

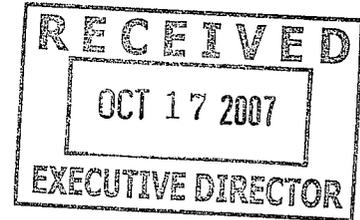


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**VIRIDIS
CLEAN ENERGY GROUP**

15 October 2007

Glenn Shankle
Executive Director
Texas Commission on Environmental Quality
MC 109
12100 Park 35 Circle
Austin, TX 78753



SUBJECT: PETITION FOR PROPOSED RULEMAKING

Dear Mr. Shankle:

Viridis Energy (Texas), L.P. ("Viridis") would like to request a rule change to make the engine fuel flow meter requirements for the Houston-Galveston area consistent with those for the Dallas-Fort Worth area. The current rules require engines in the Houston-Galveston area to each have their own fuel flow meter, while engines in the Dallas-Fort Worth area are exempt if a continuous monitor is installed. The proposed changes would make the Houston rules consistent with the Dallas rules, provide equivalent protection for the environment, and make it easier for companies such as Viridis to invest further in renewable landfill gas-to-energy projects in the Houston area.

As you are aware, landfill gas is required to be captured and generally is burned-off in a flare as a waste. Viridis is in the business of converting landfill gas to renewable energy—creating electricity and helping to offset the need for other fuels such as coal. Viridis engines fueled by landfill gas in the Houston area produce approximately 150,000 MWh of renewable electricity. That is enough to power 15,000 homes. Because these engines are small however, and have corresponding economies of scale, significant regulatory costs can sometimes become substantial barriers to further investment. Right now the potential exists to provide another 4,500 homes with electricity in the Houston area if the economic and regulatory conditions allow for such an investment to occur. The Texas Legislature and the TCEQ have both recognized the significant benefits of landfill gas-to-energy projects and the need to encourage further development (See House Bill 3415 and *Developing Landfill Gas Resources in Texas, A Status Report*, TCEQ, November 2002).

The proposed rules in this petition would remove a significant barrier to further development of landfill gas-to-energy projects in the Houston area. The proposed rules would allow Viridis to use its current metering configuration rather than spending a substantial amount of money on separate flow meters that would provide no benefit to TCEQ or the environment. Separate flow meters for individual engines may make sense for engines that burn a fuel of consistent heating value such as natural gas, because flow equates to heat input. When the fuel is of inconsistent heating value, like landfill gas however, flow does not equate to heating input. Separate flow meters therefore provide no compliance benefit. The more appropriate and accurate means of monitoring fuel input is to use the Btu input/kW output of the engines. The flow meter requirements established for the

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Dallas-Fort Worth SIP properly recognize this means and Viridis is asking that the Houston rules be revised to reflect this policy.

In order to effectuate the above described change, Viridis specifically requests that the Texas Commission on Environmental Quality ("TCEQ") adopt two new rules to be made part of 30 Texas Administrative Code ("TAC") 117. In support of this request, the attached information is provided, for each rule change, in accordance with Texas Government Code 2001.021 and 30 TAC 20.15 governing petitions for adoption of rules:

- 1) Identification information for Viridis,
- 2) A Description of the Rule Proposed for Adoption,
- 3) Proposed Text Changes to 30 TAC 117 Integrating the Rule Proposed for Adoption;
- 4) A Statement of the Authority Under which the Proposed Rule is to be Promulgated, and
- 5) An Explanation of the Injury and Inequality Resulting from Failure to Adopt the Proposed Rule.

²⁸²⁷⁶ The first Petition for Rule Change requests that an additional alternative be provided under 30 TAC 117.340 (a)(2) to the requirement to install, calibrate, maintain and operate totalizing fuel flow meters on each applicable operating unit found at 30 TAC 117.340 (a), pertaining Continuous Demonstration of Compliance for Major Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area. The second Petition for Rule Change ²⁸²⁹⁷ requests that an additional alternative be provided to 30 TAC 117.2035 (a)(2) for the requirement to install, calibrate, maintain and operate totalizing fuel flow meters on each applicable operating unit found at 30 TAC 117.2035 (a)(1), pertaining to Monitoring and Testing Requirements for Minor Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area.

Thank you for your consideration of this matter. Should you need additional information in regard to this request, please contact me at 713-781-1126 or at luong.nguyen@viridisenergy.com.

Sincerely,

Viridis Energy (Texas), LP

By: Viridis Energy (GP), LLC, its general partner

By:



Luong Nguyen
Vice President

Cc: For Viridis:

Jed Anderson, Attorney at Law
Leslie Wong, Spirit Environmental

For TCEQ Air Quality Planning Section:

Vincent Meiller – MC 206
Ashley Forbes – MC 206
Janis Hudson – MC 173
Jay Tonne – MC 206
Keith Sheedy – MC 168

For TCEQ Office of Legal Services:

Russ Kimble – MC 205

For TCEQ Houston Regional Office:

Roshondra Lowe, Enforcement Coordinator

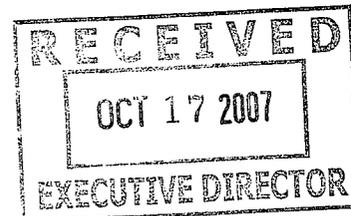
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Petition for Proposed Rulemaking

Presented to: Texas Commission on Environmental Quality ("TCEQ")
 Submitted by: Viridis Energy (Texas), L.P. ("Viridis")
 Date: 15 October 2007



1. Identification of Submitter:

Viridis Energy (Texas), L.P.
 7500 San Felipe Drive, Suite 600
 Houston, Texas 77063
 Phone: 713-781-1126
 Facsimile: 713-781-1127
 Email: luong.nguyen@viridisenergy.com
 Status: Owner and operator of six internal combustion engines servicing landfill gas-to-energy projects located within the Houston-Galveston-Brazoria Ozone Non-attainment Area

2. Description of Rule Proposed for Adoption:

Viridis requests that the TCEQ adopt a new rule to be made part of 30 Texas Administrative Code ("TAC") 117. Specifically, Viridis requests that an additional alternative be provided under 30 TAC 117.340 (a)(2) to the requirement to install, calibrate, maintain and operate totalizing fuel flow meters on each applicable unit found at 30 TAC 117.340 (a), pertaining to Continuous Demonstration of Compliance for Major Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area. Applicable units are identified at 30 TAC 117.340 (a)(1) and include, at section (ii), "stationary reciprocating internal combustion engines [not otherwise exempt]" and, at section (iii) "stationary gas turbines [over a certain generating capacity and annual hours of use]. Viridis proposes that a new section (D) be added to the list of alternatives to totalizing fuel flow meters found at 30 TAC 117.340 (a)(2) reading as follows: "Stationary reciprocating internal combustion engines and gas turbines equipped with a continuous monitoring system that continuously monitors horsepower and hours of operation are not required to install totalizing fuel flow meters. The continuous monitoring system must be installed, calibrated, maintained and operated according to manufacturers' recommended procedures."

The language of the proposed new section 30 TAC 117.340 (a)(2)(D) is identical to an existing section of 30 TAC 117 that pertains to Continuous Demonstration of Compliance by Major Sources in the Dallas-Fort Worth Eight-Hour Ozone Non-attainment Area. This section is found at 30 TAC 117.440 (a)(2)(D).

Also, to achieve consistency in regulation, the above referenced rule addition will also trigger the need for a corresponding addition to 30 TAC 117.345 (f) which prescribes recordkeeping requirements for Major Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area. Absent this addition, units operating under the new alternative means of demonstrating continuous compliance would have no consistent means of recording proof of compliance in their operating records.

In keeping with the nature of the above referenced request, Viridis requests that a new section 30 TAC 117.345 (f) (12) be added to the recordkeeping requirements for Major Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area to read: “for each stationary internal combustion engine and gas turbine for which the owner or operator elects to use the alternative monitoring system allowed under 30 TAC 117.340 (a)(2)(D) of this title, daily average horsepower and total daily hours of operation.” This provision mimics the recordkeeping requirement for Major Sources in the Dallas-Fort Worth Eight-Hour Ozone Non-attainment Area found at 30 TAC 117.440 (f)(3)(C). It does not quote the Dallas-Fort Worth Eight-Hour Ozone Non-attainment Area section precisely due to a slightly different regulatory structure used for recordkeeping requirements for the Houston-Galveston-Brazoria Ozone Non-attainment Area.

3. Proposed Text Changes to 30 TAC 117 Integrating the Proposed Rule:

Add the following text, in italics, to the following section of the Texas Administrative Code. No deletions or substitutions of text are proposed:

Title 30: Environmental Quality
Chapter 117: Control of Air Pollution for Nitrogen Compounds
Subchapter B: Combustion Control at Major Industrial, Commercial, and Institutional Sources in Ozone Non-attainment Areas
Division 3: Houston-Galveston-Brazoria Ozone Non-attainment Area Major Sources
Rule 117.340: Continuous Demonstration of Compliance

(a) Totalizing fuel flow meters. The owner or operator of units...(1) The units are the following:...(2) The following are alternatives to the fuel flow monitoring requirements of paragraph 1 of this subsection....

(D) Stationary reciprocating internal combustion engines and gas turbines equipped with a continuous monitoring system that continuously monitors horsepower and hours of operation are not required to install totalizing fuel flow meters. The continuous monitoring system must be installed, calibrated, maintained and operated according to manufacturers' recommended procedures.

Title 30: Environmental Quality
Chapter 117: Control of Air Pollution for Nitrogen Compounds
Subchapter B: Combustion Control at Major Industrial, Commercial, and Institutional Sources in Ozone Non-attainment Areas
Division 3: Houston-Galveston-Brazoria Ozone Non-attainment Area Major Sources
Rule 117.345: Notification, Recordkeeping, and Reporting Requirements

...(f) Recordkeeping. The owner or operator of a unit subject to the requirements of this division shall maintain written or electronic records of the data specified in this subsection.... The records must include...

(12) for each stationary internal combustion engine and gas turbine for which the owner or operator elects to use the alternative monitoring system allowed under 30 TAC 117.340 (a)(2)(D) of this title, daily average horsepower and total daily hours of operation.

4. Statement of the Authority Under which the Proposed Rule may be Promulgated:

Origin of the Need for Adoption of a New Rule

The TCEQ has authority to promulgate the new rule proposed by Viridis pursuant to Texas Government Code 2001.021, which establishes the procedures by which an interested person may petition a state agency for the adoption of a rule, and 30 TAC 20.15, which provides such procedures specific to the Commission.

Also applicable are Texas Health and Safety Code 382.017, "Rules", which authorizes the commission to adopt rules and 382.016, "Monitoring Requirements" which authorizes the commission to prescribe reasonable requirements for measuring and monitoring the emissions of air contaminants, and to require the owner or operator a source of air contaminants to make and maintain records on the measuring and monitoring of emissions.

5. Explanation of Injury and Inequality Resulting from Failure to Adopt the Proposed Rule

Viridis owns and operates six landfill gas to energy ("LFGTE") projects located in the Houston-Galveston-Brazoria Ozone Non-attainment Area. These facilities were acquired by Viridis in July 2005 from Reliant Energy Renewables, Inc. Three of the facilities are classified as major sources of nitrogen oxide emissions.

In late 2006, Viridis was proceeding with plans to conduct required formal emissions testing at its facilities. During review of the test protocol, Dennis Kruger and Joel Anderson, then in the emissions testing department of the Houston Regional Office of the TCEQ noted that the protocols for the major source facilities indicated that they were served by a single flow meter, not individual flow meters for each engine. The Houston Regional Office advised Viridis that 30 TAC 117.340 (a) required the installation of individual flow meters by 31 March 2005. Viridis produced documentation from the former owner of the LFGTE facilities indicating that the facilities were exempt from this regulation, but TCEQ countered that the former owners had not followed proper procedure and the documentation was not valid.

During the technical review of the installation of the individual flow meters Viridis discovered that such installation would not produce any environmental benefit or meaningful data for compliance purposes. At this point, Viridis indicated that it would seek an alternative means of meeting the monitoring requirements of 30 TAC 117 without having to install individual totalizing fuel flow meters. Separate flow meters for individual engines make sense for engines that burn a fuel of consistent heating value such as natural gas because flow equates to heat input. But, when the fuel is of inconsistent heating value, like landfill gas, flow does not equate to heating input, and separate flow meters provide no

benefit. The quality and Btu content of landfill gas varies significantly from day to day. Individually metering the flow rate for each engine therefore does not provide Viridis or TCEQ with any compliance benefit. TCEQ agreed that this was a valid issue and worked with Viridis to find an alternative solution.

In addition to the absence of any environmental benefit, the retrospective installation of the individual flow meters at the three Viridis' major source sites represent significant engineering problems. The flow meter requires a straight length of pipe equal to at least thirty diameters of the pipe to deliver the required accuracy of plus/minus 5%. Because the landfill gas used by the engines is supplied from the landfill at a much lower pressure than natural gas, the pipe size for landfill gas is much larger than that of natural gas (12 inch versus 2 inch). As the result at least 30 feet of straight pipe would be required to accommodate the individual fuel flow meters. Such straight run of pipe is not available at the plants. In order to achieve the required accuracy fuel flow conditioners will be needed which would reduce the straight pipe requirement. However flow conditioners increase system pressure drop therefore potentially requiring upgrade to the blower or reducing engine load due to reduction in gas flow to the engines. The complex pipework configuration, the fuel flow conditioners and special provisions needed to compensate for the mild corrosivity of landfill gas increased the cost of the totalizing fuel flow meters to many times of what they would cost to install at a fossil fuel facility.

Viridis engaged the assistance of personnel at TCEQ Headquarters for assistance, led by Curtis Seaton. This group, with Viridis, evaluated various regulatory solutions, but none were found to be satisfactory. During these discussions, Viridis was informed that the TCEQ Houston Regional Office, Enforcement Division, was investigating the Viridis Major Source facilities, independent of TCEQ Headquarters, in light of enforcement of the individual fuel flow meter issue, which added urgency to the proceedings.

In May of 2007, a significant revision to 30 TAC 117 was published, including new rules for the Dallas-Ft. Worth Eight-Hour Ozone Non-attainment Area. Viridis identified one of the new rules applicable to this area as one that would resolve Viridis' issue: 30 TAC 117.440 (a) requires individual totalizing fuel flow meters, like the Houston-Galveston-Brazoria Ozone Non-attainment Area equivalent. However, at 30 TAC 117 (a) (2), one of the alternatives to use of individual totalizing fuel flow meters, 30 TAC 117 (a) (2) (D), allows stationary IC engines and gas turbines to continuously monitor hours of operation and horsepower rather than installing the individual meters. Soon after this discovery, on 17 July 2007, Viridis received a Notice of Violation and Notice of Enforcement for its Coastal Plains Facility, citing the lack of individual totalizing fuel flow meters for the engines.

Knowing that time was very much of the essence at this point, Viridis took its Petition for Adoption of Rules proposition to the TCEQ Headquarters Planning Department, specifically to Vince Meiller and his group, for evaluation. This group responded positively to the potential prospect of Viridis seeking a Petition for Adoption of Rules to replicate the Dallas-Ft. Worth Eight-Hour Ozone Non-attainment Area alternative to installation and use of individual totalizing fuel flow meters in the Houston-Galveston-Brazoria Ozone Non-attainment Area provisions of 30 TAC 117. Because this rule is internal to 30 TAC 117, staff indicated that it has already been accepted as part of the State Implementation Plan. .

Also as pointed out to Viridis, the Dallas-Fort Worth rule has already been subject to internal TCEQ evaluation and validation.

This same group advised Viridis as to the time required to execute the Rule Petition and Rule Implementation processes, usually a year or more. This timeline was of great concern to Viridis, because Viridis wishes to be in full regulatory compliance at all of its facilities, and it had already received notice of an enforcement action against one of its three Major Source facilities and notice that investigations were pending in regard to its two other major sources facilities. Viridis also was deeply concerned that penalties could accrue in spite of the fact that Viridis is making best efforts to come into compliance. Therefore, Viridis contacted the enforcement coordinator in the TCEQ Houston Regional Office assigned to its case, Roshondra Lowe, advised her of Viridis' plans to pursue this Petition for Adoption of Rules, and requested that the Petition for Adoption of Rules be factored into her Compliance Schedule for Viridis. Viridis requested that the Compliance Schedule allow Viridis to comply with the new rules resulting from this Petition for Adoption of Rules, if successful, and to allow Viridis a reasonable amount of time to install the individual fuel flow meters on each engine if this Petition for Adoption of Rules is not successful.

Background Information on Viridis and LFGTE

- Viridis engines fueled by landfill gas in the Houston area produce approximately 150,000 MWh of renewable electricity using fuel that would have otherwise been flared as a waste. That is enough to power 15,000 homes. The potential exists to provide another 4,500 homes with electricity if the economic and regulatory conditions allow for such an investment to occur.
- Non-methane organic compounds (“NMOCs”) from landfills are required to be combusted. Landfill gases can be combusted either in a flare as a waste or in an engine as fuel. As TCEQ stated in a status report to the Legislature, “Collecting and flaring landfill gas reduces the amount of methane in emissions, but converting the methane into a renewable energy resource conserves fossil fuels and makes good economic sense.” [See *Developing Landfill Gas Resources in Texas, A Status Report*, TCEQ, November 2002 (hereinafter referred to as the “Status Report”).
- Using landfill gas to generate electricity and combusting it in a flare as a waste generates comparable nitrogen oxides emissions. Current state of the art internal combustion engine technology results in about eight tons per year of nitrogen oxides emissions, as compared to about four tons per year of nitrogen oxides emissions from flares, per megawatt of generating capacity. However, the displaced utility fossil fuel nitrogen oxides production per megawatt is also about four tons per year. Using an engine produces a societal benefit—electricity.
- According to TCEQ, emissions of some pollutants, such as carbon monoxide, are lower from engines than from flares (see Status Report).
- The Texas Legislature passed House Bill 3415, to encourage the development and use of landfill gas for state energy and environmental purposes. Texas Health and Safety Code Section 360.041(b) states that TCEQ and the Public Utility Commission of Texas shall jointly promote the economic development and use of landfill gas. Section 361.040 requires TCEQ and the Public Utility Commission to jointly report on progress in encouraging landfill gas to energy projects and to, “Identify any legal, administrative,

economic, or other obstacles to the further development and use of landfill gas.” Utilizing individual flow meters is a significant obstacle to Viridis in continuing to develop and use landfill gas as a renewable energy source.

- In 2005, the Texas Legislature passed Senate Bill 20, which increased the renewable-energy mandate in Texas to 5,880 MW by 2015. Senate Bill 20 also included a target of 500 MW of renewable-energy capacity from resources other than wind (wind accounts for nearly all of the current renewable-energy generation in Texas). Senate Bill 20 also went further in setting a goal of reaching 10,000 MW in renewable energy capacity by 2025. Landfill gas can be part of the State’s solution to meet its legislative mandate.
- The importance of using renewable energy can be understood when it is realized that for every megawatt of energy produced by burning landfill gas in engines, over 5,000 tons/year of greenhouse effect producing carbon dioxide emissions are offset from the burning of fossil fuels by utilities. Carbon dioxide emissions from internal combustion engines, turbines and flares burning landfill gas are considered to be from a biogenic source (i.e., renewable organic matter) and thus climate neutral and effectively zero. Carbon dioxide emissions from fossil fuel power plants are, on the other hand, anthropogenic (i.e., man made) in nature. Thus, landfill gas to energy projects effectively offset carbon dioxide emissions.
- TCEQ stated in its Status Report that the TCEQ has promoted and encouraged the recovery and productive use of landfill gas in Texas. TCEQ also stated that 74 landfills have been identified that might be able to viably recover gas. Since this report was prepared, only 19 facilities have been developed in the State of Texas. The likely reason is simple economics. The cost of permitting and compliance are part of the reason why further development is not occurring.

Petition for Proposed Rulemaking

Presented to: Texas Commission on Environmental Quality ("TCEQ")

Submitted by: Viridis Energy (Texas), L.P. ("Viridis")

Date: 15 October 2007

1. Identification of Submitter:

Viridis Energy (Texas), L.P.

7500 San Felipe Drive, Suite 600

Houston, Texas 77063

Phone: 713-781-1126

Facsimile: 713-781-1127

Email: luong.nguyen@viridisenergy.com

Status: Owner and operator of six internal combustion engines servicing landfill gas-to-energy projects located within the Houston-Galveston-Brazoria Ozone Non-attainment Area

2. Description of Rule Proposed for Adoption:

Viridis requests that the TCEQ adopt a new rule to be made part of 30 Texas Administrative Code ("TAC") 117. Specifically, Viridis requests that an additional alternative be provided under 30 TAC 117.2035 (a)(2), pertaining to Minor Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area, to the requirement to install, calibrate, maintain and operate a totalizing fuel flow meter found at 30 TAC 117.2035 (a)(1). Applicable units are identified at 30 TAC 117.2010 (a) and include minor sources subject to the Mass Emissions Cap and Trade program, including, at section (c)(2)(A), "stationary reciprocating internal combustion engines [fired on landfill gas], and, at section (c)(5) stationary gas turbines (including duct burners). Viridis proposes that a new section (G) be added to the list of alternatives to totalizing fuel flow meters found at 30 TAC 117.2035, reading as follows: "Stationary reciprocating internal combustion engines and gas turbines equipped with a continuous monitoring system that continuously monitors horsepower and hours of operation are not required to install totalizing fuel flow meters. The continuous monitoring system must be installed, calibrated, maintained and operated according to manufacturers' recommended procedures."

The language of the proposed new section 30 TAC 117.2035 (a)(2)(F) is identical to an existing section of 30 TAC 117 that pertains to Continuous Demonstration of Compliance by Major Sources in the Dallas-Fort Worth Eight-Hour Ozone Non-attainment Area. This section is found at 30 TAC 117.440 (a)(2)(D). Viridis is requesting, in a separate action, that this same language be added to 30 TAC 117 (a)(2)(D), pertaining to demonstration of compliance by Major Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area.

Viridis is requesting that identical language be applied to both Major and Minor Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area, although less restrictive language is generally used for Minor Sources than for Major Sources and an exemption from

installation and use of individual totalizing fuel flow meters is already available for Minor Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area. Specifically, 30 TAC 117.2035 (a)(2)(D) states that: "units of the same category of equipment subject to [this requirement] may share a single totalizing fuel flow meter provided: (i) the owner or operator performs a stack test in accordance with subsection (e) of this section for each unit sharing the totalizing fuel flow meter; and (ii) the testing results from the unit with the highest emission rate (in pounds per million British thermal units or grams per horsepower-hour) are used for reporting purposes...for all units sharing the totalizing fuel flow meter."

Viridis is taking this position because there is no equivalent totalizing fuel flow meter requirement for Minor Sources in the Dallas-Fort Worth Eight Hour Ozone Non-attainment Area that may be proposed, and because it is desired by Viridis to create an accurate and consistent compliance framework for landfill gas to energy projects regardless of Major Source or Minor Source status. The currently available exemption for minor sources, at 30 TAC 117.2035(a)(2)(D), requires that emissions be overestimated (by use of the highest test result among engines for all engines installed at a facility) by facilities using the exemption. This puts facilities using an alternative form of compliance to the individual fuel flow meter at a competitive disadvantage by requiring them to report NOx emissions and procure Mass Emissions Cap and Trade allowances in excess of their actual production.

Also, to achieve continuing consistency in regulation, the above referenced rule addition will also trigger the need for a corresponding addition to 30 TAC 117.2045 in the form of a section (d) which prescribes recordkeeping requirements for Minor Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area that do not use individual totalizing fuel flow meters. Absent this addition, units operating under the new alternative means of demonstrating continuous compliance would have no consistent means of recording proof of compliance in their operating records.

In keeping with the nature of the above referenced request, Viridis requests that a new section 30 TAC 117.2045 (d) be added to the recordkeeping requirements for Major Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area to read: "Records for Units Sharing a Totalizing Fuel Flow Meter: for each stationary internal combustion engine and gas turbine for which the owner or operator elects to use the alternative monitoring system allowed under 30 TAC 117.2035(a)(2)(D) of this title, written records of the daily average horsepower and total daily hours of operation of each engine and turbine must be made. The records must be maintained for at least five years and must be made available upon request to representatives of the executive director, the United States Environmental Protection Agency, or any local air pollution control agency having jurisdiction."

This provision mimics the recordkeeping requirement for Major Sources in the Dallas-Fort Worth Eight-Hour Ozone Non-attainment Area found at 30 TAC 117.440 (f)(3)(C) and adds retention and access provisions for Minor Sources in the Houston-Galveston-Brazoria Ozone Non-attainment Area found at 30 TAC 117.2045 (b). It does not quote the Dallas-Fort Worth Eight-Hour Ozone Non-attainment Area section precisely due to a slightly different regulatory structure used for recordkeeping requirements for the Houston-Galveston-Brazoria Ozone Non-attainment Area.

Also applicable are Texas Health and Safety Code 382.017, "Rules", which authorizes the commission to adopt rules and 382.016, "Monitoring Requirements" which authorizes the commission to prescribe reasonable requirements for measuring and monitoring the emissions of air contaminants, and to require the owner or operator a source of air contaminants to make and maintain records on the measuring and monitoring of emissions.

5. Explanation of Injury and Inequality Resulting from Failure to Adopt the Proposed Rule

Viridis owns and operates six landfill gas to energy ("LFGTE") projects located in the Houston-Galveston-Brazoria Ozone Non-attainment Area. These facilities were acquired by Viridis in July 2005 from Reliant Energy Renewables, Inc. Three of the facilities are classified as Minor Sources of nitrogen oxide emissions.

In late 2006, Viridis was proceeding with plans to conduct required formal emissions testing at its facilities. During review of the test protocol, Dennis Kruger and Joel Anderson, then in the emissions testing department of the Houston Regional Office of the TCEQ noted that the protocols for the Viridis Major Source facilities indicated that they were served by a single flow meter, not individual flow meters for each engine. The Houston Regional Office advised Viridis that 30 TAC 117.340 (a) required the installation of individual flow meters by 31 March 2005. Viridis produced documentation from the former owner of the LFGTE facilities indicating that the facilities were exempt from this regulation, but TCEQ countered that the former owners had not followed proper procedure and the documentation was not valid.

During the technical review of the installation of the individual flow meters Viridis discovered that such installation would not produce any environmental benefit or meaningful data for compliance purposes. At this point, Viridis indicated that it would follow the available alternative means of compliance provided for Minor Sources while seeking an alternative means of meeting the monitoring requirements of 30 TAC 117 for Major Sources its without having to install individual totalizing fuel flow meters. Upon devising the alterative means of compliance for Major Sources, Viridis found it was equally applicable to Minor Sources and could be used to avoid the forced over reporting of NOx emissions required by the existing means of alterative compliance offered to Minor Sources.

Separate flow meters for individual engines make sense for engines that burn a fuel of consistent heating value such as natural gas because flow equates to heat input. But, when the fuel is of inconsistent heating value, like landfill gas, flow does not equate to heating input, and separate flow meters provide no benefit. The quality and Btu content of landfill gas varies significantly from day to day. Individually metering the flow rate for each engine therefore does not provide Viridis or TCEQ with any compliance benefit. TCEQ agreed that this was a valid issue and worked with Viridis to find an alternative solution.

In addition to the absence of any environmental benefit, the retrospective installation of the individual flow meters at the three Viridis' major source sites represent significant engineering problems. As such, they were never considered for installation at the Minor Source sites, even though they could have provided a NOx emissions reporting benefit. The flow meter requires a straight length of pipe equal to at least thirty diameters of the pipe to

deliver the required accuracy of plus/minus 5%. Because the landfill gas used by the engines is supplied from the landfill at a much lower pressure than natural gas, the pipe size for landfill gas is much larger than that of natural gas (12 inch versus 2 inch). As the result at least 30 feet of straight pipe would be required to accommodate the individual fuel flow meters. Such straight run of pipe is not available at the plants. In order to achieve the required accuracy fuel flow conditioners will be needed which would reduce the straight pipe requirement. However flow conditioners increase system pressure drop therefore potentially requiring upgrade to the blower or reducing engine load due to reduction in gas flow to the engines. The complex pipework configuration, the fuel flow conditioners and special provisions needed to compensate for the mild corrosivity of landfill gas increased the cost of the totalizing fuel flow meters to many times of what they would cost to install at a fossil fuel facility.

Viridis engaged the assistance of personnel at TCEQ Headquarters for assistance, led by Curtis Seaton. This group, with Viridis, evaluated various regulatory solutions, but none were found to be satisfactory. During these discussions, Viridis was informed that the TCEQ Houston Regional Office, Enforcement Division, was investigating the Viridis Major Source facilities, independent of TCEQ Headquarters, in light of enforcement of the individual fuel flow meter issue, which added urgency to the proceedings.

In May of 2007, a significant revision to 30 TAC 117 was published, including new rules for the Dallas-Ft. Worth Eight-Hour Ozone Non-attainment Area. Viridis identified one of the new rules applicable to this area as one that would resolve Viridis' issue: 30 TAC 117.440 (a) requires individual totalizing fuel flow meters, like the Houston-Galveston-Brazoria Ozone Non-attainment Area equivalent. However, at 30 TAC 117 (a) (2), one of the alternatives to use of individual totalizing fuel flow meters, 30 TAC 117 (a) (2) (D), allows stationary IC engines and gas turbines to continuously monitor hours of operation and horsepower rather than installing the individual meters. Soon after this discovery, on 17 July 2007, Viridis received a Notice of Violation and Notice of Enforcement for its Coastal Plains Facility, citing the lack of individual totalizing fuel flow meters for the engines.

Knowing that time was very much of the essence at this point, Viridis took its Petition for Adoption of Rules proposition to the TCEQ Headquarters Planning Department, specifically to Vince Meiller and his group, for evaluation. This group responded positively to the potential prospect of Viridis seeking a Petition for Adoption of Rules to replicate the Dallas-Ft. Worth Eight-Hour Ozone Non-attainment Area alternative to installation and use of individual totalizing fuel flow meters in the Houston-Galveston-Brazoria Ozone Non-attainment Area provisions of 30 TAC 117. Because this rule is internal to 30 TAC 117, staff indicated that it has already been accepted as part of the State Implementation Plan. . Also as pointed out to Viridis, the Dallas-Fort Worth rule has already been subject to internal TCEQ evaluation and validation.

This same group advised Viridis as to the time required to execute the Rule Petition and Rule Implementation processes, usually a year or more. This timeline was of great concern to Viridis, because Viridis wishes to be in full regulatory compliance at all of its facilities, and it had already received notice of an enforcement action against one of its three Major Source facilities and notice that investigations were pending in regard to its two other major sources

facilities. Viridis also was deeply concerned that penalties could accrue in spite of the fact that Viridis is making best efforts to come into compliance. Therefore, Viridis contacted the enforcement coordinator in the TCEQ Houston Regional Office assigned to its case, Roshondra Lowe, advised her of Viridis' plans to pursue this Petition for Adoption of Rules, and requested that the Petition for Adoption of Rules be factored into her Compliance Schedule for Viridis. Viridis requested that the Compliance Schedule allow Viridis to comply with the new rules resulting from this Petition for Adoption of Rules, if successful, and to allow Viridis a reasonable amount of time to install the individual fuel flow meters on each engine if this Petition for Adoption of Rules is not successful.

Background Information on Viridis and LFGTE

- Viridis engines fueled by landfill gas in the Houston area produce approximately 150,000 MWh of renewable electricity using fuel that would have otherwise been flared as a waste. That is enough to power 15,000 homes. The potential exists to provide another 4,500 homes with electricity if the economic and regulatory conditions allow for such an investment to occur.
- Non-methane organic compounds (“NMOCs”) from landfills are required to be combusted. Landfill gases can be combusted either in a flare as a waste or in an engine as fuel. As TCEQ stated in a status report to the Legislature, “Collecting and flaring landfill gas reduces the amount of methane in emissions, but converting the methane into a renewable energy resource conserves fossil fuels and makes good economic sense.” [*See Developing Landfill Gas Resources in Texas, A Status Report*, TCEQ, November 2002 (hereinafter referred to as the “Status Report”).
- Using landfill gas to generate electricity and combusting it in a flare as a waste generates comparable nitrogen oxides emissions. Current state of the art internal combustion engine technology results in about eight tons per year of nitrogen oxides emissions, as compared to about four tons per year of nitrogen oxides emissions from flares, per megawatt of generating capacity. However, the displaced utility fossil fuel nitrogen oxides production per megawatt is also about four tons per year. Using an engine produces a societal benefit—electricity.
- According to TCEQ, emissions of some pollutants, such as carbon monoxide, are lower from engines than from flares (see Status Report).
- The Texas Legislature passed House Bill 3415, to encourage the development and use of landfill gas for state energy and environmental purposes. Texas Health and Safety Code Section 360.041(b) states that TCEQ and the Public Utility Commission of Texas shall jointly promote the economic development and use of landfill gas. Section 361.040 requires TCEQ and the Public Utility Commission to jointly report on progress in encouraging landfill gas to energy projects and to, “Identify any legal, administrative, economic, or other obstacles to the further development and use of landfill gas.” Utilizing individual flow meters is a significant obstacle to Viridis in continuing to develop and use landfill gas as a renewable energy source.

- In 2005, the Texas Legislature passed Senate Bill 20, which increased the renewable-energy mandate in Texas to 5,880 MW by 2015. Senate Bill 20 also included a target of 500 MW of renewable-energy capacity from resources other than wind (wind accounts for nearly all of the current renewable-energy generation in Texas). Senate Bill 20 also went further in setting a goal of reaching 10,000 MW in renewable energy capacity by 2025. Landfill gas can be part of the State's solution to meet its legislative mandate.
- The importance of using renewable energy can be understood when it is realized that for every megawatt of energy produced by burning landfill gas in engines, over 5,000 tons/year of greenhouse effect producing carbon dioxide emissions are offset from the burning of fossil fuels by utilities. Carbon dioxide emissions from internal combustion engines, turbines and flares burning landfill gas are considered to be from a biogenic source (i.e., renewable organic matter) and thus climate neutral and effectively zero. Carbon dioxide emissions from fossil fuel power plants are, on the other hand, anthropogenic (i.e., man made) in nature. Thus, landfill gas to energy projects effectively offset carbon dioxide emissions.
- TCEQ stated in its Status Report that the TCEQ has promoted and encouraged the recovery and productive use of landfill gas in Texas. TCEQ also stated that 74 landfills have been identified that might be able to viably recover gas. Since this report was prepared, only 19 facilities have been developed in the State of Texas. The likely reason is simple economics. The cost of permitting and compliance are part of the reason why further development is not occurring.
- U.S. EPA has already implemented a Renewable Fuels Standard mandating the use of renewable fuels in motor vehicles. Congress is currently debating the addition of a national Renewable Portfolio Standard for electrical utilities to the pending Energy Bill. Should it be implemented, it would be additive to renewable energy mandates for utilities already in place in states like Texas.