



Timberline Energy, LLC, Greenhouse Gas Emissions Reduction Verification Report 2008

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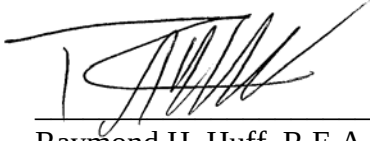
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This Greenhouse Gas Emissions Reductions Verification Report was prepared in accordance with the Climate Action Reserve Landfill Project Verification Protocol, Version 2.0, November 2008. This report developed for the Timberline Energy, LLC, Hernando County Landfill Project located in Florida in the United States, dated July 2009, was prepared and reviewed by the following:



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1.0 INTRODUCTION

The Timberline Energy, LLC (Timberline) has retained SCS Engineers (SCS) to perform verification activities associated with the Hernando County Landfill Electric Generation project (Project) being submitted to the Climate Action Reserve (Reserve) for the period from October 8, 2008 through December 31, 2008. The Project is located at the Hernando County Northwest Landfill, Brooksville, Florida (Hernando Landfill). This verification report (report) was produced in accordance with the Reserve's Landfill Project Verification Protocol, Version 2.0, November 2008 (LPVP). SCS is a Reserve-approved verifier and is fully qualified to perform GHG verification activities for Timberline.

1.1 PROJECT OVERVIEW

The Hernando Landfill is an active landfill located northwest of Brooksville, Florida. The Hernando Landfill encompasses an area of 80 acres divided between municipal solid waste (MSW) disposal (27 acres) and construction and demolition (C&D) disposal (53 acres). The MSW portion of the landfill started accepting waste in 1990 and had approximately 1,700,000 tons of refuse in-place at the end of 2008.

In 2008, Timberline installed a gas collection and control system (GCCS) at the Hernando Landfill. The current GCCS consist of 16 landfill gas (LFG) extraction wells which are connected to a blower station via a common header line. Prior to the blower station, the gas passes through a condensate knock-out tank located outside the blower station. Collected LFG is routed through the blower station, past a Rosemont 3095 transmitter and Mass Probar Flowmeter, to an Caterpillar 3520 internal combustion (IC) engine which generates electricity which is utilized on-site and sold back to the grid.

1.2 LEVEL OF ASSURANCE

SCS adheres to the ISO 14064-3:2006 concept of two levels of assurance that a GHG verification process can provide; “reasonable,” and “limited.” A “reasonable” level of assurance provides a reasonable, but not absolute, level of assurance that the Project's GHG assertions are

1. Materially¹ correct and a fair representation of the GHG data and information, and
2. Prepared in accordance with the Reserve’s Landfill Project Reporting Protocol (LPRP).

A “limited” level of assurance provides a more limited/“qualified” level of assurance as compared to a reasonable level of assurance due to less emphasis on detailed GHG data testing and supporting information.

Timberline is seeking a level of assurance in the verification process that is consistent with the requirements of the Reserve. In accordance with these requirements, in order for SCS to verify

¹ Under CCAR, materiality is defined as a discrepancy of overall reported emissions (both direct and indirect) that differs from the verifier’s estimated emissions by more than 5%.

Timberline's GHG emission reductions assertions, a sample of the report data must be free of material misstatement. This constitutes a "reasonable level of assurance."

1.3 OBJECTIVES

The objective of this verification report is to establish the Project's conformance with applicable verification criteria, including principles and requirements of relevant standards and the GHG program within the scope of the verification as outlined below.

1.4 SCOPE OF VERIFICATION PROCESS

The scope of this project encompasses the verification of Timberline's October 8, through December 31, 2008 Reserve-reported GHG emission reductions, which include the following components:

- Geographic boundary – U.S. emission reductions only
- Project Start Date – October 2008
- Additionality
 - Performance Standard Test
 - The Regulatory Test
- GHG Sources
 - Indirect emissions
 - purchased/consumed electricity
 - Direct emissions
 - biogas from the Hernando County landfill
- Time period – Calendar year 2008

1.5 VERIFICATION CRITERIA

Criteria against which the verification assessments were undertaken are:

- ISO 14064-3:2006
- Reserve, formerly known as the California Climate Action Registry (CCAR), General Reporting Protocol version 3.1, January 2008 (GRP)
- Reserve Landfill Project Reporting Protocol version 2.0 November 2008 (LPRP)
- Reserve General Verification Protocol version 3.0 August 2008 (GVP)
- Reserve LPVP version 2.0

1.5.1 Materiality

In accordance with the required level of assurance, the needs of Timberline, and Reserves LPVP, a materiality threshold of 5% will be applied to this verification project. Any misstatement greater than 5% will be considered material.

1.6 VERIFICATION CYCLE

Timberline has requested verification of their 2008 emission reductions. Verification of the 2008 emissions reductions will put Timberline into the first year of reporting. The Reserve has a ten-year emission reductions reporting allowance for projects. The Reserve requires a full review of emission reductions, management systems, and verification of emission reductions annually.

2.0 PRE-VERIFICATION ACTIVITIES

2.1 CONFLICT OF INTEREST DETERMINATION

The GVP requires that the Reserve make a determination of whether or not a conflict of interest (COI) exists between the verifier and the participant. This is done in order to ensure an objective review of a participant's AER by the verifier. In accordance with these requirements, on March 9, 2009 *Project Form: Notification of Planned Verification Activities and Request for Evaluation of Potential for Conflict of Interest between Verifier and Project Developer* (COI form) was submitted to the Reserve.

On March 12, 2009, SCS received a COI determination from the Reserve. The Reserve determined that there was no pre-existing relationship between SCS and Timberline, and that therefore the potential for COI was low. A copy of the submitted COI form and the COI determination letter has been posted to the Reserve's web site as a private document.

2.2 NOTIFICATION OF PLANNED VERIFICATION ACTIVITIES

The COI form submitted to the Reserve on March 9, 2009 also provides the Reserve with a notification of planned verification activities at least ten business days prior to the beginning of verification activities. The notification includes scheduling and site selection information. The intent of this requirement is to allow the Reserve the opportunity to accompany the verifier on the site visit.

In accordance with the LPVP, the notification of planned verification activities stated an intended date for the start of verification activities past March 23rd, the end of the 10-day notification period.

2.3 PROJECT DEFINITION

In accordance with the LPRP, only projects that meet the definition of a "GHG reduction project," as defined in the LPRP can be considered for GHG reduction credits with Reserve. A proposed "GHG reduction project" consists of the "installation of an LFG control system for capturing and destroying methane gas that commences operation on or after January 1, 2001."

As detailed in Section 1.1, the Project consists of a network of 16 LFG collection wells installed in the Hernando Landfill. These wells are interconnected by a header line, which is in-turn connected to a LFG control system comprised of a blower and LFG-fired IC engine with an output rating of 1,600 KW. The system was installed and brought online in 2008. Therefore, the Project meets the definition of a "GHG reduction project," per Reserve guidelines.

2.4 GAS RIGHTS DETERMINATION

In order to register GHG reductions with the Reserve, the ownership of the reductions must be established by clear and explicit title. On December 8, 2008, Timberline completed an Attestation of Title document clearly documenting Timberline's ownership of the gas rights to the LFG recovered from the Hernando County Landfill. Timberline uploaded the Attestation of Title document on to the Reserve Reporting Tool.

3.0 CORE VERIFICATION ACTIVITIES

In accordance with the LPVP, core verification activities are comprised of a four-step process by which Project GHG reduction assertions are subjected to risk assessment and data sampling efforts designed to ensure that the risk of a reporting error is addressed through appropriate sampling and review.

3.1 DETERMINATION OF PROJECT ELIGIBILITY

In order to register reduction projects with the Reserve, a project must meet three eligibility rules established by the reserve in the LPRP. The applicability of each of these rules to the Project is discussed below.

3.1.1 Eligibility Rule I - Location

Only GHG reductions associated with U.S.-based projects are eligible to register reductions with the reserve. Since the Project is entirely based in Hernando County, Florida, the Project meets this eligibility requirement.

3.1.2 Eligibility Rule II - Project Start Date

Only GHG reduction projects that commenced operation after January 1, 2001 are eligible to register reductions with the reserve. Since the Project was constructed and commenced operation in 2008, the Project meets this eligibility requirement.

3.1.3 Eligibility Rule III - Additionality

The Reserve only registers reductions that are "additional" to what would have occurred without implementation of the Project. The Reserve implemented the additionality test to ensure that projects that yield surplus GHG reductions are above and beyond what is considered "business-as-usual," also designated as the baseline scenario. Projects are considered additional if they can pass the following two tests:

- Performance Standard Test
- Regulatory Test

Each of these tests are discussed below.

3.1.3.1 Performance Standard Test

According to the LPRP, a project must be installing a landfill gas collection and destruction system in a landfill that is not required to do so by regulation. The EPA threshold for installation of a landfill gas collection and destruction system is the 50 mega gram per year (Mg/yr) threshold of New Source Performance Standards (NSPS) and emission guidelines (EG) regulations. The Hernando Landfill is under the 50 Mg/yr threshold and was not collecting and destructing any landfill gas prior to the implementation of the Project.

3.1.3.2 Regulatory Test

The Reserves subjects all projects to the Regulatory test to ensure that reductions achieved are done so by projects that would not have occurred in the baseline case due to federal, state, or local government regulations. As previously stated, the Hernando Landfill does not meet the federal NSPS or EG regulations, or the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation. In addition, there are no specific State of Florida or local regulations for the installation of a gas collection and destruction system.

3.2 IDENTIFICATION OF EMISSION SOURCES

3.2.1 Baseline Emissions

Prior to the construction of the Project, the Hernando Landfill did not have a GCCS, therefore the baseline scenario assumes that all uncontrolled methane (CH₄) emissions were released into the atmosphere, with the exception of the amount of methane that would have been oxidized by soil bacteria in the absence of the project.

3.2.2 GHG Assessment Boundary

In accordance with the Table 4.1 of the LPRP, the following GHG sources should be included in the calculation of net emissions reductions associated with a LFG collection and destruction system similar to the landfill gas to energy (LFGTE) system that constitutes the Project.

- LFG Collection System
 - Emissions resulting from fossil fuel derived energy used by compressors, blowers, gathering, and upgrade systems (CO₂ only)
- Internal Combustion (IC) Engine used for Electricity Generation
 - Emissions resulting from the destruction of LFG in the engine (uncombusted CH₄ pass-through)
 - Emissions resulting from the destruction of fossil fuel in the IC engine (uncombusted CH₄ emissions and all CO₂ emissions from fossil fuel).

Note that displacement of GHG emissions from fossil fuel destruction from electricity generated using LFG is not included in the GHG assessment boundary.

3.2.3 Project Emission Sources

Timberline identified the following emissions sources associated with the Project:

Table 1. 2008 Emissions Sources

GHG Source Category	GHG Source
LFG System	CO ₂ emissions associated with indirect electricity usage from blowers and system when engines are off-line.
Engine	CH ₄ emissions associated with un-destroyed LFG (based on engine destruction efficiency)

During the site visits, SCS confirmed that there are no additional emissions sources that exist for these facilities that were not included in the inventory. Note that no alternative fuels (e.g. natural gas) are utilized on-site. The IC engine is fueled exclusively from LFG).

3.2.4 GHG Gases Project Emissions

In accordance with the LPRP, Timberline has to report all emission that may occur or increase as a result of the project activity, and therefore must be deducted from the overall project reductions. Currently emitted GHG include CO₂, CH₄, and nitrous oxide (N₂O) from electricity usage as well as CH₄ emissions associated with the portion of LFG that is sent through the IC engine but not combusted. Note that the reserve has excluded N₂O emissions as a GHG source due to the limited amount and associated uncertainty in calculating these emissions. Thus, the Project emissions are limited to CO₂ and CH₄.

3.3 REVIEW OF GHG MANAGEMENT SYSTEMS AND ESTIMATION METHODOLOGIES

In accordance with the LPVP, SCS evaluated Timberline's methodologies and management systems for calculating the Project's emission reductions. This evaluation consisted of interviews with key personnel associated with reporting and calculation of the Project's GHG reductions, as well as an initial review of the Project's Monitoring Plan to evaluate its conformance to the requirements outlined in Section 6 of the LPRP.

The Monitoring Plan provided by Timberline provides a written account of the frequency of data acquisition, a record keeping plan, frequency of instrument calibration activities, as well as QA/QC provisions to ensure that meter calibration and data acquisition are carried out consistently.

Mr. Joe Collum, a supervisor technician with Timberline, is responsible for the day-to-day operation of the GCCS and LFGTE plant. Mr. Collum also collects and reports the monitoring data associated with the Project. Mr. Greg Tilden, president of Timberline, is responsible for QA/QC check of the data provided by Mr. Collum, as well as performing the calculations associated with the registration of GHG reductions from the Project.

During interviews and discussions with the above mentioned staff, both appeared to be knowledgeable with regard to their respective roles in the data acquisition and reporting processes.

Documentation of electricity usage, fuel consumption and other related activities are retained in a manner appropriate for accurate GHG reduction reporting and are outlined in the Monitoring Plan. Documentation is retained through spreadsheets, internal databases, invoicing databases, purchase records, and other similar methods. Timberline's current GHG management system is appropriate for the emissions reductions identified in each emission source category as well as for the GHGs reported.

Timberline used the default emission factors and standardized estimation methods in the LPRP when available.

3.4 VERIFICATION OF EMISSIONS ESTIMATES

3.4.1 Initial Verification Review

As part of our scope of services for this process, SCS conducted an initial verification review of Timberline's emissions reductions for 2008. The findings of our initial review were discussed with Mr. Greg Tilden of Timberline during telephone conversations in March and April of 2009. The initial review identified several material misstatements and some potential material misstatements.

In May and June, 2009, Timberline submitted an updated version of their Monitoring Plan and associated GHG reduction calculations. As such, this section addresses the final emissions report for Timberline.

SCS performed a complete emissions data review, combined with weighted GHG emissions risk assessment in order to ensure that no material emissions sources were excluded and that the risk of error is assessed and addressed through the appropriate sampling and review. During this assessment, SCS determined that the 2008 emission reductions of GHG as well as all of the emissions factors used were consistent with the LPRP.

3.4.2 Verification of Emissions Estimates

On March 23, 2009, SCS performed a site visit to the Timberline Hernando Landfill, LFGTE facility. The purpose of the on-site inspection was to ensure that the collection and destruction devices were installed and operated correctly, the Monitoring Plan was being properly implemented, and that all emission sources (e.g., facility, source, and fuel) were identified by Timberline and correctly deducted. Discussions of the emission reductions and sources identified by Timberline are presented below.

In addition, based on Timberline's identified emission sources, management systems, and corresponding risk profile of GHG emissions, SCS selected the following emissions estimates for verification review:

- Review of electricity usage data using 3rd party utility bills

- GHG reduction recalculation

A discussion of the verification process for each of these emissions sources is presented below.

3.4.2.1 Review of Electrical Records

SCS reviewed the Timberline's electricity data from 3rd party utility bills and internal Timberline databases and spreadsheets. The internal Timberline databases and spreadsheets are used to track monthly and annual utility expenses for each facility operated by Timberline and were reviewed by SCS for October through December 2008. In addition, individual electricity bills were reviewed for the project. From this information, SCS was able to verify the Timberline's utility records are consistent with the Timberline emissions calculations.

3.4.2.2 Review and Recalculation of GHG Emissions

Due to the period of GHG reductions associated with the Project (October 8 through December 31, 2008), in exceedance of the requirements of the LPVP, SCS re-calculated all of the GHG reductions and emissions associated with the Project. SCS preformed independent calculations of the Project's sources and reductions and compared the calculations to the emission levels reported by Timberline for the 2008 reporting period.

A comparison of the direct and indirect emission and the total emission reductions performed by SCS, with the original emissions totals as reported by Timberline was conducted. The net emission difference between SCS and Timberlines calculations were less than 5%. This comparison of emissions calculations is used to determine if there is a large difference (defined as greater than 5% difference of the total emissions) in calculations performed by SCS and Timberline.

3.5 IDENTIFICATION OF MATERIAL/IMMATERIAL MISSTATEMENTS

In accordance with the LPVP, for SCS to verify a GHG emission reduction report, a sample of data must be free of material misstatement. As defined by the Reserve, material misstatements may be comprised of:

- 1) Emissions sources that are not reported, i.e., missed in the participant's inventory;
- 2) Use of inappropriate emissions factors;
- 3) An identified discrepancy which results in a difference between the verifier and the participant's calculated total emission of more than 5%. Note that a difference is considered immaterial if this difference is less than 5%;
- 4) Record consistency (fuel use matches fuel purchased, etc.);
- 5) Exclusion of material GHG emissions;
- 6) Other issues/items identified by the verifier during verification process

SCS's total combined (indirect and direct) emissions were within 5% of Timberline's combined calculated emissions. From this information as well as other components of our review, it can be concluded that no material misstatements exist.

4.0 FINDINGS

Based on the verification activities conducted by SCS, it has been determined that Timberline's United States GHG emission reductions for the October 8, through December 31, 2008 reporting period are consistent with the project methodology, free of material misstatement, and can be considered to a reasonable level of assurance.

Table 2. 2008 Verified GHG Emission Reductions

Reporting Period: October 1 to December 31, 2008	
Baseline Emissions	7,888 tons CO ₂ e
Project Emissions	6 tons CO ₂ e
TOTAL	7,882 tons CO₂e