re-contacted and the regulatory agency has provided Derenzo and Associates with additional Class I visibility analyses that are planned for completion during the week of May 8, 2006.

Trail Ridge Energy appreciates the consideration of the FDEP-DARM of the information that is presented in this document.

Please contact us if you have questions or require additional information.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

c: Bill Owen, Landfill Energy Systems

ATTACHMENT A

April 26, 2006 FDEP-DARM Communication

Derenzo and Associates, Inc.

ATTACHMENT B

AP-42 Information