



Verification Report

Davis Landfill Gas Offset Project
Layton, UT
Reserve Project ID: CAR473

Reporting Period:

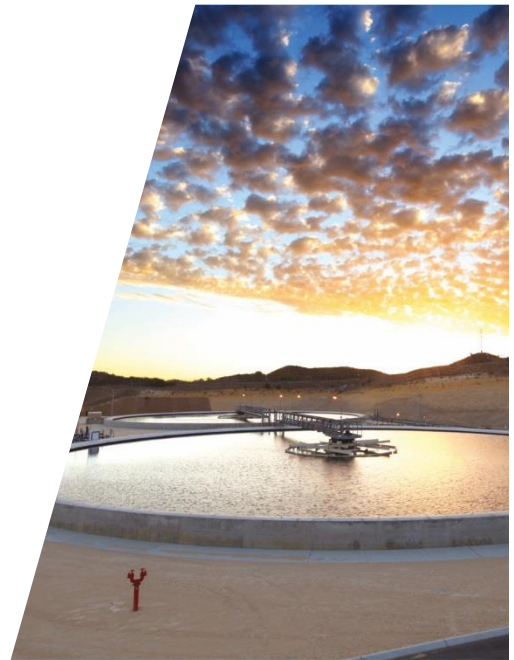
January 1, 2018 to December 31, 2018

Pursuant to:

Climate Action Reserve Voluntary Offset Program
Landfill Project Protocol

Presented to:

Wasatch Integrated Waste Management District
Element Markets





Executive Summary

GHD Services Inc. (GHD) was engaged by Element Markets (Account Holder Agent) and Wasatch Integrated Waste Management District (Project Developer or PD) to conduct greenhouse gas (GHG) offset verification services for the Davis Landfill Gas Offset Project (Project) under the Climate Action Reserve's (the Reserve) Voluntary Offset Program. The Project is located in Layton, Utah (Facility or Site). The Reserve Project ID for the Project is CAR473.

The GHG offset verification services were completed for the Project by GHD pursuant to the Reserve's Verification Program Manual, dated February 8, 2017 and in accordance with the Landfill Project Protocol Version 5.0 (Protocol), dated April 24, 2019.

This verification covers reported emission reductions claimed by the Project Developer during the reporting period of January 1, 2018 to December 31, 2018. In addition, the zero crediting period of January 1, 2012 to December 31, 2017 was verified. The first crediting period for the Project was January 18, 2002 to January 17, 2012. The second crediting period is January 18, 2012 to January 17, 2022.

For the January 1, 2018 to December 31, 2018 reporting period, the Project claimed 99403 tonnes CO₂e of GHG emission reductions in accordance with the Protocol. GHD completed the verification in accordance with the Protocol. The verification was conducted by GHD to a reasonable level of assurance. The verification criteria were selected per the Protocol and associated guidance documents. GHD determined, with a reasonable assurance, that the reported emission reductions are free of offset material misstatement and result in the issuance of a Positive Offset Verification Statement for the emission reductions.



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1. Introduction

GHD Services Inc. (GHD) was engaged by Element Markets (Account Holder Agent) and Wasatch Integrated Waste Management District (Project Developer or PD) to conduct greenhouse gas (GHG) offset verification services for the Davis Landfill Gas Offset Project (Project) under the Climate Action Reserve's (the Reserve) Voluntary Offset Program. The Project is located in Layton, Utah (Facility or Site). The Reserve Project ID for the Project is CAR473.

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2. Verification Procedures and Methodology

2.1 Verification Objective

The objective of the verification is to provide Element Markets and the Reserve with an opinion on whether the Project's reporting period contains any material discrepancies and whether the Climate Reserve Tonnes (CRTs) were determined in accordance with the Reserve requirements detailed in the Protocol and Program Manual

2.2 Verification Standards and Criteria

GHD adhered to the requirements outlined in the followings documents as verification criteria:

- ISO 14064-2:2006 Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements, ISO, March 2006 (ISO 14064-2)
- ISO 14064-3:2006 Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions, ISO, March 2006 (ISO 14064-3)
- ISO 14065:2013 – Greenhouse Gases – Requirements for greenhouse gas validation and Verification Bodies for use in accreditation or other forms of recognition
- Verification Program Manual, Climate Action Reserve, dated February 8, 2017.
- Verification Program Manual Summary of Changes, Climate Action Reserve, dated February 8, 2017.
- Program Manual, Climate Action Reserve, dated November 12, 2019.
- Program Manual Summary of Changes, Climate Action Reserve, dated November 12, 2019.



- Landfill Project Protocol Version 5.0 Climate Action Reserve, dated April 24, 2019.

2.3 Verification Team

2.3.1 Roles and Responsibilities

Lead Verifier – Michelle Hirst. – Ms. Hirst led the verification and was responsible for development of the verification plan. Ms. Hirst reviewed the risk assessment, recalculation of raw data, data management and draft findings. Ms. Hirst prepared and signed the verification statement and verification report. Ms. Hirst conducted a Site visit of the facility.

Verifier – Callie Churchill, B.Eng. – Ms. Churchill developed and revised the verification plan and sample plan, developed a risk assessment, recalculated raw data, reviewed management of data quality and prepared draft findings.

Senior Internal Reviewer – Jason Clarke, P.Eng. – Mr. Clarke conducted a peer review of the verification plan, risk assessment, verification report, and findings.

2.3.2 Team Member Qualifications

The team member qualifications are detailed below.

Michelle Hirst	Verification Team Role: Lead Verifier
Professional Summary Ms. Hirst holds a Master of Science in Environmental Governance from the Albert-Ludwig Universität in Germany and a Bachelor of Environmental Science (Hons.) from The University of Newcastle in Australia. Ms. Hirst has held roles in greenhouse gas teams in Germany, Canada, and the USA. Ms. Hirst has over 8-years of experience preparing emission reports, as well as verifying offset projects and emission reports. Her capabilities have involved verifying fugitive emissions, ozone depleting substances, forestry, mine methane capture, and livestock offset projects under the ARB, Climate Action Reserve (CAR), American Carbon Registry (ACR), and Verra (formerly Verified Carbon Standard), as well as verifying emission reports submitted under the British Columbia (BC) Reporting Regulation, Alberta Environment and Parks (AEP) Specified Gas Emitters Regulation (SGER), and Ontario Regulation (O.Reg.) 390/18 in Canada, and corporate emission reports submitted under the Global Reporting Initiative. Ms. Hirst is an ARB accredited Lead Verifier and Offset Project Specialist for livestock, mine methane capture and ODS projects, and a CAR accredited Lead Verifier and Landfill Project Specialist. In addition, Ms. Hirst is accredited by the Climate Action Reserve as a Team Leader in the Climate Forward program.	

Callie Churchill	Verification Team Role: Verifier
Professional Summary Ms. Churchill is a Junior Engineer at GHD and graduated from the University of Guelph with a Bachelor's Degree in Environmental Engineering. Ms. Churchill has been with GHD since 2016. Ms. Churchill has greenhouse gas validation and verification experience under the Alberta Environment and Parks Specified Gas Reporting Regulation, Ontario Regulation 390/18, the British Columbia Reporting Regulation, the Alberta Emissions Offset Registry, the California Air Resources Board, and the UNFCCC Clean Development Mechanism. Ms. Churchill has been involved in the preparation of verification plans, sampling plans, calculation workbooks, verification reports, and findings assessments for the projects.	



Jason Clarke

Role: Senior Internal Reviewer

Professional Summary | Mr. Clarke is a Professional Engineer registered in Ontario and has been with GHD since 2012. Mr. Clarke has practical and facility-specific experience associated with a range of greenhouse gas (GHG) validation and verification activities. Mr. Clarke is also Lead Verifier for the verification of a variety of Ontario based facilities under O. Reg. 452/09 and 390/18. Further, Mr. Clarke has been a validation/verification team member for a variety of GHG Validation and Verification projects registered under ANSI and UNFCCC Clean Development Mechanism (CDM). Mr. Clarke has been involved in the preparation of GHG Validation and Verification plans, issues logs, draft and final validation/verification reports, and findings assessments for various GHG projects associated with the Ontario Ministry of the Environment and Parks (MECP), ANSI, TCR, Massachusetts Department of Environmental Protection (MassDEP), Verra (VCS), and the UNFCCC CDM. Jason also has experience with the internal and external auditing related to GHG Verification and Validation projects in Ontario, Quebec, Alberta, British Columbia, and Massachusetts.

Mr. Clarke is an ARB accredited Lead Verifier and Offset Project Specialist for livestock and ODS projects, and a CAR accredited Lead Verifier and Landfill Project Specialist. In addition, Mr. Clarke is a CAR accredited Team Leader under the Climate Forward program.

2.4 Verification Methodology

2.4.1 Notification of Verification Activities and COI Form

GHD submitted the Notification of Verification Activities and Request for Evaluation for Potential Conflict of Interest (NOVA/COI) form to the Reserve Project Database on August 1, 2019. Approval from the Reserve for verification activities to proceed was provided on August 1, 2019.

2.4.2 Verification Plan and Project Kick-Off

GHD prepared and submitted the Verification Plan to the Project Developer and Account Holder Agent on August 6, 2019.

The kick off call was held on August 7, 2019 and attended by Julia Guarino (Account Holder Agent), Bill Reynolds (Account Holder Agent), Preston Lee (Project Developer), Jesse Simonson (Project Developer), Callie Churchill (GHD), and Michelle Hirst (GHD).

2.4.3 Document Review

The GHD Project Team's document review during the review process included but was not limited to, an evaluation of whether or not:

- The documentation is complete and comprehensive and follows the structure and criteria given in the Program Manual, Protocol, and its associated guidance.
- The methodologies are justified and appropriate.
- The assumptions behind the inventory are conservative and appropriate.
- The GHG emission calculations are appropriate and use conservative assumptions for estimating GHG emissions.
- The GHG information system and its controls are sufficiently robust to minimize the potential for errors, omissions, or misrepresentations
- The Facility GHG calculations are justified and appropriate.



2.4.4 Site Visit

A Site visit was conducted by Michelle Hirst of GHD on August 28, 2019. During the Site visit, GHD interviewed Project personnel involved in the development of the Project Design Document (PDD), witnessed the Project's operations, and inspected data management systems. The following personnel were present at all times during the site visit: Julia Guarino (Account Holder Agent), Preston Lee (Project Developer), and Michelle Hirst (GHD).

2.4.5 Senior Internal Review

GHD's Senior Internal Reviewer reviewed the Verification Report, Verification Statement, and the List of Findings prior to issuing the Final Verification Report and Verification Statement to the PD or the Reserve.

2.5 Level of Assurance

GHD completed the verification to a reasonable level of assurance.

2.6 Materiality Threshold

Per the Verification Program Manual, *"A materiality threshold is used to assess an error, omission, or misstatement that may impact the GHG assertion made by a project developer. This threshold is also known as the "minimum quality standard" and differentiates those errors, omissions, or misstatements that are considered by the Reserve to be significant from those that are insignificant."*

The materiality threshold has both a quantitative and qualitative aspect, as outlined below.

2.6.1 Quantitative Materiality Threshold

Table 2.1 below outlines the quantitative materiality thresholds.

Table 2.1 Quantitative Materiality Threshold

CRTs registered over a 12-month period	Required accuracy level
≤25,000	>95%
>25,000	>97%
>100,000	>99%

The Project falls into the first category outlined above (>25,000CRTs) therefore the required accuracy level for this verification is greater than 97 percent.

Percent error is defined by the following:

$$\% \text{ Error} = \text{abs}\left(\frac{\text{Stated Reductions} - \text{Verified Reductions}}{\text{Verified Reductions}}\right) \times 100$$

The accuracy level is defined by the following:

$$\text{Accuracy} = 100\% - \% \text{Error}$$



These equations will be utilized below in the quantification of the accuracy level of the verification to determine if the Project meets the materiality threshold and be issued a positive Verification Statement.

2.6.2 Qualitative Materiality Threshold

Per the Verification Program Manual, *“A qualitative non-conformance occurs when a prescriptive protocol requirement (e.g., metering, monitoring, management systems, record-keeping, etc.) is not met.”* and *“A prescriptive requirement is defined as any specific guidance mandated by the protocol that does not allow for deviation, variance or verifier professional judgement.”*

All qualitative non-conformances must be corrected for GHD to be able to issue a positive Verification Statement.

3. Project Description

GHD understands Element Markets is the Account Holder Agent, and Wasatch Integrated Waste Management District (WIWMD) is the Project Developer. The Project utilizes the Reserve's *Landfill Project Reporting Protocol, Version 5.0* (April 24, 2019). GHD understands that this reporting period the first reporting period under Version 5.0 of the Protocol.

A landfill gas (LFG) collection and control system (GCCS) was installed at this Project location in 2002 for the initial crediting period. For the reporting period, the GCCS consists of twenty-three (23) vertical LFG extraction wells, thirty-one (31) horizontal LFG extraction wells, and seven (7) soil vapor extraction wells. The Project achieves emission reductions through the collection and destruction of methane in LFG in either the three combustion engines off-site or the enclosed flare on-site. Both types of destruction devices convert methane to carbon dioxide through the combustion process, thereby preventing the release of methane to the atmosphere. The Project is not a bioreactor.

No pre-project collection or destruction of LFG/methane occurred at the Site.

4. Eligibility

The following sections outline how the Project meets the eligibility requirements of the Protocol.

4.1 Location

The Project landfill is located in Layton, Utah, United States, and therefore eligible under the Protocol. GHD verified the location during the Site Visit on August 28, 2019.

4.2 Project Start Date

Methane was first destroyed in a Project device on January 18, 2002. GHD confirmed this date by the review of the Certificate of Final Acceptance from HDR Design-Build, Inc. which states the final completion date of January 18, 2002. The Project start date is January 18, 2002, within the 45-days from the commencement of methane destruction required by the Protocol.



4.3 Project Crediting Period

This is the second crediting period for the Project. The first crediting period was January 18, 2002 to January 17, 2012. The second crediting period is January 18, 2012 to January 17, 2022. GHD confirmed the start date of the Project is the first date of the first crediting period (January 18, 2002).

The Project was eligible for a second crediting period under the Protocol because it meets the performance standard test in the most current version of the Protocol at that time, applied as of the original project start date. The PD elected to take a zero-credit reporting period for the period for which continuous reporting was not maintained.

4.4 Additionality

The following sections demonstrate that GHG reductions are additional to what would have occurred in the absence of a carbon offset market.

4.4.1 The Performance Standard Test

Practice Threshold

The Project involves the following project activity:

- Installation of a landfill gas collection system and a new qualifying destruction device at an eligible landfill where landfill gas has never been collected and destroyed prior to the Project start date.

4.4.2 The Legal Requirement Test

Several United States Environmental Protection Agency (EPA) regulations for municipal solid waste (MSW) landfills that impact eligibility on Projects, including the following:

- New Source Performance Standards (NSPS) for MSW Landfills, codified in 40 CFR 60 subpart WWW – Targets landfills that commenced construction or made modifications after May 1991
- New Source Performance Standards (NSPS) for MSW Landfills, codified in 40 CFR 60 subpart XXX – Targets landfills that commenced construction, reconstruction, or modification after July 17, 2014
- Emission Guidelines (EG) for MSW Landfills, codified in 40 CFR 60 subpart Cc. – Targets existing landfills that commenced construction before May 30, 1991, but accepted waste after November 8, 1987
- The National Emission Standards for Hazardous Air Pollutants (NESHAP), codified in 40 CFR 63 subpart AAAA – Regulates new and existing landfills

GHD reviewed the 1-Year (2019) non-methane organic compounds (NMOC) Emission Estimate Report for the Davis County Landfill per Utah Air Rules R307-221 and Federal Regulations 40 CFR Part 60, Subpart XXX, Standards of Performance for Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification After July 17, 2014 Section 60.767(b)(1)(ii). GHD confirmed the projected 2019 NMOC emissions for the site are below the 34 megagrams (Mg) per year threshold and therefore is in compliance with Subpart WWW and XXX,



and a LFGCS is not required to be installed and operating. Therefore, the Site meets the legal requirement test.

4.5 Regulatory Compliance

GHD has reviewed the Project Developer's Attestation of Regulatory Compliance for the reporting period, which was signed by the PD on May 30, 2019. GHD also reviewed the Attestation of Title and Attestation of Voluntary Implementation for the reporting period, signed on May 30, 2019 and May 30, 2019, respectively.

GHD confirms that the Attestation of Regulatory Compliance, Attestation of Title, and Attestation of Voluntary Implementation have been completed correctly for the reporting period January 1, 2018 to December 31, 2018, and signed by a representative from WIWMD.

The following permits were provided to GHD for review:

- Administrative Amendment to Approval Order DAQE-AN101290021-14 to Remove Energy Recovery Operations, Project Number N10129-0023, UT Department of Environmental Quality to Wasatch Integrated Waste Management District, dated August 9, 2018
- Wasatch Integrated Class I Landfill Permit Approval, UT Department of Environmental Quality to Wasatch Integrated Waste Management District, dated August 1, 2007 which expired on July 31, 2017.
- Wasatch Integrated Waste Management District – Davis Class I Landfill Permit Renewal Approval, UT Department of Environmental Quality to Wasatch Integrated Waste Management District, dated August 15, 2019 which expires on August 14, 2029.
- Title V Operating Permit #1100033002 dated November 24, 2014 which expired on October 29, 2018. The permit renewal provided allowed for this permit to extend past the expiration date of this permit until the renewal was completed.
- Title V Operating Permit #1100033003 dated July 9, 2019 which expires on July 9, 2024.
- UPDES General Multi-Sector Storm Water Permit for Discharges Associated with Industrial Activity, Permit No. UTR000700 issued December 28, 2007 and expired on December 31, 2017. A revised permit was provided with an expiration date of December 31, 2022.

In addition to confirming regulatory compliance at the state level, GHD performed a search of the US Environmental Protection Agency Enforcement and Compliance History Online (ECHO) database on September 5, 2019 and did not identify any regulatory non-compliances within the project boundary. Through these checks performed as well as discussions held during the site visit, GHD can confirm that the project met the regulatory compliance requirements.

4.6 Registration with other Registries

GHD performed an internet search of the American Carbon Registry (ACR), the Reserve, the Verified Carbon Standard (VCS), the Gold Standard (GS), and the Social Carbon project databases, to confirm that the Project is not currently registered in any other carbon offset registry or program. GHD found that the project was previously registered with the Reserve, the current reporting period



of January 1, 2018 to December 31, 2018 is the first reporting period within the second crediting period.

5. Conformance with the Protocol

5.1 Zero-Credit Reporting Period Verification

During the zero-credit reporting period, the Project is not required to conform to the Protocol's monitoring and QA/QC procedures, however it must be verified that project emissions were less than baseline emissions during the zero-credit reporting period. GHD reviewed Project baseline documentation and calculations for the zero-credit reporting period, and determined that for the zero-credit reporting period of January 18, 2012 to December 31, 2017 the project emissions were less than baseline emissions.

5.2 GHG Assessment Boundary

GHD understands the GHG assessment boundary for the Project must conform to Table 4.1 of the Protocol. During the site visit and the document review, GHD confirmed that all sources, sinks, and reservoirs included in Table 4.1 of the Protocol were accounted for and quantified in the GHG emission reduction calculations. GHD also reviewed the Project documentation and calculations for the zero-credit reporting period.

A portion of the Project is a direct use Project, as LFG is sent off-Site to third-party engines for destruction. GHD confirmed there is a direct use agreement in place between the Project Developer and the end user of the landfill gas, and that a legally binding mechanism was included in the agreement language to assure that the offset credits will not be double counted. Further, GHD reviewed the Landfill Gas Purchase Agreement and it states that Wasatch Energy Systems retains the rights to any greenhouse gas credits generated by the destruction of the LFG and exclusive rights to any other remaining environmental credits as a result of this Project.

5.3 Quantifying GHG Emission Reductions

5.3.1 Baseline Emissions

Baseline emissions include the following:

- Emissions from waste breakdown in landfill (CH₄)
- Emissions from project LFG flare destruction – flare (calculated in reference to destruction efficiency) (CH₄)
- Emissions from project LFG pipeline or other NG end-use – engine (calculated in reference to destruction efficiency) (CH₄)

Table 5.1 below outlines the calculation parameters used in the calculation of the baseline emissions.



Table 5.1 Baseline Calculation Parameters

Calculation Parameters	Value Applied	Justification
DF Discount Factor	None	Continuous monitoring equipment, per the Protocol
Oxidation Discount Factor	0.1	No synthetic liner, per the Protocol
Engines (3) (Off-Site) Jenbacher Engine Model #J320 CAT Engine Model #3516 CAT Engine Model #3512	0.936	Per the Protocol
Enclosed Flare	0.995	Per the Protocol

5.3.2 Project Emissions

Project emissions include the following:

- Emissions from gas collection system (propane and electricity) (CO₂e)

GHD confirmed the consumption values were appropriate through review of invoices and internal data management, and ensured the calculations were performed in accordance with the Protocol.

5.4 Project Monitoring

GHD has reviewed the Project Developer's PDD which outlines the monitoring and reporting responsibilities for the Project.

LFG flow to the destruction devices is continuously monitored (every ten (10) minutes to the flare, and every fifteen (15) minutes to the engines). Temperature data is measured continuously by a thermocouple on the flare. Flow data is entered into the Programmable Logic Controller (PLC) and received by the Ignition SCADA system. The SCADA system holds a Structured Query Language (SQL). The data is totalized each day and downloaded weekly to create daily total reports.

Methane is measured continuously. The LFG is measured using an infrared absorption technique. Information is logged by the PLC and retrieved by SCADA to create a database in SQL to generate reports.

Electricity generation by the engines is measured continuously.

5.4.1 Monitoring Requirements

The Project Proponent collects the following monitoring data for the Site pursuant to Table 6.1 of the Protocol. Calculated or reference parameters specified in Table 6.1 of the Protocol were determined and used at the frequency specified based on operating data records. Please refer to Table 5.2 below for a summary of instrument monitoring.



Table 5.2 Instrument Monitoring Requirements

Instrument	Measurement Frequency	Measurement Temperature and Pressure	Operating Parameters
Flare Flow Meter	Measured continuously, recorded every 10 minutes	60°F and 1 atmosphere (atm)	Thermocouple readings >500°F
Engines Flow Meter	Measured continuously, recorded every 15 minutes	60°F and 1 atmosphere (atm)	Engine output is used as proof of operation
Methane Analyzer	Measured continuously (10 minutes for flare and 15 minutes for engines)	N/A	N/A

5.4.2 Instrument QA/QC

Table 5.3 outlines the monitoring instruments for the project, the model and serial numbers, the relevant dates of manufacturer calibrations, and the field checks performed on the instruments throughout the reporting period.

Table 5.3 Instrument QA/QC

Instrument	Model and Serial No.	Date of Calibration	Field Checks
Flare Flow Meter	S&S MFG Inc. 1495 ISO 5157 Orifice Plate Flow Meter Model #4150-P (Rosemount 3095 Transmitter) Serial No. 0287165	Not calibrated within the last five (5) years or as specified by the manufacturer. This is a nonconformance.	Not cleaned and inspected quarterly. This is a non-conformance. Not field checked for calibration accuracy by a third party technician (percent drift recorded) at the end of, but no more than two months prior to or after, the end of the reporting period. This is a non-conformance.
Engines Flow Meter	Oripac Orifice Plate Flow Meter Model #4150-P (Rosemount 3095 Transmitter) Serial No. 0120832	Not calibrated within the last five (5) years or as specified by the manufacturer. This is a nonconformance.	Not cleaned and inspected quarterly. This is a non-conformance. Not field checked for calibration accuracy by a third party technician (percent drift recorded) at the end of, but no more than two months prior to or after, the end of the reporting period. This is a non-conformance.



Table 5.3 Instrument QA/QC

Instrument	Model and Serial No.	Date of Calibration	Field Checks
Methane Analyzer	EcoChem Analytics Gas Monitor Model MC3 Serial No. 171	Calibrated August 2, 2017	Not cleaned and inspected quarterly. This is a non-conformance. Field checked for calibration accuracy by a third party WIWMD technician (not a third-party technician as required by the Protocol) (percent drift recorded) at the end of, but no more than two months prior to or after, the end of the reporting period. This is a non-conformance.

GHD confirmed the information presented in Table 5.4 is consistent with the monitoring procedure presented in the Project Developer's PDD. CAR has approved Project Variances dated October 28, 2019 and November 13, 2019, for the non-conformances noted in Table 5.4. Further discussion and details regarding Project Variances are provided in Section 5.6.1 below.

5.4.3 Other Monitoring Requirements

GHD reviewed the PDD for the Project and did not identify any issues. Data is entered into the PLC and received by the Ignition SCADA system. The SCADA system holds a SQL. The data is totaled each day and downloaded weekly to create daily total reports. The Project Developer has confirmed all information required by the Protocol will be retained for a period of 10-years after the information is generated or 7-years after the last verification in accordance with the Protocol.

GHD confirmed the following personnel were properly trained for their roles:

- Chad Staples – WIWMD technician performed quarterly field checks on meters. Not a third-party technician, therefore a variance was required.
- Julia Guarino – Individual responsible for managing and reporting GHG emissions.

5.4.4 Data Substitution

No data substitution was performed during the reporting period.

However, there were several anomalies in the biogas flow data and kWh outputs, which were adjusted by Element Markets. GHD reviewed the methodology used to Element Markets and confirm that the approach used was conservative.

5.5 Calculation Review and Sampling

GHD developed a risk assessment to determine risk and magnitude of potential errors, omissions, or misrepresentations. The final risk assessment is presented as Table 5.4 below.



Table 5.4 Risk Assessment

Potential Risk Area	Percentage of Baseline or Project Emissions (%)	Risk Type (Inherent, Control, Detection)	Risk Level (High, Medium, Low)	Justification
Baseline Emissions				
LFG Destruction	100% of Baseline Emissions	Inherent	High	An on-site SCADA system records methane content and gas volume to the flare and engines each minute. Significant contributor to emission reductions. Therefore, the inherent risk has been set to high.
		Control	High	Meters are not calibrated regularly. Quarterly checks are not performed on the flow meters. The SCADA system is backed up daily. This leads to a high control risk related to data acquisition and control.
		Detection	Low	GHD reviewed SCADA data related to methane content and gas volumes for the entire monitoring period. There is a low risk that a material error would not be detected.



Potential Risk Area	Percentage of Baseline or Project Emissions (%)	Risk Type (Inherent, Control, Detection)	Risk Level (High, Medium, Low)	Justification
Project Emissions				
Fossil Fuel Consumption	0.05% of Project Emissions	Inherent	Medium	Fossil fuel consumption is estimated internally. Low magnitude source of emissions. Therefore, the inherent risk has been set to medium.
		Control	Medium	Fossil fuel consumption is estimated internally, therefore the control risk is medium.
		Detection	Low	GHD reviewed the fossil fuel consumption estimation, and defaults and emission factors used in the calculations. There is a low risk that a material error was not detected.
Electricity Consumption	99.95% of Project Emissions	Inherent	Medium	Electricity consumption is main source of Project emissions, therefore the inherent risk is medium.
		Control	Low	Electricity consumption is determined from third-party invoices, therefore the control risk is low.
		Detection	Low	GHD reviewed third-party invoices and all defaults and emission factors used in the calculations. There is a low risk that a material error was not detected.
Data Management				
Data Management Systems	N/A	Inherent	Medium	Baseline data is supplied by internal records/meters. Electricity consumption is determined via invoices. Propane consumption is estimated from internal records. This results in a medium inherent risk.



Potential Risk Area	Percentage of Baseline or Project Emissions (%)	Risk Type (Inherent, Control, Detection)	Risk Level (High, Medium, Low)	Justification
		Control	Medium	LFG flow and methane data is entered into the PLC and received by the Ignition SCADA system. The data is totalized each day and downloaded weekly to create daily total reports. Calibrations were not performed on the flow meters and gas analyzer, and field checks were not performed by third-party. Electricity invoices are provided by a third-party and fossil fuel usage internally recorded. The control risk is medium.
		Detection	Low	GHD reviewed all available data management data. There is a low risk that a material error was not detected.

GHD developed a Sampling Plan at the outset of the verification which determined the course of the verification. The final sampling plan is presented as Table 5.5 below.

Table 5.5 Sampling Plan

Data/Information Description	Percentage of Baseline or Project Emissions (%)	Data/Information Source	Collection Frequency	Sample size/Action
Detailed Process Overview	N/A	Process flow diagram for the Facility	N/A	- Reviewed Process Details - Reviewed during the Site Visit
Baseline Emissions				
LFG Destruction	100% of Baseline Emissions	SCADA system	Continuous and aggregated hourly and weekly	- Reviewed full year of data - Reviewed calibrations and QA/QC procedures for relevant monitoring equipment



Data/Information Description	Percentage of Baseline or Project Emissions (%)	Data/Information Source	Collection Frequency	Sample size/Action
Project Emissions				
Project Fossil Fuel Consumption	0.05% of Project Emissions	Propane consumption	Estimated by landfill management	Reviewed calculations for fossil fuel consumption and defaults and emission factors used
Project Electricity Consumption	99.95% of Project Emissions	Electricity consumption	Bills are compiled monthly	- Reviewed full year of electricity consumption data - Reviewed calculations for electricity consumption, default factors, and emission factors used
Back up of data acquisition systems	N/A	- General Data Management System - Controls and QA/QC procedures - Document retention	N/A	Reviewed frequency of data backup and interviewed Facility personnel
Data Acquisition and flow from meters to data collection/process monitoring system software to data historian	N/A	Facility	N/A	Reviewed data systems at Facility and interviewed Facility personnel
Previous Verification Report	N/A	Facility's previous Verification Report and associated calculations	N/A	Reviewed previous Verification Report and associated documentation
Compliance of PDD	N/A	PDD	N/A	Reviewed PDD
Accuracy	N/A	Flow and methane meters	As collected	Reviewed available calibration certificates and field checks

GHD performed a complete recalculation of the Project emission reductions based on the received data.



5.6 Findings and Basis of Opinion

5.6.1 Quantitative Materiality Threshold

Table 5.6 Project Developer GHG Reductions Estimation Table 5.6 and Table 5.7 below outline the Project Developer's and GHD's GHG Reductions Estimation, respectively.

Table 5.6 Project Developer GHG Reductions Estimation

Vintage	Baseline Emissions	Project Emissions	GHG Reductions/Removals (CRTs)
2018	101,003.9576	338.8623	100,665.0000

Table 5.7 GHD's GHG Reductions Estimation

Vintage	Baseline Emissions	Project Emissions	GHG Reductions/Removals (CRTs)
2018	100,331.0046	338.8628	99,992.1418

The required accuracy level for this verification is greater than 99 percent. Percent error is defined by the following:

$$\% \text{ Error} = \text{abs}\left(\frac{\text{Stated Reductions} - \text{Verified Reductions}}{\text{Verified Reductions}}\right) \times 100$$

The accuracy level is defined by the following:

$$\text{Accuracy} = 100\% - \% \text{ Error}$$

Based on GHD's verified reduction and the stated reductions, the percent error and accuracy level for the Project is as follows:

$$\% \text{ Error} = \text{abs}\left(\frac{99,403 - 98,643}{98,643}\right) \times 100$$

$$\text{Accuracy} = 100\% - 0.77\% = 99.22\%$$

Therefore the Project meets the quantitative materiality threshold and be issued a positive Verification Statement.

5.6.2 Qualitative Materiality Threshold

CAR provided a Variance Approval dated October 28, 2019 for the following:

- Missing factory calibrations for the flow meters in the last five (5) years as the devices have no manufacturer specifications for calibration frequency
- Lack of accuracy checks on the flow meters were not performed by a third-party
- Lack of records for cleaning and inspections

The Variance Approval dated October 28, 2019 contained the following conditions:



- The verifier reviews records of the calibrations performed on the flow meters in September 2019 to confirm that the devices were within +/-5% threshold for accuracy
- The verifier confirms that records of quarterly calibration accuracy checks until the end of September 2019, performed by site personnel, show no drifts in the flow meters outside of the +/- 5% threshold
- The verifier confirms that cleaning and inspections began to be recorded from June 27, 2019 onward
- The verifier confirms, for the 2019 reporting period, that a calibration accuracy check is performed by a third party within the last two months prior to or after the end of the 2019 reporting period
- The verifier confirms that new processes have been added to the monitoring plan for the project to comply with the QA/QC requirements set forth in Section 6.2 of the U.S. Landfill Project Protocol V5.0.

GHD confirmed the above conditions. GHD received documentation that the flow meters were checked by a third-party on September 12, 2019 with the % drift recorded.

In addition, CAR provided a Variance Approval dated November 13, 2019 for the following:

- Missing field checks for calibration accuracy by a third-party technician on the gas analyzer
- Lack of records for cleanings and inspections

The Variance Approval dated November 13, 2019 contained the following conditions:

- The verifier reviews records of the calibrations performed on the methane analyzer in August 2017 to confirm that the devices were within the +/-5% threshold for accuracy
- The verifier confirms that the available records of quarterly calibration accuracy checks, performed by site personnel, show no drifts in the flow meters outside of the +/-5% threshold
- The verifier confirms, for the 2019 reporting period, a calibration accuracy check is performed by a third party within the last two months prior to or after the end of the 2019 reporting period
- The verifier confirms that new processes have been added to the monitoring plan for the project to comply with the QA/QC requirements set forth in Section 6.2 of the U.S. Landfill Project Protocol V5.0.

GHD reviewed the above Variance Approvals and associated conditions and found no further issues. All conditions pertaining to the 2018 reporting period have been met.

5.6.3 Findings and Basis of Opinion

Based on the findings discussed above. GHD will be issuing a positive verification statement. In issuing a Positive Verification Statement, GHD asserts the following:

- The Project meets all eligibility requirements
- The Project was conducted in accordance with all monitoring and record-keeping requirements (with the exception of the non-conformances noted above, for which Variance Approvals were obtained)



- There are no existing material non-conformances or misstatements in the reported data

6. Verification Statement and Closing

For the January 1, 2018 to December 31, 2018 reporting period, the Project claimed 99,403 tonnes CO₂e of GHG reductions in accordance with the Protocol. GHD completed the verification in accordance with the Protocol. GHD completed the work to provide a reasonable level of assurance. The verification criteria were selected per the Protocol, and associated guidance documents. GHD determined with a reasonable assurance that the reported emission reductions are free of an offset material misstatement, and resulted Positive Offset Verification Statement for emission reductions.

The Offset Verification Statement will be submitted to the Reserve, and is provided as Appendix A.

All of Which is Respectfully Submitted,

GHD

A handwritten signature in black ink, appearing to read 'MHirst', written in a cursive style.

Michelle Hirst, Lead Verifier

A handwritten signature in blue ink, appearing to read 'Jason Clarke', written in a cursive style.

Jason Clarke, Senior Internal Reviewer

Appendices

Appendix A

Offset Verification Statement

**Climate Action Reserve ("Reserve")
Project Verification Statement ("Verification Statement")**

Project ID: CAR473

Project Name: Davis Landfill Gas Offset Project

Name of Verification Body: GHD Services, Inc.

Date Verification Report Issued: December 4, 2019

Emission Reductions/Removals Generated by Project:

Vintage Year	<u>2018</u>	Reductions/Removals (mtCO ₂ e)	<u>99,403</u>
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____

Verification Statement:

This is to state that, for the verification period from January 1, 2018 [beginning Month, Day, Year] to December 31, 2018 [ending Month, Day, Year], Wasatch Integrated Waste Management District's (the "Project Developer") project emission reductions/removals listed above for the aforementioned project:

☒ have been verified without qualification

☐ are unable to be verified

with reasonable assurance according to the Reserve's Landfill [type of project] Project Protocol Version 5.0, Program Manual, Verification Program Manual and all of the requirements of the Reserve program. In the case that the emission/reductions removals have been verified, the Project Developer has signed the applicable Reserve attestations for the GHG emission reductions/removals for which Climate Reserve Tonnes are to be issued.

Attestation

Lead Verifier: In signing this Verification Statement, I certify that the information contained herein is true, accurate and complete.

	<u>Michelle Hirst</u>	<u>December 4, 2019</u>
Lead Verifier, Signature	Print Name	Date

Senior Internal Reviewer: In signing this Verification Statement, I certify that the information contained herein is true, accurate and complete. I attest that I was not involved in the verification services documented in this Verification Statement, but have conducted an independent review of the verification services and findings of the verification team and concur with this Verification Statement.

	<u>Jason Clarke</u>	<u>December 4 2019</u>
Senior Internal Reviewer, Signature	Print Name	Date

Authorization

I authorize the above named verification body to submit this Verification Statement to the Climate Action Reserve on behalf of the Project Developer. I am a duly authorized signatory for my organization and have the legal authority to bind the Project Developer.

	<u>Nathan Rich</u>	<u>12/4/2019</u>
Project Developer, Signature	Print Name	Date



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Michelle Hirst
Michelle.Hirst@ghd.com
971.925.3746

www.ghd.com