



Maryland CO₂ Budget Trading Program
Offset Verifier Application for Accreditation

June 2015



1. Overview

An organization that intends to provide verification services for an offset Project Sponsor under the Maryland CO₂ Budget Trading Program must be accredited by the Maryland Department of the Environment. To apply for accreditation, a prospective verifier must submit to the Maryland Department of the Environment in accordance with these instructions a fully completed *Application for Accreditation Version 1.1* ("Accreditation Application"), including all forms and required attachments. Following these instructions will ensure that the Accreditation Application contains all necessary information and is submitted properly.

Each prospective verifier should review the CO₂ Budget Trading Program regulations at COMAR 26.09.03 that address offset projects, offset project verification, and the award of CO₂ offset allowances. Prospective verifiers should also review the offset application and submittal materials for the offset categories for which they seek to provide verification services. All offset application and submittal materials are available at www.mde.state.md.us.

2. Submission Instructions

Submit one (1) complete hardcopy original *Accreditation Application* and one (1) electronic copy in the form of a CD disk to the Maryland Department of the Environment at the location specified below. Submit hardcopies of forms requiring signatures as originally-signed copies and scan such signed forms for electronic submission. Facsimiles of the *Accreditation Application* are not acceptable under any circumstances.

Maryland Department of the Environment
Air Quality Planning Program, Offsets
1800 Washington Boulevard
Baltimore, MD 21230

The *Accreditation Application* has been created as a Microsoft Word document with editable fields. Enter information directly in the fields provided in the forms or submit an attachment with the information or documentation requested, as instructed. Include headers on all attachments indicating the form to which each is attached.

The applicant should save an electronic copy of the *Accreditation Application* for its file to serve as a reference for any necessary application remediation or updates.

3. Accreditation Application Forms

The Accreditation Application includes seven (7) forms:



- Form 1 – Contact Information
- Form 2 – Offset Categories
- Form 3 – Documentation of ANSI ISO14065 Accreditation
- Form 4 – Verification Team
- Form 5 – Work Product Sample
- Form 6 – Documentation of Professional Liability Insurance
- Form 7 – Attestations



Form 1: Contact Information

Name of Applicant (Organization):	Ruby Canyon Engineering, Inc.
Point-of-Contact:	Zach Eyler
Mail Address:	743 Horizon Ct. Suite 385 Grand Junction, CO 81506
Telephone Number:	970-241-9298
Fax Number:	970-256-1761
E-mail:	zeyler@rubycanyoneng.com

Describe the nature of the Applicant's core business or organization. Additionally, describe the structure of the Applicant's organization, including whether the entity is a sole proprietorship, partnership, limited partnership, limited liability company (LLC), limited liability partnership (LLP), corporation (for-profit), nonprofit corporation (not-for-profit), or cooperative. If a field below is not applicable or is unanswerable, respond with "NA".

Describe the Nature of the Applicant's Core Business or Organization and Organizational Structure:	Core business: Third party greenhouse gas validation/ verification. Organizational Structure: S-Corp
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Place of Incorporation:	Grand Junction, Colorado
Federal Tax Identification Number:	20-3644862
Dun & Bradstreet or DUNS Number:	614574619
Year Founded:	2005
Website URL:	http://www.rubycanyoneng.com/



Form 2: Offset Categories

Identify the offset project categories for which the Applicant seeks accreditation by checking the appropriate box(es) below.

Offset Project Category	Accreditation Sought
Landfill methane capture and destruction	<input checked="" type="checkbox"/>
Reduction in emissions of sulfur hexafluoride (SF ₆)	<input checked="" type="checkbox"/>
Sequestration of carbon due to afforestation	<input type="checkbox"/>
Sequestration of carbon due to improved forest management, reforestation, and/or avoided conversion	<input checked="" type="checkbox"/>
Reduction or avoidance of CO ₂ emissions from natural gas, oil, or propane end-use combustion due to end-use energy efficiency in the building sector	<input type="checkbox"/>
Avoided methane emissions from agriculture manure management operations	<input checked="" type="checkbox"/>



Form 3: Documentation of ANSI ISO 14065 Accreditation

Provide the following details of the Applicant's ANSI ISO 14065 accreditation in the fields below. Attach a copy of the certificate of accreditation. The attachment must include a header that identifies it as an attachment to Form 3.

ANSI Accreditation No.:

Date of Initial Accreditation:

Accreditation Valid Until:

Scope of ANSI Accreditation:

Has the Applicant's ANSI accreditation ever been suspended or withdrawn? If yes, please describe the grounds for suspension/withdrawal and the measures taken to become re-accredited:

Form 4: Verification Team

In the fields below, identify the Offset Project Category, Verification Team Leader(s), and Key Personnel that will provide verification services (add additional pages as required). In the organizational affiliation column, indicate the organization that employs the individual. If accreditation is being sought for more than one offset project category, provide a separate Form 4 for each offset project category for which accreditation is being sought.

Offset Project Category		
Landfill methane capture and destruction		
Verification Team		
Role	Name	Organizational Affiliation
Verification Team Leader:	Nina Pinette	Ruby Canyon Engineering
Verification Team Leader:	Phillip Cunningham	Ruby Canyon Engineering
Key Personnel:	Michael Coté	Ruby Canyon Engineering
Verification Team Leader:	Bonny Crews	Ruby Canyon Engineering
Verification Team Leader:	Zach Eyer	Ruby Canyon Engineering
Verification Team Leader:	Samantha Phillips	Ruby Canyon Engineering
Verification Team Leader:	Jessica Stavole-Carter	Ruby Canyon Engineering
Key Personnel:	Lynne Santos	Air Quality Associates

Provide as an attachment detailed resumes for all Verification Team Leaders(s) and Key Personnel. Resumes should include identification of any audit certification or registration programs under which the individual is accredited or certified, such as Professional Forester status.

If any of the individuals listed above are not employees of the Applicant, attach a signed copy of the contract or engagement letter between the individual and the Applicant.

Each attachment must include a header that identifies it as an attachment to Form 4.



Form 4: Verification Team

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Offset Project Category		
Reduction in emissions of sulfur hexafluoride (SF ₆)		
Verification Team		
Role	Name	Organizational Affiliation
Verification Team Leader:	Nina Pinette	Ruby Canyon Engineering
Verification Team Leader:	Phillip Cunningham	Ruby Canyon Engineering
Key Personnel:	Michael Coté	Ruby Canyon Engineering
Key Personnel:	Bonny Crews	Ruby Canyon Engineering
Verification Team Leader:	Zach Eyler	Ruby Canyon Engineering
Verification Team Leader:	Samantha Phillips	Ruby Canyon Engineering
Key Personnel:	Jessica Stavole-Carter	Ruby Canyon Engineering
Key Personnel:	Lynne Santos	Air Quality Associates

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Offset Project Category		
Sequestration of carbon due to improved forest management, reforestation, and/or avoided conversion		
Verification Team		
Role	Name	Organizational Affiliation
Verification Team Leader:	Zach Eyler	Ruby Canyon Engineering
Verification Team Leader:	Bonny Crews	Ruby Canyon Engineering
Key Personnel:	Tom Amesbury	Forester's Co-Op
Key Personnel:	Andrea Eggleton	Forester's Co-Op
Key Personnel:	Christian Eggleton	Forester's Co-Op

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Offset Project Category		
Avoided methane emissions from agriculture manure management operations		
Verification Team		
Role	Name	Organizational Affiliation
Verification Team Leader:	Nina Pinette	Ruby Canyon Engineering
Verification Team Leader:	Phillip Cunningham	Ruby Canyon Engineering
Key Personnel:	Michael Coté	Ruby Canyon Engineering
Verification Team Leader:	Bonny Crews	Ruby Canyon Engineering
Verification Team Leader:	Zach Eyer	Ruby Canyon Engineering
Verification Team Leader:	Samantha Phillips	Ruby Canyon Engineering
Key Personnel:	Jessica Stavole-Carter	Ruby Canyon Engineering
Key Personnel:	Lynne Santos	Air Quality Associates

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If any of the individuals listed above are not employees of the Applicant, attach a signed copy of the contract or engagement letter between the individual and the Applicant.

Each attachment must include a header that identifies it as an attachment to Form 4.



Form 5: Work Product Sample

Attach a sample of at least one relevant work product produced in whole or part by the Applicant. The sample must consist of a final report or other material provided to a client under contract. The sample work product submitted shall not contain any proprietary information. If the original work product contained proprietary information, the work sample may be submitted, provided proprietary information is redacted from the document. The attachment must include a header that identifies it as an attachment to Form 5.

Provide a description of the attached work sample(s) in the space provided below. If the work product was jointly produced by the Applicant and another entity, include in the description an explanation of the role of the Applicant in producing the work product.

1. Landfill methane capture and destruction (ANSI Project-Level Groups - Scope 6)
Climate Action Reserve #466 Dalton-Whitfield Landfill Project
Dalton-Whitfield Regional Solid Waste Management Authority September 9, 2016
June 1, 2015 – May 31, 2016 Reporting Period

2. Reduction in emissions of sulfur hexafluoride (SF6) (ANSI Project-Level Groups – Scope 2)
Climate Action Reserve # CAR974 – RemTec ODS Destruction Domestic Project #2c
Prepared for Reclamation Technologies Inc. January 11, 2013
November 27, 2012 – December 8, 2012 Reporting Period

3. Sequestration of carbon due to improved forest management, reforestation, and/or avoided conversion (ANSI Project-Level Groups - Scope 3)
Climate Action Reserve #683 - Blue Source - Francis Beidler Improved Forest Management Project
Prepared for Blue Source, LLC April 14, 2015
November 1, 2012 – August 31, 2013 Reporting Period
September 1, 2013 – August 31, 2014 Reporting Period
Ruby Canyon Engineering conducted all the lead verifier activities including conflict of interest assessment, risk assessment, documentation and calculation review, participation in the site visit, and issuance of the verification report.
Forester's CO-Op aided in the site visit and desktop review of the submitted project documents.

4. Avoided methane emissions from agriculture manure management operations (ANSI Project-Level Groups - Scope 5)
Climate Action Reserve # 441 George DeRuyter & Sons Dairy
Origin Climate Inc. June 5, 2015
January 1, 2014 - December 31, 2014 Reporting Period



Form 6: Documentation of Professional Liability Insurance

Provide documentation in the fields below of professional liability insurance held by the Applicant in an amount not less than one million U.S. dollars. Attach a copy of the insurance certificate and other documentation as may be required to document the relationship between a related entity that holds the insurance and the Applicant. The attachment(s) must include a header that identifies it as an attachment to Form 6.

Name of Insurer:

Policy Number:

Amount of Coverage (US\$):

Policy Expiry Date:

Deductibles (if any):

Exclusions (if any):

Name of the entity under which the insurance is held:

If the insurance coverage is held under the name of a related entity, describe the financial relationship between the Applicant and the related entity and attach supporting documentation:



Form 7: Attestations

The following attestations must be made.

The undersigned Applicant acknowledges and will comply with and be bound by the following:

1. The undersigned Applicant shall provide any verification services to offset Project Sponsors in accordance with COMAR 26.09.03.
2. The undersigned Applicant shall use suitably qualified personnel and devote and employ sufficient resources and labor to ensure that high-quality verification services are provided.
3. The undersigned Applicant shall ensure that for any verification services undertaken by the Applicant:
 - (a) a Verification Team Leader identified in the *Accreditation Application* directs, supervises, and leads the undertaking of those services and signs all written reports or opinions to be provided by the accredited verifier;
 - (b) verification services are undertaken by a Team Leader and Key Personnel identified in the application for accreditation; and
 - (c) any other staff, employees, or contractors used by the accredited verifier in connection with verification services:
 - (i) are used only to assist any Verification Team Leader and Key Personnel identified in the *Accreditation Application*; and
 - (ii) shall work under the direct control, supervision, and direction of a Verification Team Leader and Key Personnel identified in the *Accreditation Application*.
4. The undersigned Applicant shall ensure that each Verification Team Leader and Key Personnel identified in the *Accreditation Application* maintain the qualifications identified in the *Accreditation Application*, including any identified qualifications, licenses, and certifications.
5. The undersigned Applicant shall ensure that each Verification Team Leader and Key Personnel identified in the *Accreditation Application* undertake and complete any training as may be required by the Maryland Department of the Environment to demonstrate competence in the provision of verification services for individual offset categories specified at COMAR 26.09.03.08B(7).
6. The undersigned Applicant acknowledges that the Maryland Department of the Environment or its agent may conduct a performance review of an accredited verifier to evaluate whether the accredited verifier remains qualified and is providing verification services in accordance with the requirements of COMAR 26.09.03. As part of a performance review, the Applicant will provide access to any reports, documents, or other information related to the provision of verification services by the Applicant pursuant to COMAR 26.09.03 required by the Maryland Department of the Environment or its agent.



7. The undersigned Applicant acknowledges that prior to engaging in verification services for an offset Project Sponsor, the Applicant shall disclose all relevant information to the Maryland Department of the Environment to allow for an evaluation of potential conflict of interest with respect to an offset project, offset project developer, offset Project Sponsor or project sponsor organization, or any other party with a direct or indirect financial interest in an offset project that is seeking or has been granted approval of a Consistency Application under a state CO₂ Budget Trading Program, including information concerning the Applicant's ownership, past and current clients, related entities, as well as any other facts or circumstances that have the potential to create a conflict of interest.
8. The undersigned Applicant acknowledges that it shall have an ongoing obligation to disclose to the Maryland Department of the Environment any facts or circumstances that may give rise to a conflict of interest with respect to an offset project, offset project developer, offset Project Sponsor or project sponsor organization, or any other party with a direct or indirect financial interest in an offset project.
9. The undersigned Applicant acknowledges that it shall have an ongoing obligation to maintain one million U.S. dollars of professional liability insurance throughout the period for which it is accredited.
10. The undersigned Applicant acknowledges that the Maryland Department of the Environment may revoke the accreditation of a verifier at any time, for any of the following:
 - (a) failure to fully disclose any issues that may lead to a conflict of interest situation with respect to an offset project, offset project developer, or offset Project Sponsor;
 - (b) the verifier is no longer qualified due to changes in staffing or other criteria;
 - (c) negligence or neglect of responsibilities pursuant to the requirements of COMAR 26.09.03; and
 - (d) intentional misrepresentation of data or other intentional fraud.



I certify that the undersigned is authorized to make these attestations on behalf of the Applicant. I certify that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete.

Zach Eyer
Signature of Authorized Representative

6/30/2017
Date

ZACH EYLER
Name in Print

VICE PRESIDENT
Title

Sworn and subscribed before me on this 30 day of June, 2017

THERESE LUELLEN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20014010801
MY COMMISSION EXPIRES 04/05/2021

Therese Luellen
Notary Public

CERTIFICATE of ACCREDITATION

GREENHOUSE GAS VALIDATION AND VERIFICATION

The American National Standards Institute hereby affirms that

Ruby Canyon Engineering Inc.

743 Horizon Court, Suite 385, Grand Junction, CO 85106, USA

ACCREDITATION ID# 0818

meets the ANSI accreditation program requirements and those set forth in
ISO 14065:2013 Greenhouse Gases - Requirements for greenhouse gas validation and verification bodies
for use in accreditation or other forms of recognition

for GHG programs* that recognize ANSI accreditation within the following

SCOPE OF ACCREDITATION

(Please see page 2)

*Visit www.ansi.org for GHG programs recognizing ANSI accreditation



ANSI VICE PRESIDENT, ACCREDITATION SERVICES

2018-10-09
VALID THROUGH



GREENHOUSE GAS VALIDATION AND VERIFICATION

Ruby Canyon Engineering Inc.

ACCREDITATION ID# 0818

SCOPE OF ACCREDITATION

Verification of assertions related to GHG emissions and removals at the organizational level

GRANTED 2009-10-09:

- 01. General
- 02. Manufacturing
- 03. Power Generation
- 05. Mining and Mineral Production
- 06. Metals Production
- 07. Chemical Production
- 09. Waste

GRANTED 2014-03-31:

- 04. Electric Power Transactions

GRANTED 2015-05-04:

- 10. Agriculture, Forestry and Other Land Use (AFOLU)

GRANTED 2017-04-24:

- 08. Oil and gas extraction, production and refining including petrochemicals

Verification of assertions related to GHG emission reductions and removals at the project level

GRANTED 2009-10-09:

- 05. Livestock
- 06. Waste Handling and Disposal

GRANTED 2010-12-06:

- 01. GHG emission reductions from fuel combustion
- 02. GHG emission reductions from industrial processes (non-combustion, chemical reaction, fugitive and other)

GRANTED 2015-05-04:

- 03. Land Use and Forestry

Validation of assertions related to GHG emission reductions and removals at the project level

GRANTED 2011-10-06:

- 01. GHG emission reductions from fuel combustion
- 02. GHG emission reductions from industrial processes (non-combustion, chemical reaction, fugitive and other)

GRANTED 2012-01-06:

- 05. Livestock
- 06. Waste Handling and Disposal



743 Horizon Ct. Suite 385 - Grand Junction, CO 81506
(970) 241-9298 • (970) 256-7761 fax
www.rubycanyoneng.com

Nina Pinette

Staff Environmental Scientist

Summary

Nina Pinette is an environmental scientist at Ruby Canyon with experience in technical research, data collection and analysis, and report writing to qualifying greenhouse gas (GHG) emission reduction projects and organizational inventories. Her recent activities include work on carbon offset projects under both voluntary and compliance standards. Nina is versed in GHG emissions regulations in the U.S., Canada, and Mexico including the U.S. EPA's Mandatory GHG Reporting Rule; British Columbia's Greenhouse Gas Industrial Reporting and Control Act, Greenhouse Gas Emission Reporting Regulation, and Greenhouse Gas Emission Control Regulation; Ontario's Climate Change Mitigation and Low-Carbon Economy Act and Greenhouse Gas Emissions Reporting Regulation; California's AB 32; and Mexico's General Law on Climate Change and the National Emissions Registry (RENE) and its regulations. She has contributed to EPA white papers on coal mine methane and the EPA active coal mine methane and EPA abandoned coal mine methane inventories for 2009 and 2010 and has coauthored Project Descriptions for coal mine methane offset projects for the Voluntary Carbon Standard.

Nina is a team member for Ruby Canyon's GHG validation and verification work in U.S. and Canadian carbon markets. She is skilled in developing verification plans and sampling plans, conducting risk assessments, and interfacing with clients and registry personnel to resolve findings. She is a Lead Verifier for organizational verifications for the California Air Resources Board (ARB), British Columbia's Reporting Regulation, Ontario's Reporting Regulation, Mexico's General Law on Climate Change, Mexico's Programa GEI, The Climate Registry (TCR), and Massachusetts' GHG Emissions Reporting Program which include assessing GHG emissions from a variety of sources: industrial processes; mining operations; manufacturing; public-sector organizations including cities, universities, and utilities; pulp and paper production, landfills; electricity generation; and the transportation sector. Nina is also an accredited verifier for the Airport Carbon Accreditation (ACA) program. She is an ARB-accredited Lead Verifier and Project Specialist for livestock, ozone depleting substances, and mine methane capture project verifications; a Lead Verifier for Nitric Acid Production, Ozone Depleting Substances, Coal Mine Methane, Livestock, and Landfill project protocols under the Climate Action Reserve (CAR); a lead verifier for projects under the British Columbia offsets program; and a lead verifier for project verifications under the Verified Carbon Standard (VCS).

Experience

GHG Organizational Verifications

- Lead verifier for facility GHG emissions inventory verifications under the California ARB including the University of California San Francisco 2014-2015 and Dow Chemical Company 2015. (6 verifications as lead verifier)
- Lead verifier for GHG inventory verifications under TCR including the New York Power Authority 2014, Port of Portland 2013, City of Austin 2013, Denver Water 2010-2013, Seattle City Light 2012, University of California San Francisco 2012-2014, California Department of Water Resources 2010-2014, Rio Tinto's Kennecott Utah Copper 2011-2013, and the Utah Transit Authority 2010-2011. Verifications included assessment of GHG emissions from many facilities: gas and coal-fired power plants, cogeneration units, mobile sources (light rail, commuter rail, busses and vans), copper and gold mines, copper concentrator, refinery, smelter, tailings compound, transportation system infrastructure, purchased electricity and steam, lab gases, HVAC systems, and office buildings. (35 verifications as lead verifier)

- Lead verifier for facility GHG emissions inventory verifications under the British Columbia Reporting Regulation for the Tembec-Skookumchuck Pulp Mill for 2010-2015 emissions, Chemical Lime Langley operations for 2010-2013 emissions, Neucel Specialty Cellulose Mill for 2012-2015, and Quinsam Coal Corporation for 2013. Verifications included assessment of GHG emissions from quicklime production, biomass combustion, fossil fuel combustion by mobile and stationary sources, wastewater treatment, and fugitive methane emissions. (20 verifications as lead verifier)
- Lead verifier for facility GHG emissions inventory verifications under Massachusetts' Mandatory GHG Emissions Reporting Regulation including several hospitals and universities including Harvard and MIT, Specialty Minerals precipitated calcium carbonate manufacturing, multiple power plants, the Chicopee Sanitary Landfill, manufacturing operations for Ken's Foods and Brittany Dyeing, a U.S. Air Force Base, Irving Oil's terminal, and Entegris manufacturing operations. Verifications included assessment of GHG emissions from combustion of natural gas for electricity generation, production of precipitated calcium carbonate and lime, landfill fugitives, combustion of landfill gas and other biogas, fugitive emissions from HVAC systems, process emissions from manufacturing, and combustion of various fossil fuels by stationary and mobile sources. (40 verifications as lead verifier)
- Lead verifier for facility GHG emissions inventory verifications under the Climate Disclosure Project (CDP). (2 verifications as lead verifier)
- Lead verifier for facility GHG emissions inventory verifications under Mexico's Programa GEI. (1 verification as lead verifier)
- Peer Reviewer for airport verifications under ACA: Level 3+ - Dallas-Fort Worth International Airport; Level 2 - Phoenix Sky Harbor International Airport, Portland International Airport, Hillsboro Airport, Portland-Troutdale Airport; and Level 1: Minneapolis-St. Paul International Airport (6 verifications as peer reviewer)
- Lead auditor for a compliance audit for Rio Tinto facilities to the EPA Mandatory GHG Reporting Rule: Kennecott Utah Copper, US Borax's Boron Operations, and Rio Tinto Alcan's Sebree Aluminum Smelter. Audits included review of emissions calculations and assessment of compliance with applicable subparts of the rule.

GHG Project Verifications

- Lead verifier and project specialist for verifications of GHG Offset Project Data Reports under California's Compliance Offset Program for ozone depleting substance (ODS) projects, livestock projects, and mine methane capture projects including completion of (20 verifications as lead verifier and/or project specialist)
- Lead verifier for GHG verifications in U.S. carbon markets under The Climate Action Reserve (CAR): landfill projects, ozone depleting substance (ODS) destruction projects, nitric acid production projects, coal mine methane projects including a VAM project, and livestock projects (43 verifications as lead verifier)
- Lead verifier for GHG verifications in U.S. carbon markets under the Verified Carbon Standard for landfill projects and a renewable energy project (6 verifications as lead verifier)
- Lead verifier for GHG verifications in Canadian carbon markets for projects under BC's Climate Action Secretariat including greenhouse and sawmill fuel switching projects and a landfill project (10 verifications as lead verifier)

Education

Muhlenberg College, B.S., Environmental Science and Political Science, 2009

Work History

- Staff Environmental Scientist, Ruby Canyon Engineering, February 2010—present
- Conservation & Land Management Intern, Chicago Botanic Garden and the Bureau of Land Management, June 2009-January 2010
- Forest Research Technician, Cooperative Forestry Research Unit, University of Maine, May—August 2007



Phillip Cunningham **Environmental Scientist**

Summary

Phillip Cunningham is an environmental scientist at RCE. His involvement at the company includes auditing a variety of carbon offset project types as well as greenhouse gas (GHG) inventories under voluntary and mandatory reporting programs, assessing spreadsheet functionality, and consulting. His recent activities include assisting with the development of the U.S. EPA GHG national inventory for underground and surface coal mine methane and abandoned mine methane emissions, consulting for a large fertilizer company by calculating GHG emissions of several facilities in North America, and assessing avoided GHG emissions from diverting waste from landfills and instead using the refuse derived fuel to generate electricity.

He is an approved Lead Verifier for Landfill, Livestock, Ozone Depleting Substances, Coal Mine Methane, Nitric Acid Production, Organic Waste Digestion and Organic Waste Composting under the Climate Action Reserve; an Air Resources Board (ARB) accredited Project Specialist for Livestock, Ozone Depleting Substances and Coal Mine Methane project verifications; has worked as Lead Verifier under The Climate Registry verifying greenhouse gas (GHG) emission inventories for local governments, universities, a transportation company, utility companies and a variety of other industrial sectors; and a Lead Verifier for carbon offset projects and emissions inventories under the British Columbia Climate Investment Branch and British Columbia Reporting Regulation.

Experience

Environmental Scientist, Ruby Canyon Engineering, December 2011 – present

- Work involving a variety of verification activities under the Climate Action Reserve, American Carbon Registry, Verified Carbon Standard, California Air Resources Board, The Climate Trust, British Columbia Climate Investment Branch and Alberta Emission Offset Program. Work involving auditing of voluntary greenhouse gas reporting under The Climate Registry and mandatory greenhouse gas reporting in Massachusetts and British Columbia.
- Certified Lead Verifier under the Climate Action Reserve for Landfill, Livestock, Ozone Depleting Substances, Coal Mine Methane, Nitric Acid Production, Organic Waste Digestion, and Organic Waste Composting project types.
- Certified Project Specialist under the California Air Resources Board for Livestock, Ozone Depleting Substances and Coal Mine Methane project types.
- Acted as Lead Verifier for Landfill, Livestock, Nitric Acid, Ozone Depleting Substances, Coal Mine Methane and Fuel-Switching carbon credit Projects.
- Operated as a Lead Verifier for the verification of greenhouse gas inventories for a transit authority, universities, utilities and local governments.
- Consulted on a greenhouse gas inventory for a large, U.S. based nitric acid production company, a landfill registering a carbon credit Project under the Climate Action Reserve and the study of GHG emissions from combustion of refuse derived fuel to produce power as opposed to landfilling.
- Assisted with the compilation of EPA's U.S. Coal Mine Methane inventory from 2011 to 2015
- Performed site visits throughout the United States and Canada.

Education

Colorado Mesa University B.S., Environmental Science and Technology, 2011

Work History

Assistant to Staff Scientists, Palisade Insectary, May 2010 - August 2010, May 2011 - November 2011

- Assisted in the development of monitoring protocols for determining status of invasive species populations in different parts of the state of Colorado
- Reared and worked with several different species of bio-control insects

- Conducted greenhouse management to optimize the production of food for bio-control insects
- Documented different bio-control insects through microscope photography

Research Assistant, City of Grand Junction, December 2010 - January 2011

- Reviewed and summarized reports dealing with water use by oil and gas companies



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Michael M. Coté

President, and Senior Environmental Scientist

Summary

Michael Coté is an experienced environmental engineer in the climate change industry with skills in inventory analysis, baseline methodology development, project evaluation and feasibility, and emission reductions calculations. He has worked in various aspects of environmental and energy projects for over 25 years, from project identification and feasibility to verification and registration. For the past 18 years, Mr. Coté has specialized in various technical aspects of developing greenhouse gas (GHG) emissions inventories and quantifying GHG emission reduction projects. During that period, Mr. Coté worked closely with U.S. EPA's Coalbed Methane Outreach Program (CMOP), preparing several case studies, journal articles, and white papers that highlighted different aspects of CMM project development. He has also worked with large industrial GHG emitters preparing inventories to WRI, TCR, and ISO 14064-1 standards, and has worked with most of the prominent international carbon project developers qualifying coal mine methane CDM and JI projects under the Kyoto Protocol rules.

Michael Coté founded Ruby Canyon Engineering Inc. (RCE) with Ronald Collings in 2005; an organization dedicated to facilitating the implementation, verification, and registration of GHG emission reduction projects primarily targeting methane-to-energy projects from vented and fugitive methane emission sources, particularly coal mine methane projects. Mr. Coté led RCE's effort to become an ANSI-accredited ISO 14065 verification body in 2009 and manages RCE's GHG validation and verification activities. In addition, RCE became an approved verification body by California Air Resources Board (CARB) in 2012, and accredited in Mexico by *Entidad Mexicana de Acreditación, A.C.* (EMA) in 2016. Mr. Coté has authored numerous greenhouse gas (GHG) emissions baseline methodologies, project design documents, and validation & verification reports that have been submitted to U.S. EPA, the United Nations Framework Convention on Climate Change (UNFCCC), Climate Action Reserve (CAR), Pacific Carbon Trust (PCT), CARB, Verified Carbon Standard (VCS), and the American Carbon Registry (ACR). He is one of RCE's lead verifiers and senior reviewers for entity-based GHG inventories and project-based emission reductions.

Experience

- Mr. Coté directs RCE's GHG validation and verification activities under ISO-14064 standards. He has been a lead verifier for GHG inventories under TCR, BC, and Mass DEP programs with experience in several sectoral scopes such as general reporting, electric power generation (coal, gas), mining and metals (coal, copper, phosphate), industrial processes (nitric acid, ammonia), oil & gas processing (CO₂, N₂, O₂, & H₂S removal), and transportation (rail, truck) sectors. In addition, Mr. Coté has been the lead verifier/senior reviewer for a number of carbon offset projects, (including fuel switching, energy efficiency, renewable energy, LFG, livestock, N₂O, ODS, transportation, and CMM) under the CAR, PCT, ACR, and ARB registry requirements.

- Responsible for developing emission reduction methodologies and protocols for voluntary and compliance offset programs including UNFCCC, CARB, TCT, CAR, and VCS. Principal contributor to California's ARB Mine Methane Capture Offset Project Protocol in 2013. Participated in the validation of offset protocols for British Columbia (formerly PCT) including fuel switching and oil & gas, The Climate Trust for an energy efficiency protocol, CAR for a Mexico ozone depleting substances protocol, and VCS for asphalt mixtures.
- Prepared coal emissions inventory for EPA from 2000-2013, which required gathering data from public and private sources on coalbed methane utilization projects at U.S. mines, coal mine ventilation emissions, and coal production data. Contributed significant improvements to the methodology used to calculate emissions avoided at coal mines that recover and use methane, which have increased the accuracy and reduced the uncertainty associated with the coal emissions inventory, and ultimately have been adopted by the EPA.
- Project lead for developing and calculating GHG inventories for large industrial and O&G facilities including mining, nitric acid and ammonia production, lime manufacturing, and natural gas processing facilities. Developed data input systems for vented and fugitive GHG emission sources for upstream and midstream O&G companies.
- Mr. Coté is skilled in the identification and evaluation of methane recovery and use projects on the CMM and O&G sectors. He has evaluated potential CMM and O&G projects on behalf of Clean Development Mechanism (CDM) project developers in China, Russia, Ukraine, Poland, Romania, Mexico, Brazil, Argentina, and Kazakhstan. In doing so, Mr. Coté has conducted extensive research into current CDM methodologies, flare design and efficiency, CDM monitoring methodologies, and international flare regulation. Also, he also completed energy market studies of the various O&G producing countries and works with the World Bank's GGFR program to reduce flare emissions. Mr. Coté performed pre-feasibility studies for vent-to-flare projects in the U.S. CBM/CMM sector.
- Responsible for developing a new baseline methodology and project description documents for several CMM projects in China, which were integrated into the UNFCCC-approved consolidated methodology (ACM0008), and contained one of the first CMM projects to be registered with UNFCCC. Collected data, attended face-to-face meetings with Chinese representatives, and completed project feasibility studies. From 2005-2010, have authored six CDM PDDs for UNFCCC submission; tasks included additionality testing for methane projects and interacting with DOE validators.

Education

Mesa State College, B.S., Environmental Restoration and Waste Management, 1997
 University of Maine, A.S., Civil Engineering Technology, 1980

Work History

President, Ruby Canyon Engineering, Inc., Colorado, 2005 – Present.
 Senior Environmental Engineer, Raven Ridge Resources, Colorado, 1998 – 2005.
 Environmental Engineer, RUST Geotech, Colorado, 1990 – 1998.
 Construction Project Superintendent, California and Colorado, 1985 – 1990.
 Civil Engineering Technician & Land Surveyor, Maine and Alaska, 1980 – 1985.

Bonny Crews

Senior Environmental Scientist and Lead Verifier

Bonny Crews has a strong scientific and technical background combined with broad experience in environmental research, GHG accounting and auditing, petroleum environmental remediation, and oilfield microbiology. She is an effective communicator who has written or co-written numerous technical documents including research reports, white papers, scientific presentations, instructional guides for field personnel, and executive summary documents. She is an accredited GHG Lead Verifier for the Climate Action Reserve (CAR) in the landfill, livestock, forestry, organic waste composting, and organic waste digestion sectors; an accredited lead verifier for the California Air Resources Board (ARB) in the forestry sector, and a lead verifier and project specialist in the livestock sector; she is also an accredited lead verifier for The Climate Registry (TCR), Pacific Carbon Trust (PCT), and the American Carbon Registry (ACR). Her current position involves performing GHG verifications, GHG corporate inventories (to ISO 14064-1), GHG consulting in various sectors, and technical research and writing. She has experience and skills in determining GHG emissions from direct combustion of various fuels, mobile sources, and electricity generation.

Bonny Crews is an experienced environmental microbiologist with a broad background in soil, water, and environmental systems. Ms. Crews' experience in oilfield microbiology and environmental remediation provides a solid background for addressing issues of methane emissions from oil and gas operations as well as landfill gas-to-energy projects, biogas production from agricultural wastes, and co-digestion of agro-industrial wastes.

VERIFICATION AND VALIDATION OF GHG PROJECTS

Pacific Carbon Trust Projects:

Validation activities include project protocol evaluation, development of desktop sampling plan, development of site visit sampling plan, site visit and inspection, identifying baseline scenarios, and reviewing additionality arguments in project plans.

Climate Action Reserve Landfill & Livestock Gas Destruction Projects:

Verification activities include project planning and scheduling, development of desktop sampling plan, development of site visit sampling plan, site visit and inspection, GHG calculations review and auditing, interaction and meetings with project manager, verification report writing and submittal to CAR. Ms. Crews has acted in the roles of lead verifier and senior internal reviewer on numerous projects.

Air Resources Board Forestry & Livestock Gas Destruction Projects:

Verification activities include project planning and scheduling, development of desktop sampling plan, development of site visit sampling plan, site visit and inspection, GHG calculations review and auditing, interaction and meetings with project manager, verification report writing and submittal to ARB. Ms. Crews has acted in the roles of lead verifier and senior internal reviewer on numerous projects.

American Carbon Registry Landfill Gas Destruction Projects:

Verification activities include project planning and scheduling, development of desktop sampling plan, development of site visit sampling plan, site visit and inspection, GHG calculations review and auditing, interaction and meetings with project manager, verification report writing and submittal to ACR. Ms. Crews is currently lead verifier on a project comprising three landfills.

Vent-Stack CO₂ Capture in Combination with Enhanced Oil Recovery Verification

RCE conducted ACR verification of several O&G gas plants. Ms. Crews assisted with GHG baseline and emission reduction calculations, attended the site visit, and assisted with report editing.

GHG CONSULTING

Entity-based GHG Inventory

RCE performed a pre-registry specific baseline GHG inventory of a nitrogen and phosphate fertilizer producer. During last years' inventory, Ms. Crews functioned as a team member, assisting with data acquisition and analysis, and report generation and writing. For the current inventory, Ms. Crews is the project lead.

Windfarm pre-Validation and PDD

RCE provided validation and PDD authorship for a VCS windfarm project, the first US wind plant to generate carbon offsets to the VCS standard. Ms. Crews was co-leader of the project for all aspects including baseline determination, additionality, common practice analysis, and corrective actions.

Livestock Project

RCE provided consultation at a large dairy to prepare for and support independent verification for carbon credits under two registries. Ms. Crews performed a pre-project calculation of the expected emission reduction credits, then served as the GHG consultant during a Climate Action Reserve livestock verification and two California Air Resources Board Livestock verifications.

EDUCATION

Master of Science, Microbiology, Colorado State University, 1988

Bachelor of Science, Biology (cum laude), St. Edward's University, 1981

EMPLOYMENT HISTORY

Senior Environmental Scientist and Lead Verifier, Ruby Canyon Engineering Inc. (December 2008 - present)

Atlantic Richfield (ARCO), Plano, TX, 1990 – 1997

Research Microbiologist

- Principal in-house bioremediation/biotechnology expert.

- Active participant in several industry and university research consortia; helped steer research, disseminated and implemented results throughout ARCO.
- With multidisciplinary team, provided oversight and consultation on numerous remediation projects with varied media and contaminants of concern.
- Studied and implemented risk-based remedial action at several sites (groundwater and soil); assisted corporate project managers at numerous sites.
- Worked in interdisciplinary group to study and solve microbial reservoir souring problems.
- Organized, hosted, and participated in several in-house environmental technical conferences
- Wrote project reports, guidance documents; presented papers and posters

Consulting Environmental Microbiologist, 1997-2008

Environmental Quality Laboratory, Colo. St. Univ. Ft. Collins, CO

Research Associate, 1985-1989

- Supervised and maintained work schedule for 2-4 support staff; prioritized staff duties
Performed benthic macroinvertebrate sampling and assays along Cache La Poudre River.
Sampled and tested drinking water, surface water, food, sludge, and soil for bacteriological enumeration.
- Conducted independent research on membrane filtration technique for enumerating sulfide producing bacteria.
- Conducted contracted research testing antimicrobial efficacy of surgical drapes and materials.

Colorado State University, Ft. Collins, CO

Master's Candidate, Graduate Research Assistant, 1983-1985

Thesis: "Retorted Oil Shale Effects on Growth and N₂ Fixation of *Azotobacter vinelandii*"

Veterinary Technician, University Animal Clinic, Austin, TX, 1981-1983

Zach Eyler

Vice President, Greenhouse Gas Programs

SUMMARY

Zach serves as Vice President for Ruby Canyon Engineering (RCE), utilizing his broad experience with greenhouse gas (GHG) programs and renewable energy to assist on a variety of work including GHG verifications, technical research and other client projects. In addition, he assists the company in understanding GHG regulations and policies across North America and internationally, using this knowledge to analyze potential new areas of growth. Specifically, Zach is helping lead Ruby Canyon's expansion into California's AB 32 cap-and-trade program, Canadian province GHG programs and into Latin America. Zach has completed a wide range of verification work for projects across registries (CAR, BC CAS, TCR, ACR) including landfills, livestock, oil/gas, coal mine methane, fuel switching, ODS, nitric acid production, and GHG entity inventories. Zach is currently an accredited Lead Verifier for the California mandatory reporting, Ontario mandatory reporting, CAR, BC CIB and ACR programs. Zach is also a California ARB accredited Lead Verifier and Project Specialist for livestock, ODS and mine methane capture projects.

Zach also leads RCE's involvement with the International Emissions Trading Association (IETA) in providing advice and comments on active GHG programs across North America. Zach has provided input on the design and structure of GHG programs in California, British Columbia and Ontario. Zach has also provided input on still developing programs, such as in Washington.

Prior to joining Ruby Canyon, Zach worked at Element Markets since 2008 where he managed over 15 carbon offset projects, as well as conducting all GHG policy and regulatory analysis to support the company's trading activities and client relationships in the U.S. and Canada. He also served as a company representative on carbon offset working groups including the Coalition for Emission Reduction Policy (CERP) and the Canadian Industry Provincial Offsets Group (IPOG).

EXPERIENCE

GHG Entity Verifications:

- Lead verifier for complete entity verifications under The Climate Registry (TCR) for Virgin America and Utah Transit Authority. Verification included assessment of GHG emissions from aircraft, mobile sources (light rail, commuter rail, busses and vans), transportation system infrastructure, and office buildings.
- Independent reviewer for California ARB mandatory GHG reporting verifications
- Independent reviewer for Ontario mandatory GHG reporting verifications

GHG Project Level Verifications:

- Lead verifier for GHG verifications in U.S. carbon markets under the Climate Action Reserve (CAR) for multiple project types: landfill, ozone depleting substance destruction, nitric acid, and livestock.
- Lead verifier for GHG verifications in Canadian carbon markets for projects under the Pacific Carbon Trust (PCT) including fuel switching projects.
- Lead verifier for Canadian Standards Association
- Lead verifier for GHG verifications under the California Air Resources Board (ARB) compliance offset program for livestock methane, ozone depleting substance destruction, mine methane capture and forestry projects.

GHG Consulting:

- Offset protocol development for CARB (compliance) coal mine methane protocol in 2012
- Lead efforts to develop CAR (voluntary) Mexico ODS destruction protocol in 2015
- Consulting with Fiscalini Farms for compliance livestock project with the California ARB offset program
- Consulting with Vessels Coal Gas for voluntary and compliance mine methane capture projects at active underground and abandoned mines for the California ARB offset program
- Consulting with Refrigerant Exchange for ODS destruction projects under the California ARB offset program
- Consulting for the completion of Alameda-Contra Costa Transit District's GHG inventory under TCR

AUDIT CERTIFICATION / REGISTRATION PROGRAMS

- ARB Lead Verifier and Project Specialist for Livestock, Ozone Depleting Substances and Mine Methane Capture project types
- CAR Lead Verifier Landfill, Livestock, Ozone Depleting Substances, Nitric Acid, and Nitrogen Management Project types
- TCR Lead Verifier for GHG inventory reporting
- BC CIB Lead Verifier for fuel-switching and Landfill Project types
- Lead Verifier for California GHG mandatory reporting
- Lead Verifier for Ontario GHG mandatory reporting

EDUCATION

North Carolina State University, B.S., Environmental Technology, 2005

Duke University, Masters of Environmental Management, Energy & the Environment, 2008

WORK HISTORY

- Vice President, Ruby Canyon Engineering, March 2015 - Present
- Project Manager, Ruby Canyon Engineering, March 2012 - March 2015
- Director, Element Markets, 2011 – 2012
- Manager, Element Markets, 2010 – 2011
- Analyst, Element Markets, 2008 – 2010



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Samantha Phillips **Staff Environmental Scientist**

Sam Phillips began working at Ruby Canyon Engineering in June 2013. She has participated as a verification team member or lead verifier with offset project and entity verifications in several greenhouse gas (GHG) registries (CAR, BC CIB, VCS, BC MRR, TCR, MassDEP) including landfill, livestock, coal mine methane, nitric acid, ozone depleting substances (ODS), fuel switching, renewable energy, and GHG inventories. Sam has completed TCR verifications as a lead verifier and is an accredited Lead Verifier under CAR for landfill, organic waste composting, and organic waste digestion projects. In addition, Sam is an accredited offset verifier and project specialist for ODS and livestock under California ARB.

She has assisted extensively in RCE's work for U.S. EPA Coalbed Methane Outreach Program for coal mine methane research & studies, reports and presentations, and managing data activity for the U.S. coal emissions inventory for 2012-2015. Sam's current responsibilities and activities include up-to-date research in energy markets, data sampling and analysis for GHG inventories and emission reduction projects, and preparation of verification reports.

Sam graduated from Colorado Mesa University with a B.S. in Environmental Science & Technology in May 2013. Her studies emphasized pollution control which included remediation technologies, environmental regulations and compliance, water quality, and environmental health risk assessments. While in school, Sam spent her summers working on a forestry rehabilitation project as a member of the US Forest Service.

Experience

GHG Project Level Verifications (June 2013 – Present)

- Lead Verifier for GHG verifications in U.S. carbon markets under the Climate Action Reserve (CAR) landfill projects.
- Project specialist for ARB ODS Compliance Offset projects.
- Lead Verifier for landfill project under the Verified Carbon Standard (VCS)
- Team Member for GHG verifications in the U.S. carbon markets under CAR including landfill projects, livestock projects, nitric acid projects and coal mine methane projects.
- Team Member for early action and offset verifications in the California carbon market under Air Resource Board (ARB) for livestock projects, ozone depleting substances, and coal mine methane projects.
- Team member for GHG verification in Canadian carbon markets that involve fuel-switching project under the Pacific Carbon Trust (PCT) and the Carbon Investment Branch (CIB).
- Team Member for a renewable energy project under the VCS.

GHG Entity Verifications (June 2013 – Present)

- Team member under the British Columbia Reporting Regulation for facility GHG emissions inventory verification for a pulp and paper mill.
- Lead Verifier for entity verifications under The Climate Registry (TCR) involving emissions from mobile combustion, stationary combustion, and electricity usage. Verifications included:
 - USANA Health Sciences
 - Denver Water
 - Virgin America

- Team Member for entity verifications under The Climate Registry (TCR) including the cities Hollister, San Juan Bautista and San Benito County in California involving emissions from wastewater treatment activities, stationary combustion and electricity usage.
- Team member for facility verifications under the Massachusetts' Mandatory Greenhouse Gas Emissions Reporting Regulation for asphalt companies and college campuses.

Greenhouse Gas Consulting (June 2013 – Present)

- Aided in the compilation of the US coal mine methane inventory for 2012-2015. Knowledge of the EPA Mandatory Reporting Rules subparts FF.
- Aided in the compilation of the GHG inventory for CF Industries for 2012 and 2015 reporting years. Knowledge of the EPA Mandatory Reporting Rules subparts C, G, V, Z, and PP for calculation of emissions.

Training

- RENE & COA Mandatory MRV in Mexico Presentation (March 2017)
- Mexico GEI Presentation by Benjamin Pozos (2016)
- CAR Organic Waste Digestion Project Verification Training and Exam to become a CAR Lead Verifier (September 2016)
- CAR Organic Waste Composting Project Verification Training and Exam to become a CAR Lead Verifier (September 2016)
- Airport Carbon Accreditation Verifier Training Course and Examination (July 20, 2016)
- ARB Offset Verifier Course – Livestock and Exam to become an ARB Livestock Project Specialist (October 5, 2015)
- ARB Offset Verifier Course - ODS and Exam to become an ARB ODS Project Specialist (September 30, 2015)
- ARB Offset Verifier Course - General and Exam to become an ARB Verifier (September 28-29, 2015)
- Greenhouse Gas Protocol: Corporate Value Change (Scope 3) Accounting and Reporting Standard E-Learning Training (March 2015)
- CAR General Project Verification Training and Exam to become a CAR Lead Verifier (April 2014 and May 2017)
- CAR Landfill Project Verification Training and Exam to become a CAR Lead Verifier (February 2014 and January 2017)

Education

- Colorado Mesa University, B.S., Environmental Science and Technology, 2013
- Colorado Mesa University, Certificate of Sustainable Practices, 2013

Work History

- Staff Environmental Scientist, Ruby Canyon Engineering, June 2013 – present
- Forestry Technician, US Department of Agriculture, May 2012 – August 2012



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Jessica Stavole-Carter

Sustainability Manager & Environmental Scientist

Summary

Jessica joined Ruby Canyon Engineering (RCE) in 2014 and is continuing to pursue her interests in international environmental policy and sustainable development by emphasizing areas of research pertaining to U.S. and international greenhouse gas markets while leading RCE's expansion into the sustainability field. Jessica is certified in G4 Sustainability Reporting under the Global Reporting Initiative and in Product Life Cycle Accounting and Reporting under the World Resources Institute. Jessica has participated as a lead verifier for entity verifications such as universities and airports reporting under The Climate Registry and the Airport Carbon Accreditation program, landfill projects reporting under the Climate Action Reserve, renewable energy projects under the Verified Carbon Standard, and fuel switching projects under the Climate Investment Branch. She has also worked as a verification team member on various carbon offset projects and corporate greenhouse gas inventories, contributing to the preparation of and data analysis for verification documents following ISO 14064-3 standards and has received training on Mexico's General Law on Climate Change and National Register of Emissions (RENE).

Prior to her work at RCE, Jessica worked for Indiana University's Office of Sustainability (IUOS) where she was responsible for planning and implementing the campus-wide Fall and Spring Energy Challenges. While at IUOS, she developed a weatherization model to more effectively track and improve upon the electricity and water usage across campus. Her prior research experience includes performing cost-benefit analysis on heavy-duty Compressed Natural Gas (CNG) vehicles utilizing factors such as the Social Cost of Carbon (SCC) at Indiana University, developing a risk-assessment model for monitoring the underwater acoustical impact of the installation of offshore wind turbines on endangered species such as the North Atlantic Right Whale at the Department of Energy's Pacific Northwest National Lab (PNNL), and conducting Biophysics research on the thermal denaturation of the protein horseheart cytochrome *c* at Xavier University. Jessica presented her Biophysics research at the American Physical Society March 2012 conference in Boston, MA.

Experience

GHG Entity Verifications:

- Lead Verifier for Dallas/Fort – Worth International Airport (DFW) 2014 and 2015, Phoenix Sky Harbor International Airport (PHX) 2015, the Metropolitan Airport Commission 2015, Portland International Airport (PDX) 2013, Hillsboro Airport (HIO) 2013, and Portland – Troutdale Airport (TTD) 2013 reporting under the *Airport Carbon Accreditation* program.
- Lead verifier or team member for complete entity verifications under The Climate Registry (TCR) including the Port of Portland, Virgin Airlines, Stanford University, Yale University, CH2M Hill, Collins Pine Company, USANA, and the Utah Transit Authority. These verifications included assessing GHG emissions from many facilities: cogeneration units, mobile sources (light rail, commuter rail, busses and vans), purchased electricity and steam, lab gases, HVAC systems, and office buildings.
- Team Member for facility GHG emissions inventory verifications under Massachusetts' Mandatory Greenhouse Gas Emissions Reporting Regulation including Specialty Minerals precipitated calcium carbonate manufacturing and various universities such as Harvard University. These verifications included the assessment of GHG emissions from the combustion of natural gas for electricity generation, the combustion of fossil fuels for stationary and mobile sources, and the production of precipitated calcium carbonate and lime.

GHG Project Level Verifications:

- Lead Verifier for the following landfill projects reporting under the Climate Action Reserve: Berkeley County Landfill Gas Project, Kimble Sanitary Landfill Gas Project, City of Thomasville MSW Landfill, Eagle Point Landfill, and Wolf Creek Landfill.

Greenhouse Gas Consulting:

- Co-authored powerpoint presentations given at the 2014 IETA Regina Working Session (“Snapshot of North America Offset Systems and Protocols”), the 2014 9th Session of the UNECE Group of Experts on Coal Mine Methane (“Overview of North American GHG Markets: Opportunities for CMM”), and the 2014 EPA Coalbed Methane Outreach Program Conference (“Summary of U.S. Coal Mine Methane Emissions & Available CMM Resources”).
- Team member responsible for preparing the 2013 U.S. EPA active coal mine methane and 2013 U.S. EPA abandoned coal mine methane inventories.

Education

Indiana University, Master of Science in Environmental Science (Concentration in Energy), 2014

Indiana University, Master of Public Affairs, 2014

Xavier University, B.S., Biology (Minor in Environmental Science and Concentration in Physics), 2012

Publications

Carlson TJ, MB Halvorsen, S Matzner, AE Copping, and J Stavole. 2012. Monitoring and Mitigation Alternatives for Protection of North Atlantic Right Whales during Offshore Wind Farm Installation. PNNL-21959, Pacific Northwest National Laboratory, Richland, WA.

Copping AE, LA Hanna, RS Butner, TJ Carlson, MB Halvorsen, CA Duberstein, S Matzner, JM Whiting, KM Blake, and J Stavole. 2012. Environmental Effects of Offshore Wind Development. Fiscal Year 2012 Progress Report. PNNL-21852, Pacific Northwest National Laboratory, Richland, WA.

Work Experience

- Sustainability Manager & Environmental Scientist, Ruby Canyon Engineering, May 2014 – present
- Energy and Built Environment Intern, Indiana University Office of Sustainability (IUOS), May 2013 – May 2014.
- Research Assistant for Dr. Kerry Krutilla, Indiana University, August 2012 – May 2014.
- Department of Energy SULI Intern, Pacific Northwest National Laboratory (PNNL), May 2012 – August 2012.
- Research Assistant for Dr. Justin Link, Xavier University Department of Physics, January 2010 – May 2012.
- Summer Service Intern, Civic Garden Center, May 2010 – Aug 2010.
- Teacher, Great Lakes Science Center, May 2008 – December 2009

Volunteer Experience

- Founder, Evanston Community Learning Center, June 2010 – May 2012
- Co-founder and Steering Committee Member, N.E.X.U.S. Community Garden, August 2009 – May 2012
- Intern, Cleveland Metroparks Zoo, May 2004 – August 2007



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Lynne Santos
Subcontractor, President & Engineer, Air Quality Associates

SUMMARY

Lynne Santos is a Registered Professional Engineer in Massachusetts, U.S.A and President of Air Quality Associates, a Woman-owned Business Enterprise located in Billerica, Massachusetts. Lynne is a chemical engineer with expertise in air emission estimates, air pollution control technology, air dispersion modeling and air quality regulatory compliance with over 18 years of experience. She has prepared several Greenhouse Gas Reports for Massachusetts facilities and has assisted Ruby Canyon Engineering on numerous GHG verification projects since 2011.

Lynne is a team member for Ruby Canyon's GHG verification work for the state of Massachusetts GHG Emissions Reporting Program. She has emissions estimation experience in a wide variety of sectors including: semiconductor manufacturing, pharmaceutical companies, waste transfer stations, landfills, lime manufacturing, fabric and metal coating, fiberglass manufacturing, architectural woodwork, tape manufacturing, ball bearing manufacturing, bakeries, power plants (coal, natural gas, biomass and oil-fired), engines, boilers, bakeries, pasta manufacturing, gasoline dispensing, storage tanks, paint spray booths, firing ranges, pet crematorium, tire recycling, asphalt plants, sewage sludge incinerators, screen printing, mobile sources, hotels, universities, hospitals and military bases. Ms. Santos was previously subcontracted to work in the Massachusetts Department of Environmental Protection (MADEP) emission inventory group to assist with verifying the criteria pollutant emissions data submitted by facilities.

Lynne received her B.S. in chemical engineering with a focus on environmental engineering from the University of New Hampshire (UNH) in Durham, NH in 1992. Her studies at UNH included travel to Greenland as a part of the Glacier Research Group to assist in the collection and analysis of ice core samples to investigate climate change. Lynne received her M.S. in chemical engineering from the University of Kentucky. Her graduate research focused on turbulence modeling and pollutant dispersion in the convective atmosphere.

EXPERIENCE

- **Massachusetts Greenhouse Gas Reporting Program.** Prepared the 2009, 2010 and 2011 Massachusetts Department of Environmental Protection (MassDEP) GHG reports for two facilities: a phenolic resin producer / fabric coater and a lumber company. Included CO₂ emissions generated by the combustion of Volatile Organic Compounds (VOC) treated by the thermal oxidizer for the fabric coater. Prepared the 2011 GHG Report for Hanscom Air Force Base, Bedford, MA.
- **Massachusetts Greenhouse Gas Verification Program.** Verified the following MassDEP GHG reports (as a part of a team with Ruby Canyon Engineering): Specialty Minerals, North Adams; Chicopee Landfill, Chicopee; Constellation Mystic and Fore River Power Plants; and Veolia MATEP and Kneeland Power Plants.
- **Carbon Disclosure Project Verification.** Verified the following Verified Genzyme's 2010 global Greenhouse Gas (GHG) emission report that was prepared for the Carbon Disclosure Project, including Scope 1, 2 and 3 emissions.

EDUCATION

University of New Hampshire, B.S., Chemical Engineering, 1992

University of Kentucky, M.S., Chemical Engineering, 1994

WORK HISTORY

- Air Quality Associates, North Billerica, MA (2003 – present)
- ENSR¹, Westford, MA (2000 – 2003)
- Titan Corporation², Princeton, NJ (1996 – 2000)
- Environ Corporation, Princeton, NJ (1994 – 1996)

¹ Now AECOM, Chelmsford, MA

² Now Sage Environmental, Princeton, NJ



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RCE Subcontractor Agreement

This Subcontractor Agreement (Agreement), dated August 23, 2013, is entered into by and between Ruby Canyon Engineering Inc. ("RCE") and Air Quality Associates ("Subcontractor"). The parties hereto hereby agree as follows:

- 1 **Provision of Services.** Subcontractor shall perform professional services ("Services") for RCE, described in the attached Scope of Work (Exhibit A), which is hereby incorporated by reference.
- 2 **Timelines.** RCE and Subcontractor agree to comply with the timelines set out in the Scope of Work.
- 3 **Fee, Taxes, Payment, and Reimbursements.** Subcontractor shall receive a fixed fee for the performance of Services described in the Scope of Work. All payments of fees, taxes, and actual approved cost reimbursements for Services rendered by Subcontractor under this Agreement shall be calculated and paid in US dollars pursuant to this Section 3 and Exhibit A. RCE will make all payments due under this Agreement within thirty (30) days of receipt of Subcontractor's invoice together with relevant supporting documentation required pursuant to Exhibit A.

Subcontractor shall be liable for all applicable income taxes from payments received for the performance of Services and any other RCE approved cost reimbursements received by Subcontractor.

All fees for Services performed by Subcontractor exclude any applicable goods and services, sales, and other similar taxes, duties, or charges on such Services (collectively, HST). Subcontractor shall indicate HST charges as a separate item on all invoices to RCE for Services rendered and the invoice shall include Subcontractor's HST-registration number, if applicable. RCE's payment of all HST charges shall be made concurrently with payment for Services rendered and billed in each Subcontractor invoice.

- 4 **Performance of Services.** Subcontractor shall perform the Services in accordance with all applicable laws, rules, regulations, protocols, policies, and procedures including, without limitation, RCE's "*Greenhouse Gas Validation and Verification Policies and Procedures*" and ISO 14065:2007(E)(2007) ("ISO 14065"). Subcontractor shall exercise the standards of care, skill, and diligence customarily provided by a professional performing work similar to that described in this Agreement and the Scope of Work. Much of the work performed by Subcontractor relates to projects, which involve issues that are under active consideration in the policy and legislative arenas. RCE shall be ultimately responsible for the validation or verification statement but Subcontractor shall be liable to RCE for any acts or omissions in performing the Services agreed to in this Agreement. For its part, Subcontractor acknowledges that RCE has the sole discretion to decide whether or not to proceed with any project. Subcontractor shall not be entitled to make any claim for unperformed Services or payments not expressly authorized in this Agreement if RCE decides to terminate this Agreement and not proceed with the completion of the Services described in Exhibit A.
- 5 **Term of Agreement.** This Agreement shall commence on August 23, 2103 and shall terminate when the Services described in Exhibit A are fully performed by Subcontractor and accepted by

RCE pursuant to this Agreement. In addition, either party may give the other party notice at any time to terminate this Agreement.

- 6 **Independent Contractor.** Subcontractor shall perform the Services as an independent contractor. Neither RCE nor Subcontractor shall have any right, power, or authority to create any obligation, express or implied, on behalf of the other party except as otherwise provided in the Scope of Work.
- 7 **Confidentiality, Impartiality, Objectivity, and Conflict of Interest.** Unless otherwise required by applicable law or as agreed by the parties in writing, Subcontractor and the members of its validation and verification (V/V) team shall maintain confidential all information relating to the project or received or developed in connection with their performance of Services. RCE's Subcontractor's Certification form executed by Subcontractor and its V/V team member(s) setting forth their respective duties and responsibilities concerning confidentiality, and the impartial and objective performance of Services free of conflicts of interest are attached to this Agreement.
- 8 **Disclosure Agreement.** If required by RCE's Client, Subcontractor shall sign, and comply with all duties and obligations set forth in any Confidentiality Agreement or Non-Disclosure Agreement signed by RCE.
- 9 **Professional Insurance Requirements.** Subcontractor shall hold and maintain valid and current General and Professional Liability Insurance through the entire duration of this Agreement. RCE may determine the coverage amounts based on its own risk assessment and any GHG (greenhouse gas) registry insurance requirements.
- 10 **Securing Ownership of Documents and Data.** Subcontractor's work products generated pursuant to this Agreement are RCE's property and RCE retains all intellectual and property rights in such products. Except as otherwise provided herein and Exhibit A, Subcontractor shall not use such rights without RCE's written consent, which can be withheld for any or no reason.
- 11 **Assignments.** The parties shall not assign, transfer, or otherwise dispose of this Agreement in whole or in part to any individual, firm, or corporation without the prior consent of the other party.
- 12 **Governing Law.** The validity, performance and construction of this Agreement shall be governed by the laws of the State of Colorado, USA.
- 13 **Arbitration.** Any dispute or claim arising out of or relating to this agreement shall be settled amicably as far as possible, but in case of failure, it shall be resolved by binding arbitration in the United States, in accordance with the Commercial Arbitration Rules of The United States Commercial Arbitration Association.
- 14 **Notices and Contact Information.** RCE appoints Michael Cote as project administrator. All invoices, notices, and other communication shall be submitted to RCE at: 743 Horizon Court, Suite 385, Grand Junction CO USA 81506. Subcontractor appoints Lynne Santos as project manager, whose address is 29 Seven Oaks Road, North Billerica, MA 01862 for purposes of receipt of notices and other communication required under this Agreement. Either party may change its project manager or address for receiving notices or invoices upon written notice to the other party.

RUBY CANYON ENGINEERING


743 Horizon Ct. Suite 385 · Grand Junction, CO 81506
(970) 241-9298 · (970) 256-1761 fax
www.rubycanyoneng.com

- 15 **Complete Agreement.** This Agreement and the attached Exhibits and Certifications set forth the entire understanding between the parties concerning the subject matter of this Agreement and merges all prior discussions, negotiations, letters of understanding, or other promises, whether oral, written, or electronic. No waiver, alteration, or modification of this Agreement shall be valid unless made in writing and signed by both parties.

SIGNED AND AGREED TO,

Ruby Canyon Engineering Inc.
743 Horizon Ct. Suite 385
Grand Junction, Colorado 81506 U.S.A.

By:



Michael M Coté
President

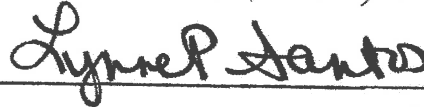
Date:

8/22/13

Subcontractor Name - AQA

Address - 29 South Oaks Road, North Billerica, MA, 01862

By:



Printed Name Lynne Santos
Title: President

Date:

8/23/13

Profile



Natural Resource Project Manager and Registered Professional Forester who is the owner/manager of a growing, innovative and forward thinking Forestry and Natural Resource Services Company. Forester's Co-Op, located in Grass Valley, CA offer's landowners market driven sustainable solutions to complex forestry, wildfire prevention, utility ROW vegetation management permitting, forest carbon sequestration, renewable energy, and fire wise community development projects. Clientele range from Corporate utilities such as PG&E and Liberty Energy, the US Forest Service, BLM, Cal Fire and both large and small timberland owners. Tom manages a staff of four full time resource professionals and up to 25 seasonal technicians depending on project/client demands. For current project information visit our web site at www.forco-op.com.

The Company's mission is to practice my lifelong passion, which is to plan and implement natural resource management projects that achieve the highest ethical standards in providing forest ecosystem services through the active management of our State's abundant forest, range, wildlife, water, and recreational natural resources.

Areas of Expertise

- CA Timber Harvest Plan (THP) Preparation. Author and responsible RPF on over 60 Cal Fire approved Timber Harvest Plans.
- CA Non-Industrial Timber Management Plan (NTMP) Preparation. California law provides landowners with properties less than 2,500 acres the option to file and manage their lands on a Sustained Yield basis under an indefinite permit once approved by Cal Fire.
- Federal & State Agency approved "California Cooperative Forest Management Plan" Preparation. In 2012 Cal Fire, USFS, NRCS and the Tree Farm system came together to standardize forest management planning for landowners seeking to apply for cost share forest improvement grants as well as register their timberlands with the Tree Farm system. These plans are required prior to application to the "California Forest Improvement Program" (CFIP) grants program.
- Timber sales, logging administration and regulatory THP compliance on well over 100 projects
- Timberland Inventories and Market Valuation Appraisals
- Green House Gas – Forest Carbon Project Verification and Project Development services meeting the standards of the Calif. Air Resource Board (ARB), Climate Action Reserve (CAR) forestry compliance and voluntary protocols
- Utility ROW Environmental CEQA/NEPA Permitting & Project Management
- Gas/Electric Transmission/Distribution & Hydro ROW Corridor Vegetation Management & Hazard Tree Treatments
- Wildfire Prevention, Risk Assessment & Mitigation Strategies, Sunrise Powerlink (SDG&E) & Barren Ridge Renewable Transmission Project (LADWP), West of Devers (So Cal Edison)
- Tahoe Basin Noxious Weed Survey and Treat Contracts for Placer & El Dorado Co's. & RCD's
- Timber, Chaparral, Biomass, Wildfire Fuel and Carbon Forest/Vegetation Inventories
- Biomass to Renewable Energy Project Management & Critical Analysis
- USFS/BLM Federal Timber Sale Contractor Representative & Federal Contract Administration

Experience



Forester's Co-Op

1999 - Present

Principal Forester, CEO Innovative Natural Resource Consulting Group

Professional Forestry & Natural Resource Management Company

After a 21 year tenure in both Corporate and small Business I founded and established a premier Forestry Consulting Company in the State of California. Established in 1999, **Forester's Co-Op** has been providing clientele with innovative environmental assessments (EIR/EIS) for the permitting of natural resource and wildfire risk assessments, wildfire prevention mitigation strategies, forest carbon inventories & technical assistance, rural community developments, and utility ROW projects. Responsible for all facets of business growth, personnel management, and financial strategies necessary to sustain business growth & innovation over the past 15 years of operation and into the future.

- Manager of a staff of natural resource professionals, technicians and clerical support. Current staff is 4 - Professional and 1 - clerical full time employees supplemented by a seasonal technician crew ranging in size from 6 to 24+ depending on project work load.
- Project Manager with “cradle to grave” responsibilities for the successful authorship of comprehensive Resource & Wildfire impact (EIR/EIS) reports complete with mitigation strategies for Federal, State, and Private Projects.
- Marketing Manager responsible for all Company sales and contract procurement bidding and negotiations
- Chief Company Fiscal Officer - Annual budgeting, payroll, taxes, invoicing and bill collection.
- The mission of the Forester's Co-Op is to practice a multi-disciplinary resource professional team approach to achieve and deliver the highest quality work products efficiently and on time.

Certificates, Education and Affiliations

- California Registered Professional Forester (RPF) license #2253 issued July 2, 1985
- CA Air Resources Board (CARB), “Forest Carbon Project Offset Verifier Accreditation” for both Urban and US Forest project protocols; License - Executive Order #H2-13-182
- Society of American Foresters (SAF) “Certified Forester” credential.
- South Carolina Licensed Forester #1853
- California Action Reserve (CAR) Forest Protocol 3.1 – Verification Certificate - Fall 2009
- Cal Fire Archaeological Training Certificate #91R
- CA – Qualified Pesticide Applicators License #108705
- American Tree Farm System “Qualified Inspector” #134610
- Certified Forest Stewardship Lead Professional – National Forest Stewardship Program
- USFS – R5 Log Scaling and Grading Certificate - Modoc National Forest
- Bachelor of Science – Forestry, University of California, Berkeley
- GIS Certificate for Resource Management Professionals, University of California, Davis
- AA - Land Surveying, Shasta Junior College, Redding
- Timberland Appraisal “The Three Approaches”, Atterbury Consultants, 1997
- Board Chairman (Three year term, 02-05) Fire Safe Council of Nevada County
- California Licensed Foresters Association - CLFA
- California Chapter VP, Association of Consulting Foresters – ACF
- Board Secretary, Sierra Forest Communities Institute, a 501.c.3 non-profit org.

Tom Amesbury/Forester's Co-Op Professional References:

Name, Address, Phone	Type of Projects
<p>PG&E Attn: Ryan Willis, Supervisor, Forester 2730 Gateway Oaks Dr. Sacramento, CA 95833 Office Ph#: (916) 615-1940 Email: RHWD@pge.com</p>	<p>Gas/Electric Transmission ROW Vegetation Management, Timber Harvest Plans, Layout, Mark and Cruise, GPS/GIS Services 2014 Contract Renewal #2500958994</p>
<p>Columbia Channel Gold Mining Company, Inc. Attn: Andrew McNear, President 529 Dale Drive Incline Village, NV 89451 Ph# (775) 830-3007 Email: ccgm1895@gmail.com</p>	<p>1,100 Acre CC Gold Tree Farm, Sierra County – Sustained Yield Forest Management Practices</p>
<p>Donald R. Steger and Judith G. Steger, Trustees of the 1994 Steger Family Trust Attn: Don Steger PO Box 1930 Sutter Creek, CA 95685 Ph# (530) 569-009 or Cell (530) 267-1914</p>	<p>220 Acre Central House NTMP, Nevada County – Timber Inventory Long Term Sustained Yield Plan</p>
<p>Liberty Energy Company Attn: Jessica Drummond, Vegetation Mgmt. Supervisor PO Box 107 Tahoe Vista, CA 96148 Ph#: (530) 546-1713 Jesica.Drummond@libertyutilities.com</p>	<p>New/Upgrade Electric Transmission ROW Forest Management, layout, Timber Marking, Logging Admin and Hazard Tree ROW Surveys and Vegetation Management</p>
<p>Susan Lee, Vice President Sunrise Powerlink Contract Project Manager Aspen Environmental Group 235 Montgomery Street, Suite 935 Office Ph#: (415) 995-4775, Ext 203 Cell Ph#: (415) 290-4984 Email: Slee@aspengeg.com</p>	<p>SDG&E - Sunrise Powerlink Reference for Fire & Fuels Management Section of ERI/EIS Document</p>

J R Christian Eggleton

415 Colfax Avenue, Grass Valley, CA 95945

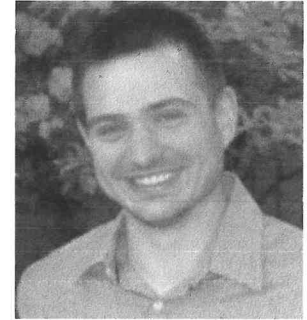
Ph# (530) 273-8326, Fax# (530) 273-2256

Email: christian@forco-op.com URL: www.forco-op.com

Signature: Christian Eggleton August 18, 2014

Profile

Graduate of UC Berkeley with a Master's degree in City and Regional Planning (2010) and BA in Environmental Economics and Policy (2008). Work experience covers planning in California and Southeast Asia. Familiar with land use and heritage planning methodologies in addition to field survey procedures and equipment, including GPS. Extensive knowledge of geographic information science, spatial analysis, and cartography with applicable GIS, remote sensing, and graphics software. Exhibits field forestry skills applied to natural resource inventory quantification and modeling to provide an analytical product for planning and management.



Areas of Expertise

- Geographic information science and software
- Forest & vegetation field inventories, modeling, and associated software
- Land use modeling, analysis, and cartographic representation
- Land use change detection through remote sensing
- Utility ROW Field GPS surveying- hazard trees, noxious weeds, vegetation encroachments, fuels
- CEQA/NEPA analysis, procedures, and compliance
- CA Planning law
- Heritage preservation planning
- GPS/GIS Filed data correction and post data processing and analysis
- Inter-agency communication and coordination

Experience



415 Colfax Ave.
Grass Valley, CA 95945
(530) 273-8326

Forester's Co-Op

2010 - Present

Field Foreman and GIS Analyst, Project Manager

Field forester for field inventories and timber marking. Developing field survey and inventory methods and protocols. GIS analyst, GPS data processor, and cartographer, integrating field survey methods, data, and post-analysis and modeling into relevant map products. GIS mapping and analytical support for all Company contracts.

- Spatial analysis and cartography with ArcInfo to support proprietary FCO Wildfire Behavior Analytical Models for major Transmission projects.
- Maintenance of databases of all company GIS data and maps
- Preparation of field survey procedures and equipment usage for inventories and plan preparation for hazard tree removal in addition to supervision of up to 50 field technicians
- Timber/Forest Carbon Inventory Analysis and Growth and Yield Modeling using FORSEE and FVS
- Timber/Forest Carbon Inventory Design and Implementation
- Updating Landowner Standing Inventory Data using Super Ace Forestry Inventory Program.
- Implementation of timber inventory projects including survey, post-processing, spatial analysis, and map creation
- Planning and implementation of noxious weed projects including cartographic support and logistics, followed by report synthesis including supporting analytical maps



228 Wurster Hall #1850
Berkeley, CA 94720-1850
(510) 642-3256

UC Berkeley

Spring 2009 & 2010

Graduate Student Instructor in Geographic Information Systems

- Two semesters teaching over 30 graduate students GIS concepts and ESRI software
- Responsible for teaching, facilitating labs, and marking assignments
- Assistant to professor for applied GIS projects

**Certificates, Education
and Affiliations**

- Master of City and Regional Planning, University of California, Berkeley, 2010
- Bachelor of Arts – Environmental Economics and Policy, University of California, Berkeley, 2008
- CA Department of Pesticide Regulation Qualified Applicator License (QAL)
- California Licensed Foresters Association

Andrea M Hardlund

415 Colfax Avenue, Grass Valley, CA 95945

Ph# (530) 273-8326, Fax# (530) 273-2256

Email: andrea@forco-op.com URL: www.forco-op.comSignature: 

August 1, 2014

Profile

Master of Forestry, 2014 and BS in Forestry and Natural Resources, Professional Forestry Specialization, 2010 from UC Berkeley. CA ARB Accredited Offset Verifier- U.S. Forest Projects. 4+ years technical forestry and biological science field experience. High proficiency in habitat analysis, timber sale preparation, inventory design/analysis, and GPS/GIS data collection.

**Areas of Expertise**

- Timber Harvest Plan Preparation and Timber Sale Prep – Layout, Marking, and Cruising
- Forest Carbon/Timber Inventory design, implementation, and analysis
- Growth and Yield Modeling (with FORSEE and FVS) and statistical software analysis
- CEQA/NEPA Compliance; Nat. Res. Law
- Utility ROW vegetation surveys (fuels, noxious weeds, encroachments, hazard trees)
- GPS Field Data Collection
- Wildlife and rare plant identification
- Noxious weed identification and treatment
- GIS analysis and database management
- Ecological and statistical process concepts
- Inter-agency communication and coordination

Experience

415 Colfax Ave.
Grass Valley, CA 95945
(530) 273-8326

Forester's Co-Op

Oct 2011 - Present

Lead Forestry Technician, Project Manager

Lead forestry technician for all field inventories and marking projects. Developing inventory protocols and auditing standards for Non Industrial Timber Management Plans (NITMPs) and Forest Carbon projects. Growth and yield analysis for future sustainable forestry harvesting projects on client land.

- Preparation of Forestry Inventory Protocols and Design Standards
- Preparation of Timber Harvest Plans and EIS/EIRs, Logging Administration, Reforestation Planning and Implementation, Prescribed Burning, GPS/GIS Processing.
- Forestry fieldwork including layout, marking, cruising, archaeological surveying, GPS/GIS mapping, watercourse delineation, wildlife and botanical surveys, reforestation, noxious weeds identification, surveying and treatment; all in accordance with the California Forest Practice Rules and Regulations and/or ARB U.S. Forest Projects Offset Protocol.



137 Mulford Hall, MC #3114
Berkeley, CA 94720-3114
(510) 642-4934

University of California, Berkeley

Aug 2013 – May 2014

Graduate Student Researcher

Developing silvicultural treatment prescriptions, performing GIS suitability analyses, and modeling pre- and post-treatment growth and yield and stand dynamics in FVS for an interdisciplinary research team and project, the Sierra Nevada Watershed Ecosystem Enhancement Project (SWEEP). Thesis title: "Silvicultural Prescriptions and Opportunities for Forest Management of Western Sierra Nevada Mixed Conifer for Timber, Water, and Fire Objectives"



15924 State Highway 49
Camptonville, CA 95922
(530) 288-3231

39696 State Highway 70
Quincy, CA 95971
(530) 283-0555

US Forest Service

May-Sept 2011, Jun-Dec 2010 & Summer 2009

Tahoe NF and Plumas NF**Yuba River Ranger District, Camptonville, CA (2011)****Mt. Hough Ranger District, Quincy, CA (2010, 2009)****Forestry Technician (GS-5) and Biological Sciences Technician (GS-4)**

- Timber Sale Preparation – timber marking, cruising, and layout
- GPS field data collection and GIS post-processing
- Botanical surveys and rare plant identification; noxious weed treatment



137 Mulford Hall, MC #3114
Berkeley, CA 94720-3114
(510) 642-4934

UC Berkeley, Wildland Fire (Stephens) Lab

Fall 2009

Undergraduate Research Assistant

- Laboratory preparation of field samples including sanding and finishing
- Cross-dating fire scars and data recording
- Processing fire scar data to calculate and analyze fire return interval



Instituto Monteverde, APDO 69-5655,
Monteverde, Puntarenas, Costa Rica

University of California Education Abroad Program, Tropical Biology and Conservation

Aug-Dec 2008

Student

Coursework in Tropical Diversity, Tropical Community Ecology, Agro-Ecology, Spanish, and an Independent Research Practicum focusing on Arthropods as Biological Indicators of Ecosystem Function Under Various Land Uses. Focus on biological field methods, techniques, and data analysis. Participation in a Long Term Ecological Study of water quality in Monteverde, Costa Rica including biological habitat assessments, benthic macroinvertebrate sampling, and other attribute sampling.



PO Box 939/11616
Sagehen Road
Truckee, CA 96169

Certificates, Education and Affiliations

University of Nevada, Reno, Sagehen Creek Field Station, Truckee, CA

May-Jun 2008

Field Research Assistant (Volunteer)

- Ornithological field work including identification and handling
- Specific work on the fitness of Mountain Chickadees

- UC Berkeley, Master of Forestry, 2014
- UC Berkeley, BS Forestry and Natural Resources, Professional Forestry Specialization, 2010
- USFS Region 5 Qualified Timber Cruiser 2010, 2011
- California ARB Accredited Offset Verifier- U.S. Forest Projects, Executive Order # H2-14-194
- California Alumni Foresters
- California Licensed Foresters Association, Associate Member
- Society of American Foresters
- Association of Consulting Foresters, Candidate Member



743 Horizon Ct. Suite 385 · Grand Junction, CO 81506
(970) 241-9298 · (970) 256-1761 fax
www.rubycanyoneng.com

RCE Subcontractor Agreement

This Subcontractor Agreement (Agreement), dated July 16, 2013, is entered into by and between Ruby Canyon Engineering Inc. ("RCE") located at 743 Horizon Ct., Suite 385, Grand Junction, CO 81506, and Forester's Co-Op ("Subcontractor") located at 415 Colfax Ave., Grass Valley, CA 95945. The parties hereto hereby agree as follows:

- 1 Provision of Services / Agreement Supersedes Teaming Agreement.** Subcontractor shall perform professional services ("Services") for RCE, described in the attached Scope of Work (Exhibit A), which is hereby incorporated by reference. The parties hereby expressly agree that for purposes of the Services described herein and all of their respective rights, duties, and obligations relating thereto, this Agreement shall replace and supersede the Teaming Agreement, dated May 27, 2014. The Teaming Agreement, however, shall remain in full force and effect and be binding upon the parties with respect to any other Contracts for services not described in or subject to this Agreement.
- 2 Timelines.** RCE and Subcontractor agree to comply with the timelines set out in the Scope of Work.
- 3 Fee, Taxes, Payment, and Reimbursements.** Subcontractor shall receive a fixed fee for the performance of Services described in the Scope of Work. All payments of fees, taxes, and actual approved cost reimbursements for Services rendered by Subcontractor under this Agreement shall be calculated and paid in US dollars pursuant to this Section 3 and Exhibit A. RCE will make all payments due under this Agreement within thirty (30) days of receipt of Subcontractor's invoice together with relevant supporting documentation required pursuant to Exhibit A.

Subcontractor shall be liable for all applicable income taxes from payments received for the performance of Services and any other RCE approved cost reimbursements received by Subcontractor.

All fees for Services performed by Subcontractor exclude any applicable goods and services, sales, and other similar taxes, duties, or charges on such Services (collectively, HST). Subcontractor shall indicate HST charges as a separate item on all invoices to RCE for Services rendered and the invoice shall include Subcontractor's HST-registration number, if applicable. RCE's payment of all HST charges shall be made concurrently with payment for Services rendered and billed in each Subcontractor invoice.

- 4 Performance of Services.** Subcontractor shall perform the Services in accordance with all applicable laws, rules, regulations, protocols, policies, and procedures including, without limitation, RCE's "Greenhouse Gas Validation and Verification Policies and Procedures", ISO 14065:2007(E)(2007) ("ISO 14065"), and California Air Resources Board Final Regulation Order: *Article 5: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (Regulation)*. Subcontractor shall exercise the standards of care, skill, and diligence customarily provided by a professional performing work similar to that described in this Agreement and the Scope of Work. Much of the work performed by Subcontractor relates to projects, which involve issues that are under active consideration in the policy and legislative arenas. RCE shall be ultimately responsible for the validation or verification statement but Subcontractor shall be liable to RCE for any acts or omissions in performing the Services agreed

to in this Agreement. For its part, Subcontractor acknowledges that RCE has the sole discretion to decide whether or not to proceed with any project. Subcontractor shall not be entitled to make any claim for unperformed Services or payments not expressly authorized in this Agreement if RCE decides to terminate this Agreement and not proceed with the completion of the Services described in Exhibit A.

- 5 **Term of Agreement.** This Agreement shall commence on July 14, 2014 and shall terminate when the Services described in Exhibit A are fully performed by Subcontractor and accepted by RCE pursuant to this Agreement. In addition, either party may give the other party notice at any time to terminate this Agreement.
- 6 **Independent Contractor.** Subcontractor shall perform the Services as an independent contractor. Neither RCE nor Subcontractor shall have any right, power, or authority to create any obligation, express or implied, on behalf of the other party except as otherwise provided in the Scope of Work.
- 7 **Confidentiality, Impartiality, Objectivity, and Conflict of Interest.** Unless otherwise required by applicable law or as agreed by the parties in writing, Subcontractor and the members of its validation and verification (V/V) team shall maintain confidential all information relating to the project or received or developed in connection with their performance of Services. RCE's Subcontractor's Certification form executed by Subcontractor and its V/V team member(s) setting forth their respective duties and responsibilities concerning confidentiality, and the impartial and objective performance of Services free of conflicts of interest are attached to this Agreement.
- 8 **Disclosure Agreement.** If required by RCE's Client, Subcontractor shall sign, and comply with all duties and obligations set forth in any Confidentiality Agreement or Non-Disclosure Agreement signed by RCE.
- 9 **Professional Insurance Requirements.** Subcontractor shall hold and maintain valid and current General and Professional Liability Insurance through the entire duration of this Agreement. RCE may determine the coverage amounts based on its own risk assessment and any GHG (greenhouse gas) registry insurance requirements.
- 10 **Securing Ownership of Documents and Data.** Subcontractor's work products generated pursuant to this Agreement are RCE's property and RCE retains all intellectual and property rights in such products. Except as otherwise provided herein and Exhibit A, Subcontractor shall not use such rights without RCE's written consent, which can be withheld for any or no reason.
- 11 **Assignments.** The parties shall not assign, transfer, or otherwise dispose of this Agreement in whole or in part to any individual, firm, or corporation without the prior consent of the other party.
- 12 **Governing Law.** The validity, performance and construction of this Agreement shall be governed by the laws of the State of Colorado, USA.
- 13 **Arbitration.** Any dispute or claim arising out of or relating to this agreement shall be settled amicably as far as possible, but in case of failure, it shall be resolved by binding arbitration in the United States, in accordance with the Commercial Arbitration Rules of The United States Commercial Arbitration Association.




743 Horizon Ct. Suite 385 · Grand Junction, CO 81506
(970) 241-9298 · (970) 256-1761 fax
www.rubycanyoneng.com

- 14 **Notices and Contact Information.** RCE appoints Michael Cote as project administrator whose email is mcote@rubycanyoneng.com. All invoices, notices, and other communication shall be submitted to RCE at: 743 Horizon Court, Suite 385, Grand Junction CO USA 81506. Subcontractor appoints Tom Amesbury as project manager, whose email is tom@forco-op.com for purposes of receipt of notices and other communication required under this Agreement. Either party may change its project manager or address for receiving notices or invoices upon written notice to the other party.
- 15 **Complete Agreement.** This Agreement and the attached Exhibits and Certifications set forth the entire understanding between the parties concerning the subject matter of this Agreement and merges all prior discussions, negotiations, letters of understanding, or other promises, whether oral, written, or electronic. No waiver, alteration, or modification of this Agreement shall be valid unless made in writing and signed by both parties.

SIGNED AND AGREED TO,

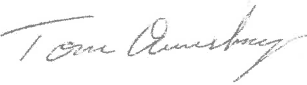
Ruby Canyon Engineering Inc.
743 Horizon Ct. Suite 385
Grand Junction, Colorado 81506 U.S.A.

By: 

Michael M Cote
President

Date: July 16, 2014

Forester's Co-Op
415 Colfax Ave,
Grass Valley, CA 95945

By: 

Tom Amesbury
Title: Principal Forester

Date: July 16, 2014



Verification Report

CAR466 Dalton-Whitfield Landfill Project

Reporting Period: June 1, 2015 – May 31, 2016

Prepared for:

Dalton-Whitfield Regional Solid Waste Management Authority

September 9, 2016

**Ruby Canyon Engineering
743 Horizon Ct. Suite 385
Grand Junction, Colorado 81506
(970) 241-9298**

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1.0 Introduction

The Dalton-Whitfield Regional Solid Waste Management Authority (DWRSWMA) contracted Ruby Canyon Engineering, Inc. (RCE) to perform the verification of the CAR466 Dalton-Whitfield Landfill Project (Project) for the reporting period June 1, 2015 through May 31, 2016 to the Climate Action Reserve (Reserve) Landfill Project Protocol Version 3.0 (Protocol). The Project involves greenhouse gas (GHG) emission reductions from the capture and destruction of landfill gas (LFG) via an open flare at The Old Dixie Landfill located in Dalton, Georgia and boiler combustion operated by a nearby company.

1.1 Project Background & Site Description

The Old Dixie Landfill (Landfill) started accepting waste in 1980 and is permitted as one site, but is separated into six separate landfill areas known as Old Dixie (OD) Phases 2, 4, 5, 6, Monofill, and Inert Landfill. OD Phases 2, 4, and 5 are closed with a total of 113 acres while the OD Phase 6, Monofill, and Inert landfill are currently active. The landfill is expected to reach capacity in 2042. The gas collection and control system (GCCS) is an interconnected network of three well-fields within OD Phases 2, 5, and 6. DWRSWMA constructed the GCCS in 2007 – 2008, destruction first commenced in May 2008 via the flare and the pipeline to the boiler was operational in June 2008.

1.2 Responsible Parties

Project Developer & Landfill Owner: Dalton-Whitfield Regional Solid Waste Authority

1.3 Verification Team

The RCE verification team consisted of the following individuals who were selected based upon verification experience and knowledge of the landfill methane sector.

Lead Verifier: Samantha Phillips

Team Member: Jessica Stavole

Senior Internal Reviewer: Zach Eyler

1.4 Objectives

The goal of the verification activities was to ensure that the claimed GHG emission reductions were complete, consistent, accurate, transparent, and permanent and that the Project was in compliance with the Reserve's project additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to RCE is well documented and free of any material errors or omissions.

1.5 Scope

The scope of the verification consists of the following independent and objective activities:

- Review the reporting period's Project Monitoring Plan;
- Conduct a site visit to the Project location;
- Review the Project data acquisition and quality control procedures;
- Review the Project's baseline emissions and confirm the baseline and Project boundaries;
- Review the Project's evidence of environmental and regulatory requirements to ensure that the Project is additional;
- Review the Project's emission reduction calculations;
- Review the Project documents and data against the criteria listed in Table 1;

- Issue requests for additional documentation, clarifications, and corrective actions as necessary; and
- Issue a verification report, list of findings, and verification statement to DWRSWMA and the Reserve.

1.6 Verification Criteria

Table 1 – Summary of Verification Criteria

Criteria	Details
Standard of Verification	<ul style="list-style-type: none"> • The Reserve Landfill Project Protocol Version 3.0 (December 2, 2009) • Errata and Clarifications to Landfill Project Protocol Version 3.0 (June 18, 2015) • The Reserve Program Manual (September 1, 2015) • The Reserve Verification Program Manual (December 20, 2010)
Verification Process	The Reserve Verification Program Manual and ISO 14064-3 Specification with guidance for the validation and verification of greenhouse gas assertions
Level of Assurance	Reasonable assurance
Materiality	97% accuracy level (less than 3% error) because total annual emission reductions are greater than 25,000 tCO ₂ e and less than 100,000 tCO ₂ e.

2.0 Verification Activities Summary

As the first step in verification activities, RCE developed a verification plan to be followed throughout the verification. The verification plan consisted of the following activities:

- RCE completed the Notification of Verification Activities/Conflict of Interest (NOVA/COI) form to identify any potential conflict of interest with the Project or Project developer. RCE submitted the NOVA/COI form to the Reserve and the COI assessment revealed no conflicts of interest and was approved on May 23, 2016.
- RCE held a verification kickoff meeting with DWRSWMA on June 7, 2016. During the kickoff meeting RCE reviewed the verification objectives and process, reviewed the verification schedule, and requested the verification background documents.
- RCE performed a strategic review and risk assessment of the received data and support documents in order to understand the scope and areas of potential risk in the GHG emissions reductions calculations.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment. The verification plan and sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- RCE conducted a site visit on July 14, 2016. During the site visit RCE performed key personnel interviews; inspected the Project equipment; reviewed source documents, Project data, and calculations; and observed the onsite GHG management systems and data gathering, monitoring, and handling practices.
- RCE performed a risk-based desktop review of the submitted verification documents including an assessment of the GHG calculation methods and inputs, source data completeness, GHG management and monitoring systems, evidence of regulatory compliance, and record retention practices.

- RCE submitted requests for clarifications, corrective actions, and additional documentation to DWRSWMA throughout the verification.
- RCE’s Senior Internal Reviewer conducted a review of the verification sampling, verification report, and verification statement.
- RCE issued a final verification report, verification statement, and list of findings.
- RCE held an exit meeting with DWRSWMA on September 9, 2016.

3.0 Verification Findings

3.1 Assessment of the GHG Reduction Project Operations

The Project currently collects landfill gas from the Landfill and destroys it via combustion through an offsite boiler operated by a nearby company and through an open flare adjacent to the landfill. The LFG is pulled from a total of 59 vertical wells and 5 horizontal wells and is sent to either a chiller skid and then to the boiler or to the flare skid (backup only). RCE confirmed that the project is not a bioreactor and does not add any liquid, including leachate, in a controlled manner to the landfill.

3.2 GHG Project Boundary (sources, sinks and/or reservoirs)

According to the Protocol, carbon dioxide and methane are the only GHGs included in the Project boundary from both the baseline and Project activities. The emissions resulting from the Project activity must be deducted from the Project baseline emissions in order to calculate total emission reductions. These Project emissions include the carbon dioxide resulting from the consumption of electricity from the grid related to Project activities. The calculation of baseline emissions takes into account the total methane destroyed based on the destruction efficiency of the Project destruction devices and the oxidation of methane by soil bacteria. Table 2 lists the sources of GHG emissions reviewed during the verification of the Project.

Table 2. Project GHG Sources, Sinks, and Reservoirs

Activity	GHG Sources, Sinks & Reservoirs
Baseline	<ul style="list-style-type: none"> • CH₄ vented to the atmosphere. • Percent methane oxidized by soil bacteria. As the landfill is not covered with a synthetic liner, a 10% oxidation factor resulting from natural oxidation by soil bacteria was applied to the baseline emissions.
Project	<ul style="list-style-type: none"> • CH₄ from the incomplete combustion of LFG sent to the flare and the boiler. • CO₂ from the combustion of fossil fuels used during operation and maintenance of the Project activity. • CO₂ resulting from the consumption of imported electricity.

3.3 Project Eligibility Criteria

The Protocol specifies four eligibility rules that a project must meet in order to register emission reductions with the Reserve: Location, Project Start Date, Additionality, and Regulatory Compliance. Below is a summary of the Reserve eligibility requirements and the Project’s compliance to each requirement.

- **Eligibility Rule 1: Location**

The Project is a US-based landfill located in Whitfield County, Georgia USA. The Project therefore meets this eligibility requirement. RCE confirmed this during the site visit.

- **Eligibility Rule 2: Project Start Date**

The Project submittal form was submitted to the Reserve on June 29, 2009. The Project began gas destruction by flaring on May 8, 2008. RCE reviewed aerial photographs, the startup Field Service Trip Report, the system warranty from start-up date, and shipment invoices for the flare in support of this start date.

- **Eligibility Rule 3: Additionality**

Performance Standard Test

RCE confirmed that the Project meets the Performance Standard Test. Prior to the Project activity, the Landfill neither collected nor destroyed any LFG. RCE confirmed this through interviews with the project operator and aerial photographs. While on site, RCE observed no evidence of a previous landfill gas collection system.

Thus, the Project passes the Performance Standard Test number 1 since it involves:

“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.”

Legal Requirement Test

RCE examined the procedures outlined in the Project Monitoring Plan that DWRSWMA will follow to ascertain and demonstrate that the Project at all times passes the Legal Requirement Test. These procedures include the review of all incoming correspondence regarding laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions, or other legally binding mandates by the landfill environmental manager. RCE confirmed that there are currently no laws or ordinances requiring the Landfill to collect and destroy LFG. RCE also reviewed the Attestation of Voluntary Implementation form signed after the end of the reporting period and uploaded to the Reserve website which states that the project was implemented and established voluntarily.

The Landfill is a municipal solid waste (MSW) landfill that exceeds the design capacity of 2.5 million megagrams (Mg) or 2.5 million cubic meters as specified in the New Source Performance Standards (NSPS) codified in Title 40 of the Code of Federal Regulations (CFR) Part 60, Subpart WWW. The landfill is therefore subject to the requirements of the NSPS for MSW landfills.

RCE examined the NMOC modeling results for the landfill and found that the calculated NMOC emission rates for 2015 and 2016 of 25.09 and 25.36 Mg/year, respectively, are well below the 50 Mg/year threshold for a required gas collection and combustion system. The NMOC Tier II report is dated July 2011 and is valid until July 2016.

During the review of the supporting evidence, RCE did not observe any indication that the Landfill was mandated to collect and combust their LFG. Additionally, there are no local, state or Federal mandatory requirements for the installation of a gas collection and combustion system. Therefore, the results of the review indicated that the Landfill is following their Monitoring Plan procedures to assure they pass the Legal Requirement Test.

- **Eligibility Rule 4: Regulatory Compliance**

RCE reviewed the procedures described in the Monitoring Plan to ensure that the Project remains in compliance with all applicable local, state, and federal regulatory requirements. RCE confirmed that the procedures were being properly followed. RCE reviewed air permits and solid waste permits for evidence that the Project was in compliance with all environmental and regulatory requirements.

RCE reviewed the EPA Enforcement & Compliance History Online database (ECHO) and confirmed that there were no issued notices of violations (NOVs) to the Landfill during the reporting period. RCE also reviewed the Georgia Department of Natural Resources Environmental Protections Division inspection reports from 9/23/15 and 4/1/16, which found no issues of non-compliance.

Finally, RCE confirmed signature of the Attestation of Regulatory Compliance which was uploaded to the Reserve.

3.4 Ownership of GHG reductions

RCE reviewed the completed Attestation of Title which states that DWRSWMA owns the emission reduction credits generated by the Dalton-Whitfield Landfill Project. RCE also reviewed the Landfill Gas Purchase Agreement between DWRSWMA and Dow Chemical Company. This document states that DWRSWMA will obtain all the issued credits from boiler and flare destruction and transfer a portion of the credits from the boiler to the Dow Chemical Company. On April 1, 2010 Dow Chemical transferred all rights, interests, and obligations of the Landfill Gas Purchase Agreement to Styron. Later, Styron changed its name to Trinseo, the current operator of the boiler. RCE determined that the presented evidence clearly demonstrated that DWRSWMA holds the legal title and exclusive ownership rights of the emission reductions associated with the Project.

3.5 GHG Monitoring and Management Systems

RCE reviewed the data management systems during the site visit and desktop review. RCE completed the majority of the GHG management systems review during the site visit by observing the onsite procedures and interviewing DWRSWMA personnel. The onsite review included an assessment of the Project data collection, processing, and handling procedures; recordkeeping and data storage; quality control and assurance procedures; record retention systems; and a field tour of the Project equipment. The desktop review included a detailed review of the Project monitoring plan and its conformance to Protocol requirements. RCE also confirmed that the Project was implemented according to the Monitoring Plan.

The primary project data includes the LFG flow to the flare, thermocouple temperature of the flare, LFG flow to the boiler pipeline, pipeline discharge pressure recorded continuously (to determine operational activity) and methane content of the LFG. A Yokogawa data recorder records data for LFG flow, methane content, thermocouple temperature, and pipe pressure every minute. The LFG flow rate is measured continuously by two Veris Verabar flow meters. The flare flow meter is located on the flare skid after the blowers and the boiler pipeline flow meter is located on the chiller skid after conditioning. During the site visit RCE observed that both flow meters are installed correctly to allow for laminar flow of LFG. Each Project flow meter is configured to 59°F and 1 atm and flows are adjusted to the Protocol standard conditions of 60°F and 1 atm in the emissions reduction calculations.

Methane content of the LFG was measured continuously by a Siemens Ultramat 23 gas analyzer located on the chiller skid. Methane was sampled after some dewatering and in the same condition at the boiler

pipeline flow measurements. Gas samples were also taken on the flare skid without any dewatering by a portable LANDTEC GEM2000 gas analyzer. Given this arrangement, the flare flow was measured in a “wet” condition while the methane concentration was recorded in a “dry” condition. According to the Protocol Errata and Clarifications this arrangement is not permissible, but will be allowed in this instance by the Reserve, “provided that the Verification Body confirms that there is no statistical difference between the two CH₄ readings for the reporting period.” RCE confirmed that there is not statistical difference between the paired weekly GEM2000 readings taken at the flare skid and the readings taken at the chiller skid. RCE determined that it is acceptable to use the continuous methane readings to calculate emission reductions from both the boiler and the flare.

No data substitution occurred during the reporting period. Weekly methane readings were used for the time period with the Siemens Ultramat was removed for service.

During the site visit RCE reviewed DWRSWMA’s data storage and retention policies and verified they were in conformance with the Protocol requirements and followed the Project Monitoring Plan.

3.6 Instrument QA/QC

RCE confirmed that all continuous monitoring equipment was inspected and cleaned quarterly (May 7, 2015, September 14, 2015, December 7, 2015, March 30, 2016, and May 17, 2016) with the as found/as left condition documented per the requirements of the Protocol. The third party field-checks to determine the accuracy of the flow meters and continuous methane analyzer were performed on May 17, 2016 and May 3, 2016, respectively. The field checks indicated that both flow meters and the continuous gas analyzer were reading within the Protocol required +/- 5% threshold.

DWRSWMA utilized two Rosemount and Veris Verabar flow meter combinations, one measured the flow to the flare, the other measured flow to the boiler pipeline. The Veris Verabar is a metal probe that cannot be calibrated but does require cleaning, which are performed during the quarterly cleanings. Rosemount manufacturer recommends the equipment be calibrated annually. The annual accuracy field checks were performed by a Rosemount Service provider, Emerson Process Management, thus meeting the manufacturer recommendation. RCE also reviewed calibration certificates and confirmed that all Emerson flow meter instruments used in the calibration were calibrated annually.

Siemens recommends that the Ultramat 23 be calibrated with calibration gas every 12 months. DWRSWMA sends the gas analyzer to Wingo Service Company annually. Handheld methane readings were used to calculation emission reductions from October 13, 2015 – October 22, 2015, while the continuous analyzer was out for calibration. The calibration report for the handheld instrument (GEM200) indicated that it was over reporting greater than 5%. RCE confirmed that DWRSWMA adjusted the handheld methane readings according to the Protocol. Additionally, SCS Engineers performed a field calibration with calibration gas within the last two months of the reporting period.

RCE reviewed calibration certificates and confirmed that the GEM2000 used to collect gas content data was calibrated every 6 months.

3.7 Assessment of GHG Emissions Reductions Calculations

RCE reviewed the emission reduction calculations, Project assumptions, raw data inputs, and accuracy of calculations. RCE first assessed the completeness of the raw data and how the data is transferred to the calculation spreadsheet. RCE reviewed the formulas and raw data inputs for accuracy and compliance with the Protocol. RCE sampled selections of data and recalculated the methane destroyed by the Project and compared these values to DWRSWMA’s values in the assertion spreadsheet.

RCE confirmed that the Project only accounts for flow at times when the destruction devices are operational. This is defined as flare thermocouple temperatures greater than 500°F and when boiler pipeline pressure was greater than 7 psi.

RCE confirmed that the default destruction efficiency of 96 percent was applied to the open flare and 98 percent was applied to the boiler. A 10 percent discount was applied for the oxidation of methane by soil bacteria because the landfill does not incorporate a synthetic liner as part of the final cap system throughout the entire landfill. A 10 percent discount was also applied from 10/13/15-10/22/15, when portable methane readings were used while the continuous methane analyzer was out for calibration. RCE reviewed source documentation for Project emissions from purchased electricity and propane, confirmed that appropriate emission and conversion factors were used, and reviewed the use of Protocol equations for Project emissions in the GHG assertion.

RCE confirmed that Equation 5.2 was used to adjust flow to the Protocol standard temperature and pressure of 60°F and 1 atm.

RCE recalculated LFG total flow, confirmed correct application of percent methane, recalculated project fossil fuel use, and confirmed use of appropriate conversion factors. All calculations were checked against DWRSWMA's calculations with percent differences noted. The difference between RCE's and DWRSWMA's emission reductions was non-material.

4.0 Verification Results

DWRSWMA provided sufficient documentation of its emission reductions, data collection procedures, and monitoring and quality control procedures. The verification process focused on verifying the emission reductions claimed and the source data used by DWRSWMA to quantify the emission reductions in accordance with the Reserve Landfill Project Protocol Version 3.0. The following is a summary of the verification results.

The Project reported emission reductions of 43,106 metric tons CO₂e for the current reporting period. During the final review, RCE identified no material misstatements in the data or emission reduction calculations. The emission reductions verified are listed in Table 3. During the verification process, RCE made requests for corrective actions and additional documentation to complete the verification. DWRSWMA sufficiently addressed all requests. The details of these requests are documented in RCE's List of Findings provided to the Reserve and DWRSWMA.

5.0 Verification Statement

RCE conducted a risk-based analysis of the CAR466 Dalton-Whitfield Landfill Project GHG assertion including a strategic review of the Project data and evidence. Based upon the processes and procedures and the evidence collected, RCE concludes that the GHG assertion is a fair representation of the Project emission reductions resulting from the capture and utilization of LFG during the reporting period June 1, 2015 through May 31, 2016 and can be considered:

- In conformance with the Reserve Landfill Project Protocol Version 3.0,
- Without material discrepancy, and
- Verified to a reasonable level of assurance.

The verified emission reductions are listed in Table 3.

Table 3 - Emission Reductions Verified for June 1, 2015 through May 31, 2016

Year	Baseline Emissions CO ₂ e (tonnes)	Project Emissions CO ₂ e (tonnes)	Emission Reductions CO ₂ e (tonnes)
2015	24,506	284	24,223
2016	19,070	187	18,883
Total	43,576	471	43,106

Note: Values in the above table might not sum exactly due to rounding.

Lead Verifier Signature



Samantha Phillips

Senior Internal Reviewer Signature



Zach Eyler



Verification Report
CAR974 – RemTec ODS Destruction Domestic Project #2
Reporting Period: November 27, 2012 – December 8, 2012

Prepared for:
Reclamation Technologies Inc.

January 11, 2013

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1.0 Introduction

Ruby Canyon Engineering (RCE) was contracted by Reclamation Technologies Inc. (RemTec) to perform the verification of CAR974 ODS Destruction Domestic Project #2 (Project) for the reporting period November 27, 2012 – December 8, 2012 to the Climate Action Reserve (CAR) U.S. Ozone Depleting Substances Project Protocol Version 1.0 (Protocol). The Project involves GHG emission reductions from destruction of ozone depleting substances that would have otherwise been released into the atmosphere.

1.1 Project Background & Site Description

RemTec purchased R-11, R-12, R-114, and R-115 that originated from domestic U.S. supplies (non-federal government installations or stockpiles). The ODS refrigerant destroyed in the Project was purchased from refrigerant contractors, HVAC service providers, commercial facilities with large chillers, and other refrigerant reclaimers. The ODS refrigerant was processed (water and oil removed) and aggregated at RemTec's facility in Bowling Green, OH. RemTec also destroyed all material at their facility in Bowling Green, OH.

1.2 Responsible Parties

Project Developer: Reclamation Technologies Inc. – Bowling Green, OH 43402

Destruction Facility: Reclamation Technologies Inc. – Bowling Green, OH 43402

Third-Party Mixing: Refrigeration Mechanics, Inc. (Refrigeration Mechanics)

1.3 Verification Team

The RCE verification team consisted of the following individuals who were selected based upon verification experience and knowledge of process emissions and the Protocol.

Lead Verifier: Zach Eyler

Senior Internal Reviewer: Nina Pinette

1.4 Objectives

The goal of the verification activities was to ensure that the claimed GHG emission reductions were complete, consistent, accurate, transparent, and permanent, and that the Project was in compliance with CAR project additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to RCE is well documented and free of any material errors or omissions.

1.5 Scope

The scope of the verification consisted of the following independent and objective activities:

- Review the reporting period's Project Monitoring Plan
- Review Project boundaries
- Review Project eligibility
- Review Project data acquisition and quality control procedures
- Review Project's baseline emissions
- Review Project's emission reduction calculations
- Review Project documents and data against the Verification Criteria listed in Table 1.

- Issue requests for additional documentation, clarifications, and corrective actions as necessary
- Issue a Verification Report, List of Findings, and Verification Statement to RemTec and CAR

1.6 Verification Criteria

Table 1 - Verification Criteria

Criteria	Details
Standard of Verification	<ul style="list-style-type: none"> • CAR U.S. Ozone Depleting Substances Project Protocol Version 1.0 • Errata and Clarification to U.S. ODS Project Protocol Version 1.0 (December 15, 2011) • CAR Program Manual (October 26, 2011) • CAR Verification Manual (December 20, 2010)
Verification Process	CAR and ISO 14064-3 Specification with guidance for the validation and verification of greenhouse gas assertions
Level of Assurance	Reasonable assurance
Materiality	99 percent materiality threshold ($\pm 1\%$ error) - Total annual ERs >100,000 tCO ₂ e

2.0 Verification Activities Summary

The reporting period is from November 27, 2012 to December 8, 2012, which includes two separate destruction events occurring between November 27, 2012 and December 8, 2012.

Prior to starting the verification activities, RCE developed a verification plan to be followed throughout the verification. The verification plan included the following activities:

- RCE completed the Project NOVA/COI form to identify any potential conflicts of interest with the Project or RemTec. The NOVA/COI form was submitted to the Reserve's website, and the COI assessment revealed no conflicts of interest and was approved by CAR on December 17, 2012.
- RCE held a verification kick-off meeting with RemTec on December 19, 2012. During the kick-off meeting RCE reviewed the verification objectives, verification process, and the verification schedule.
- RCE began receiving the background verification documents by email and by mail from RemTec including the monitoring plan, GHG assertion, and other supporting documents.
- RCE performed a strategic review and risk assessment of the received data and support documents in order to understand the scope and areas of potential risk in the GHG emissions reductions.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment. The verification plan and sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- RCE conducted the required site visits during the verification of the first reporting period of this Project. RCE visited the site of mixing and mixed ODS sampling as well as the site of destruction—RemTec's Bowling Green, OH facility—on November 13, 2012. During this site visit, RCE performed key personnel interviews with RemTec; inspected the Project mixing tank and equipment; observed the onsite Project management systems, data gathering, and monitoring and operating procedures; and reviewed permits.

- RCE performed a risk-based review of the submitted verification documents including an assessment of the GHG calculation methods and inputs, source data completeness, GHG management and monitoring systems, evidence of regulatory compliance, record retention practices, and custody of ownership and point of origin documentation.
- RCE submitted requests for additional documentation, clarifications, and corrective actions to RemTec as necessary throughout the verification.
- RCE's senior internal reviewer conducted a review of the verification sampling, verification report, and verification statement.
- RCE produced a final verification report, verification statement, and list of findings.
- RCE held an exit meeting with RemTec on January 11, 2013.

3.0 Verification Findings

3.1 Project Description

The Project consisted of two separate destruction events. Both events included the destruction of mixed R-11 and R-12. Each destruction event was documented in a separate Certificate of Destruction, and the pounds destroyed during each destruction event were determined separately. During verification activities, RCE confirmed points of origin and eligibility of all ODS material destroyed during the reporting period. The total weight of the ODS material destroyed was 15,532 pounds for the two destruction events.

Mixed R-11 and R-12

All material for the Project was aggregated by RemTec at their Bowling Green, OH facility. The Project included material that was received in containers greater than 500 pounds, containers less than 500 pounds, and stockpiled material at RemTec. Refrigeration Mechanics took samples of the ODS material from the mixing tanks and sent them to National Refrigerants, Inc. for analysis. The results from the lab analyses of these samples were used in the emission reduction calculations for the separate destruction events.

In addition to the analysis reports for all destruction events, RCE also reviewed the language in the Purchase Orders between RemTec and refrigerant sellers to ensure that RemTec retained all environmental attributes of the ODS material taken into their possession.

3.2 GHG Project Boundary (sources, sinks and/or reservoirs)

According to the Protocol, only CO₂ and CO₂e from ODS are included in the baseline and Project activities. The baseline emissions source is the emissions from continued use of ODS that would have occurred over a ten-year period had the destroyed ODS been recovered and resold in the secondary recharge markets for refrigerants and used in existing refrigeration or air conditioning equipment. The project emissions that must be deducted from the baseline include emissions from the transportation of the material, emissions from the use of substitute refrigerants, and emissions from the destruction event.

Table 2 lists the sources of GHG emissions reviewed during the verification of the Project.

Table 2 - Project GHG Sources, Sinks and Reservoirs

Activity	GHG Sources, Sinks & Reservoirs
Baseline	ODS from continued use of refrigerants that would have occurred over a 10-year period had the destroyed ODS been recovered and resold and used in existing refrigeration or air conditioning equipment
Project	<ul style="list-style-type: none"> • CO2 from the transportation of all material—both eligible and ineligible—to the destruction facility • CO2e from the use of substitute refrigerants • ODS emissions from incomplete destruction • CO2 from the oxidation of carbon contained in the destroyed ODS • CO2 from fossil fuel used at the destruction facility • CO2 from the consumption of imported electricity.

3.3 Project Eligibility Criteria

The Protocol specifies four eligibility rules that GHG Project developers must meet in order to register reductions with the Reserve. Below is a summary of the CAR eligibility rules and the Project’s compliance to each requirement.

- **Eligibility Rule I: Location**
The Project is a U.S. based project located in Bowling Green, Ohio, USA, with ODS sourced from eligible stocks within the U.S. The Project therefore meets the location eligibility requirement.
- **Eligibility Rule II: Project Start Date**
The initial destruction date for the Project was June 21, 2012 and the Project submittal date with the Reserve was October 2, 2012. The Project meets the Protocol start date criteria.
- **Eligibility Rule III: Additionality**

Legal Requirement Test

RCE reviewed RemTec’s Attestation of Voluntary Implementation for the Project, signed and uploaded to CAR after the end of the reporting period. In addition to reviewing the Attestation, RCE verified that the monitoring plan defines procedures to ensure that the project passes the Legal Requirement test at all times. RCE also ensured that there are no mandates for destruction of any of the eligible refrigerants in the U.S. by reviewing 40 CFR Part 82 which allows for the continued use of the refrigerants in the U.S.

RCE verified that none of the destroyed ODS material came from or was intended to be used as solvents or medical aerosols and that none of the material was sourced from federal facilities. RCE reviewed the original invoices and verified that the ODS came from reclaimers, HVAC and/or heating and cooling companies, eligible commercial facilities with large chillers, or was stockpiled.

Performance Standard Test

The Project fits the project definition in the Protocol and meets other eligibility requirements, thus it passes the Performance Standard test. None of the ODS destroyed was sourced from U.S. federal government installations and stockpiles.

- **Eligibility Rule IV: Regulatory Compliance**

RCE verified that the Project was in compliance with all applicable laws from the time that RemTec gained ownership of the refrigerant through to the end of the destruction events on December 8, 2012. RCE also confirmed signature of the Attestation of Regulatory Compliance which was uploaded to the Reserve with dates of material compliance that includes all destruction events. RemTec had no instances of non-compliance related to the Project.

RCE reviewed the following reports and documentation for RemTec:

- RemTec's TEAP compliance assessment report dated January 11, 2011
- RemTec's continuous monitoring log which showed minor instances that did not affect the Protocol-required destruction efficiencies or TEAP compliance

3.4 Ownership of GHG reductions

RCE confirmed that RemTec is the owner of the material by reviewing original invoices for the incoming material and incoming tank logs and analysis that lists each of the incoming tanks by serial number, weight, and composition. RCE was then able to determine which original cylinders received by RemTec were transferred into bulk tanks used for the Project. Finally, RCE reviewed the Attestation of Title, signed and uploaded to CAR after the end of the reporting period.

3.5 Point of Origin

Through invoices, bills of lading, and yearly tank inventory reports, RCE verified the point of origin as RemTec's facility in Bowling Green, OH for all ODS material that RemTec received in quantities of less than 500 pounds. RCE also verified points of origin for cylinders that RemTec received in quantities greater than 500 pounds. RCE reviewed documentation of the point of origin of the material including the facility names and physical addresses, zip codes, identification of the equipment by model and serial numbers, and identification of the serial numbers of the containers into which the ODS was recovered. In addition, RCE verified that all material classified as stockpiled by RemTec met the Protocol requirements.

3.6 Custody and Ownership Documentation

RCE verified the chain of custody for ODS material from the point of origin to RemTec for cylinders greater than 500 pounds through product receiving reports, bills of lading, and invoices. Additionally, RCE verified the chain of custody documentation for the samples sent to the National Refrigerants Analytical Laboratory.

3.7 Mixing Procedures

Each of the destruction events required mixing prior to destruction. Each mixing was performed separately using one of RemTec's acceptable mixing tanks. RCE reviewed Refrigeration Mechanics' mixing procedures and confirmed that they met the requirements of the Protocol as defined in section 6.6.1. Engineering diagrams and physical onsite inspections conducted during the site visit confirmed that RemTec's mixing tanks meet all requirements of the Protocol:

- it does not have solid interior obstructions,
- it has sampling ports to sample liquid and gas phase ODS,
- its sampling ports were located in the middle third of the container,
- it can circulate the mixture via a closed loop system from bottom to top, and
- the liquid is circulated from the liquid port to the vapor port.

Mixed R-11 and R-12

RCE reviewed Refrigeration Mechanics' documents, which included chain of custody documents, mixing procedures, and collected mixing data that documents the entire mixing and sampling process and confirms that the mixing and sampling was completed per the requirements of the Protocol. It also contained the certification of the individual who performed the mixing and sampling, and RCE determined that he was competent and trained to perform all of the required tasks.

Refrigeration Mechanics fully evacuated the container prior to pumping in the ODS. RCE verified that the calculations used to determine the volumes of mixture were performed correctly and that an amount equal to at least two times the volume was circulated for each mixed tank. RemTec provided a calibration report for the flow meter, and the activity logs documented that the circulation occurred at a rate above 30 gallons per minute for each mixed tank. A minimum of two samples were taken within 30 minutes of the completion of circulation for each mixed tank and sent to National Refrigerants, Inc. for analysis. RCE verified that the GHG assertion used the lowest of the GWP-weighted concentrations for the mixed ODS.

3.8 ODS Composition and Quantity Analysis

3.8.1 Scales

RCE confirmed that RemTec used calibrated scales to measure the pre- and post-destruction weights. The pre-destruction and post-destruction weights were measured to satisfy all timing requirements of the Protocol. RCE verified that the scale met calibration requirements by reviewing the reports for all scales for the fourth quarter of 2012.

3.8.2 Composition Sampling

Mixed R-11 and R-12: Destruction Events 1 and 2

RCE verified that the procedures used by Refrigeration Mechanics for the sampling of all tanks for the two destruction events met the requirements of the Protocol. RCE reviewed the chain of custody for the samples from the point of sampling to the independent AHRI-certified lab, National Refrigerants, Inc. RCE reviewed the lab analysis for both mixed R-11 and R-12 destruction events. RCE confirmed that the analyses demonstrated that all material met all of the requirements of the Protocol as outlined in Section 6.6. The analysis provided:

- Identification of the refrigerant
- Purity of the ODS mixture by weight
- Moisture level in parts per million demonstrating a moisture content of less than 75 percent of the saturation point of the ODS species with the lowest saturation point that is at least 10 percent of the mixture by mass
- Analysis of high boiling residue indicating less than 10 percent by mass
- Analysis of other ODS

RCE also confirmed that the lab analyses for all destruction events were uploaded to the Reserve's website.

3.9 Destruction Facility Requirements

The RemTec destruction facility located in Bowling Green, OH is a TEAP approved facility. The Protocol specifies that all non-RCRA permitted facilities must meet all TEAP requirements.

RCE reviewed the NSF-ISR Verification Report for RemTec dated January 11, 2011, which determined that the RemTec destruction facility met all applicable TEAP requirements in addition to all Protocol destruction facility requirements. During the site visit, RCE also reviewed the monitoring equipment and how it was used to obtain the performance parameters required by the Protocol and TEAP. RCE also confirmed that there were no violations at the facility during this reporting period for the Project or prior to the destruction that would have any impact on the destruction events.

3.8.1 Monitoring Parameters

RemTec provided the real-time monitoring parameters for the reporting period as defined in Section 6.7 of the Protocol.

3.8.2 Certificates of Destruction

RemTec issued two Certificates of Destruction with Certificate IDs of Plas-590 and Plas-593/974 G7. RCE confirmed that the Certificates of Destruction contained Protocol required parameters including the destruction of 15,532 pounds across the two destruction events. As documented in Section 3.6.2, RCE verified that the Certificates of Destruction were correctly entered into the Reserve's ODS Tracking System and copies were uploaded to the Reserve's website.

3.9 Data Management System

During the site visit to RemTec during the verification of the first reporting period and interviews with key personnel and through the review of all documentation provided by RemTec, RCE gained an understanding of controls put in place to account for the refrigerant received, processed, transported, sampled, and destroyed in the Project. The project data consists of both electronic and hard copy data that meets or exceeds the requirements of the Protocol. RCE also confirmed that the Monitoring Plan met the requirements of the Protocol and included all required sections and that the Project was implemented in accordance with the Monitoring Plan.

3.10 Assessment of GHG Emissions Reductions Calculations

The emission reductions calculations assessment included a review of the Project assumptions, raw data inputs, and accuracy of calculations. RCE first confirmed the weight totals defined by the weight certificates, bills of ladings, and tank inventories. RCE also confirmed the raw data inputs into the emission reductions spreadsheets were correct. Next, RCE reviewed the Protocol emission factors for "transportation and destruction" and "replacement refrigerant" and confirmed that they were correctly applied in the calculations and in accordance with the Protocol. Lastly, RCE recalculated the GHG emission reductions and compared the results to RemTec's calculations to determine if there were material differences. There was no material difference between RemTec's GHG emission reductions and RCE's calculations.

4.0 Verification Results

RemTec provided sufficient evidence and documentation of their emission estimates, data collection procedures, and monitoring and quality control procedures. The verification process focused on verifying the emissions estimates and the source data used by RemTec to quantify the emission reductions in accordance with the Protocol. The following is a summary of the verification results.

The Project reported emission reductions of **36,615** metric tons of 2012 vintage CO₂e as per the information provided in the Project calculation spreadsheets. Table 3 defines the emission reductions verified for this reporting period.

During the verification process, RCE made requests for supplemental documentation and clarifications, to complete the verification. RemTec sufficiently addressed all issues that were raised. The details of the requests are documented in the RCE List of Findings provided to CAR and RemTec.

5.0 Verification Statement

RCE conducted a risk-based analysis of the RemTec ODS Destruction Domestic Project #2 GHG assertions including a strategic review of the Project data and evidence. Based upon the processes and procedures and the evidence collected, RCE concludes with a reasonable level of assurance that the Project emission reductions resulting from the destruction of R-11, R-12, R-114, and R-115 during the reporting period November 27, 2012 to December 8, 2012 can be considered:

- in conformance with the CAR U.S. Ozone Depleting Substances Project Protocol Version 1.0
- without material discrepancy, and
- verified to the reasonable level of assurance.

The verified emission reduction CRTs are listed in Table 3.

Table 3 – Total Emission Reductions by Destruction Event for November 27, 2012 – December 8, 2012

Destruction Event	Refrigerants	Baseline Emissions (tCO ₂ e)	Project Emissions (tCO ₂ e)	Emission Reductions (tCO ₂ e)
Group 6	R-11, R-12, R-114, R-115	16,119	1,215	14,905
Group 7	R-11, R-12, R-114, R-115	23,411	1,702	21,710
	Totals	39,530	2,917	36,615

Note: Emission values might not add or subtract correctly due to rounding. Table 3 does not represent the raw data used in the emission reductions calculation.

Lead Verifier Signature



Zach Eyler

Senior Internal Reviewer Signature



Nina Pinette



& Forester's Co-Op

Verification Report

CAR683 - Blue Source - Francis Beidler Improved Forest Management Project

Reporting Periods: November 1, 2012 – August 31, 2013

September 1, 2013 - August 31, 2014

Prepared for:

Blue Source, LLC

April 14, 2015

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1.0 Introduction

Ruby Canyon Engineering, Inc. (RCE) was contracted by Blue Source, LLC (Blue Source) to perform the verification of the Blue Source – Francis Beidler Improved Forest Management Project (Project) for the second and third reporting periods of the Project, November 1, 2012 through August 31, 2013 and September 1, 2013 through August 31, 2014 to the Climate Action Reserve (Reserve) Forest Project Protocol 3.1 (Protocol). The Project, which takes place on land owned by The National Audubon Society (Audubon), involves greenhouse gas (GHG) emission reductions from forest management by preventing harvests in the project area.

RCE has teamed with Forester’s Co-Op (FCO) for the purposes of conducting the forest offset project verification. This report represents a joint effort of the RCE/FCO Team in verifying the project. Per our teaming agreement, FCO is operating as a sub-contractor to RCE, with each party having defined roles and responsibilities. RCE’s scope of work included general project administration tasks, performance of the initial risk assessment, development of the desktop sampling plan, completion of data checks, completion of the issues log, and completion of the verification report and verification statement. FCO’s scope of work included providing input on project risks, review of inventory design and sampling methodologies, review of baseline and project growth & yield models, GIS analysis, field inventory testing, comparative carbon pool analysis, and providing input on verification issues and findings. Throughout this effort, the RCE/FCO Team worked closely to ensure agreement on the verification findings presented within this report.

1.1 Project Background & Site Description

The project entails improved forest management (IFM) on 5,548 acres of the Audubon Francis Beidler Forest in Dorchester, Berkeley, and Orangeburg counties, South Carolina. The project area includes lands previously managed for timber production prior to Audubon’s acquisition. A National Resource Conservation Service (NRCS) Wetlands Reserve Program (WRP) easement was conveyed by Audubon at the project outset, perpetually restricting harvest within the project area. In lieu of the easement, the area could be actively managed for timber production. The project area is dominated by naturally occurring native hardwood species typical of its lowland location. It also contains a smaller component of native softwood species.

1.2 Responsible Parties

Project Developer: National Audubon Society (Audubon)

Technical Consultant: Blue Source, LLC (Blue Source)

1.3 Verification Team

The RCE verification team consisted of the following individuals:

Lead Verifier: Bonny Crews (RCE)

Team Member: Peter Browning (RCE)

Registered Professional Forester: Tom Amesbury (FCO)

Staff Forester & Biometrician: Andrea Hardlund (FCO)

Staff Forester & GIS Expert: Christian Eggleton (FCO)

Senior Internal Reviewer: Zach Eyler (RCE)

1.4 Objectives

The goal of the verification activities was to ensure that the claimed GHG emission reductions were complete, consistent, accurate, transparent, and permanent, and that the Project was in compliance with the Reserve project additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to RCE is well documented and free of any material errors or omissions.

1.5 Scope

The scope of the verification consisted of the following independent and objective activities:

- Review the project documentation against the Verification Criteria listed in Table 1 to develop a verification plan and a sampling plan
- Review project ownership documentation
- Review project eligibility
- Site Visit Verification Activities:
 - Interview the project developer, inventory and modeling specialists, and project owner
 - Site tour to assess the project boundaries, inventory method and sampling
 - Review evidence that demonstrates that the project's regulatory status and adherence to sustainable harvesting practices
 - Sampling of site inventory
- Review data management and monitoring systems
- Check calculation results and methods to assess the correctness of the emission reductions from site prep and sequestration activities.
- Desktop Verification Activities:
 - Review data management and monitoring systems
 - Check calculation results and methods to assess the correctness of the baseline and emission reductions claimed
 - Review records and additional documentation (permits, legal documentation, harvest support data, etc.)
 - Assess compliance to the project monitoring plan and compliance to the Protocol
- Issue requests for additional documentation, clarifications, and corrective actions as necessary
- Close out pending issues
- Issue a verification Report, list of findings, and verification statement to Blue Source and the Reserve.

1.6 Verification Criteria

Table 1. Verification Criteria

Criteria	Details
Standard of Verification	<ul style="list-style-type: none"> ● Climate Action Reserve Forest Project Protocol, Version 3.1 (October 22, 2009) ● Climate Action Reserve Forest Project Verification Protocol, Version 3.0 (September 1, 2009) ● Errata and Clarifications to Forest Project Protocol, Version 3.1 (October 29, 2014)

	<ul style="list-style-type: none"> • Climate Action Reserve Program Manual (October 26, 2011) • Climate Action Reserve Verification Program Manual (December 20, 2010)
Verification Process	Climate Action Reserve and ISO 14064-3 Specification with guidance for the validation and verification of greenhouse gas assertions
Level of Assurance	Reasonable assurance
Materiality	<p>A +95% accuracy level (less than 5% error) because total annual ERs are less than 25,000 tCO₂e.</p> <p>In addition, the Reserve's minimum quality standard requires the verification body determine soundness of the inventory, sampling inventory plots to determine if there is agreement in inventory levels using a paired t-test at the 80% confidence interval.</p>

2.0 Verification Activities Summary

The current verification began with Blue Source selecting RCE as the verification body. As the first step in verification activities, RCE developed a verification plan to be followed throughout the verification. The verification plan consisted of the following activities:

- RCE completed the Notice of Verification Activities/Conflict of Interest form (NOVA/COI), announcing planned verification activities. This form was submitted to the Reserve's website on August 5, 2014; the COI assessment revealed no conflicts of interest and was approved by the Reserve on August 21, 2014.
- RCE held a verification kickoff meeting with Blue Source on August 28, 2014. During the kickoff meeting RCE reviewed the verification objectives, verification process, and the verification schedule.
- RCE performed a strategic review and risk assessment of the received data and support documents in order to understand the scope and areas of potential risk in the GHG emissions reductions.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment. The verification plan and sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- RCE and FCO conducted a site visit for the verification the inventory and forest management on September 30 – October 3, 2014. During the site visit RCE and FCO performed key personnel interviews, sampled inventory plots, conducted reconnaissance of the project are boundary, observed elements of natural forest management, and witnessed activities representative of the baseline condition on adjacent, non-project lands.
- RCE and FCO also conducted two webinars with the Blue Source personnel to discuss the baseline and project modeling system, the inventory management system, and the associated GHG calculations.
- RCE and FCO performed a risk-based desktop review of the submitted verification documents including an assessment of the GHG calculation methods, modeling inputs and parameters,

source data completeness, GHG management and monitoring systems, evidence of regulatory compliance, and record retention practices.

- RCE submitted requests for additional documentation, clarifications, and corrective actions to Blue Source throughout the verification.
- RCE's Senior Internal Reviewer conducted a review of the verification sampling, verification report, and verification statement.
- RCE issued a final verification report, verification statement, and list of findings.
- RCE held an exit meeting with Blue Source.

3.0 Project Overview

3.1 Assessment of the GHG Reduction Project Operations

The project is located on a 5,548 acres of the Audubon Francis Beidler Forest in Dorchester, Berkeley, and Orangeburg counties, South Carolina. Some of the project area includes lands previously managed for timber production prior to Audubon's acquisition. The project area is in the tidewater region of South Carolina, and is dominated by native hardwood species, with smaller areas of naturally generated softwood and planted loblolly pine. The entire project area falls within the Atlantic Coastal Plain Swamp Hardwood & Cypress Assessment Area, within the Atlantic Coastal Plain & Flatwoods Supersection.

An NRCS WRP easement was conveyed by Audubon at the project outset, perpetually excluding harvest activities within the project area unless otherwise permitted by NRCS. Therefore, the main IFM project activity consists of preserving the forest its natural state, and ensuring no harvesting encroachment occurs along its borders. In absence of the easement, the baseline harvesting practice in the area is periodic clear-cut regeneration harvests of approximately all growth, with best management practices (BMPs) restricting harvests in streamside areas. Given the easement restrictions that prohibits harvesting within the project area, no harvesting is expected in the project scenario.

3.2 GHG Project Boundary (sources, sinks and/or reservoirs)

GHG emission reductions for the Project are quantified by comparing actual onsite carbon stocks against modeled baseline onsite carbon stocks and baseline carbon in harvested wood products. The difference in these project and baseline carbon stocks year over year is the basis for calculating the project's primary effect of maintaining and enhancing forest GHG pools. Secondary effects made up of un-intentional GHG emissions from the project (e.g. harvest leakage to non-project lands) are also taken into account. Net GHG reductions and removals for each year are the sum of the project's primary and secondary effects.

According to the Protocol, carbon dioxide (CO₂) is the only GHG considered within the boundary for the baseline and project activities.

Table 2 lists the sources of GHG emissions reviewed during the verification of the Project, as required by the Protocol.

Table 2. Project GHG Sources, Sinks, and Reservoirs for IFM projects

Activity	GHG Sources, Sinks & Reservoirs
Baseline	<ul style="list-style-type: none"> • IFM-1: Modeled standing live carbon (CO₂) in all portions of living trees. • IFM-3: Modeled standing dead carbon (CO₂) in all portions of dead, standing trees. • IFM-6: Modeled estimates of soil carbon (CO₂) required if site preparation includes soil disturbance over 25% of the project area or mechanical site preparation is not conducted on contours. Excluded for this project, as no large-scale site preparation was expected in the baseline case. • IFM-7: Modeled estimates of carbon (CO₂) in in-use forest products (100-yr average). • IFM-8: Modeled estimates of carbon (CO₂) from forest products stored in landfills (100-yr average).
Project	<ul style="list-style-type: none"> • IFM-1: Measured standing live carbon (CO₂) in all portions of living trees. • IFM-3: Measured standing dead carbon (CO₂) in all portions of dead, standing trees. • IFM-6: Measured carbon (CO₂) required if site preparation includes soil disturbance over 25% of the project area or mechanical site preparation is not conducted on contours. Excluded for this project, as no large-scale site preparation has occurred as part of the project. • IFM-7: Estimates of carbon (CO₂) in in-use forest products (100-yr average). Excluded as no harvests have occurred. • IFM-8: Estimates of carbon (CO₂) from forest products stored in landfills (100-yr average). Excluded as no harvests have occurred. • IFM-9: Biological emissions (CO₂) from site preparation activities. Excluded for this project, as no large-scale site preparation has occurred as part of the project. • IFM-14: Biological emissions from changes in harvesting on forestland outside the project area (default 20% leakage).

3.3 Project Type – Improved Forest Management

The project meets the definition and requirements of an Improved Forest Management Project as specified in the Protocol, Section 2.1.2. It meets the requirements because:

1. The project takes place on land that has greater than 10 percent canopy cover. This was verified through on-site reconnaissance during the site visit, review of aerial photography, and verification sampling of the inventory.
2. The project employs natural forest management practices, as defined in Section 3 of the Protocol. See Section 4.6 of this report for documented verification of this requirement.

3. The project does not employ broadcast fertilization. Audubon attested to this in the Project Design Document (PDD) Section 2. Further, RCE witnessed no evidence of broadcast fertilization during the site visit.
4. The project does not take place on land that was part of a previously registered Forest Project. RCE confirmed this with the Audubon and through review of all projects currently registered on the Reserve.

In addition, RCE confirmed the project has not been listed with any other registries to avoid possible double-counting of GHG attributes.

4.0 Eligibility Rules and Other Requirements

The Protocol and program specify a number of eligibility rules that a Forest Project must meet in order to register reductions with the Reserve: Additionality, Project Start Date, Location, and Regulatory Compliance. The Project meets all eligibility rules. Below is a summary of the Protocol and Program eligibility rules and the Project's compliance to each requirement.

4.1 Eligibility Rule 1: Additionality

Improved Forest Management projects are considered additional if they meet the legal requirement and the performance tests.

Legal Requirement Test

The legal requirement test requires that forest projects achieve GHG reductions and removals beyond those that would result from state, federal or local laws, regulations and ordinances. Blue Source and Audubon confirmed that there are no legal requirements requiring activities that maintain or enhance forest carbon stocks in South Carolina. Furthermore, RCE reviewed information on the South Carolina Forestry Commission's website indicating that there are no laws or regulations restricting forest harvest on private lands in South Carolina, aside from quasi-regulatory Best Management Practices (BMPs) for the protection of water quality to which Blue Source adhered when modeling baseline management. Furthermore, Audubon has signed and filed the Attestation of Voluntary Implementation with the Reserve attesting that the project's GHG management activities are not legally required. Therefore, it passes the legal requirement test.

Performance Test

The performance test requires all forest projects to achieve GHG reductions and removals beyond those resulting from "business as usual" activities defined in the Protocol. Under the Protocol, all IFM projects that meet the requirements for baseline estimation pass the performance standard test. This project meets the Protocol baseline estimation requirements (see Section 6 of this report), so it passes the performance test.

4.2 Eligibility Rule 2: Project Start Date

The Protocol defines the project start date for IFM projects as the date on which forest management activities that increase sequestration and/or decrease emissions relative to the baseline are initiated. Audubon and Blue Source claim a start date of July 17, 2007, the effective date of the WRP easement that perpetually restricts harvesting within the project area. The Reserve's Clarification issued June 8,

2010 indicates that the recordation of a conservation easement is an eligible activity denoting a project start. RCE reviewed the executed WRP easement, confirming the start date.

The Protocol restricts eligibility to projects with start dates as early as January 1, 2001, as long as they list with the Reserve prior to March 1, 2010. This project did not meet the March 1, 2010 listing deadline due to ongoing consultation with the Reserve; however, Blue Source was able to provide evidence that they were granted an extension from the Reserve. All of the information reviewed allowed RCE to confirm start date and its eligibility under the program.

The project crediting period, which lasts for 100 years beyond the project start date, is July 17, 2007 through July 16, 2107.

4.3 Eligibility Rule 3: Regulatory Compliance

The Reserve Program requires that all projects are in compliance with applicable laws during all periods for which they attempt to claim credit. Project developers are required to disclose periods of non-compliance to verification bodies and the Reserve. RCE reviewed an easement monitoring report indicating that Audubon was complying with the terms of their easement. Further, as there is no harvesting occurring within the project area, there is a low risk of non-compliance with any applicable harvest regulations RCE did not find any evidence of regulatory non-compliance during our review. Additionally, Audubon has also submitted the signed Attestation of Regulatory Compliance to the Reserve. Additionally, RCE verified that the Attestation of Regulatory Compliance was signed after the end of the reporting period and uploaded to the Reserve software.

4.4 Eligibility Rule 4: Project Location

RCE verified that the Project is located on private lands in the Tidewater region of South Carolina, USA. All forest projects on private lands within the United States are eligible, per the Protocol. RCE also reviewed maps submitted to the Reserve as part of project documentation to confirm that the maps provided meet Protocol requirements. While the RCE/FCO team noted discrepancies in physical project boundaries and the project area (see section 6.3.1 of this report), these were deemed to have an immaterial effect on crediting.

4.5 Forest Owners & Ownership of GHG Reductions

RCE reviewed evidence that Audubon owns and manages the Francis Beidler forest, including all tracts in the project area. RCE reviewed deeds and/or title insurance for each applicable tract which indicated Audubon as the holder of all rights and claims to the property. Audubon later granted certain rights over land management that may affect carbon stocks to the United States through the conveyance of the WRP easement. However, a Reserve policy memo dated November 15, 2012 clarifies that projects listed with the Reserve prior to December 12, 2011 do not need to have rights to carbon explicitly defined within applicable easements. This was reconfirmed by the Reserve in a letter dated November 20, 2014, which asserted Audubon is the sole forest owner after an internal review of the WRP. Additionally, RCE verified that the Attestation of Title was signed after the end of the reporting period and uploaded to the Reserve software.

4.6 Sustainable Harvesting Practices

The Protocol requires that, at the time commercial harvesting is either planned or initiated within a project area, that the project meets certain sustainable harvest requirements. No harvesting is planned within

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4.6 Sustainable Harvesting Practices

The Protocol requires that, at the time commercial harvesting is either planned or initiated within a project area, that the project meets certain sustainable harvest requirements. No harvesting is planned within

the project area during the crediting period. Further, the conservation easement in place on the project area does not allow for commercial harvesting. RCE reviewed a third party easement monitoring report dated August 2014 indicating that Audubon was meeting its easement commitments. RCE also did not witness any evidence of recent harvest during our site visit. As harvests are neither allowed nor planned within the project area, and no evidence of harvests since the project date have been witnessed, this requirement is not currently applicable to the Project.

4.7 *Natural Forest Management*

The Protocol requires that all projects promote and maintain a diversity of native species and utilize management practices that promote native natural forest diverse in structure, species composition and age class. There are a number of verifiable requirements to be assessed during each site verification to ensure these Natural Forest Management (NFM) requirements are being met, or that progress towards the goals is evident. The Francis Beidler forest falls within the Atlantic Coastal Plain Swamp Hardwood & Cypress native forest type, as described in the Protocol companion document, “Assessment Area Data File”, which defines some of the NFM requirements.

The Francis Beidler improved forest management project meets the native species requirement that forest projects must consist of at least 95% native species based on the sum of carbon in the standing live carbon pool. Greater than 99% of the basal area of the project is made up of native species, and Audubon’s management plan indicates an active invasive species control program. The Protocol also defines maximum prevalence of a single species within the project. Currently, the verified inventory estimate shows a diversity of species, with Blackgum being the most prevalent, at ~35% of basal area—well below the maximum of 65% given for the Atlantic Coastal Plain Swamp Hardwood & Cypress forest type in the “Assessment Area Data File”.

Audubon is not required to demonstrate conformance with the “Distribution of Age Classes/Sustainable Management” criterion in Table 3.2 of the FPP, as they apply only when the first regeneration harvest occurs in the project scenario. As noted previously, no harvesting is planned during the project crediting period.

Audubon must demonstrate a diversity of natural structural elements across the forested landscape, manifested by maintaining sufficient levels of standing and lying dead wood. RCE saw no evidence of salvage removals during the site visit and witnessed high levels of lying and standing dead wood—the result of an ice storm the previous winter. As no area of the Project has undergone recent salvage harvesting, Audubon is required to maintain or show progress towards one metric ton of carbon per acre or 1% of standing live carbon stocks in standing dead wood, whichever is higher. Currently, the project has roughly 0.9 tonnes C/acre in standing dead wood, lower than in their 2012 inventory. However, the Project’s current standing dead carbon stocks are at well over 1% of standing live carbon stocks (~1.5%), and it is clear that any reductions in standing dead carbon from previous inventories were due to the recent ice storm resulting in increased recruitment of standing dead stocks into the lying dead pool—not due to active removals. This requirement will be continuously monitored and confirmed during future verification events.

4.8 *Promotion of Onsite Carbon Stocks*

Projects are required to maintain or increase carbon stocks over any 10-year period, with certain demonstrable exceptions in the case of balancing age classes or increasing forest resiliency against natural disturbance. As previously mentioned, no harvests are planned within the project area during the lifetime

of the Project per their WRP easement, so it is unlikely that onsite carbon stocks will decrease over the project life. RCE reviewed modeling of the project scenario, which shows increasing carbon stocks throughout the project life. Further, current verified inventory estimates are greater than those at project initiation, allowing us to confirm that this requirement has been met.

5.0 Interviews

In order to support the verification process, the verifiers arranged a number interviews and webinars with Blue Source and Audubon throughout the verification process. RCE and FCO arranged two separate webinars with Blue Source in order to get an overview of their data management system, their inventory calculations, and modeling. These overviews enabled RCE to undertake an independent review of their modeling procedure, inventory process and calculations. During the site visit we were also able to interview representatives of the forest owner in charge of managing the site, as well as a member of the crew responsible for conducting the most recent inventory update. These interviews allowed RCE to ground-truth elements of the PDD, project management, non-project activities that may affect carbon stocking, and application of the inventory field methodology.

6.0 Quantitative Review of Emission Reductions/Removals Assertion

Several elements were reviewed by RCE to ensure the project's compliance with the Protocol's guidance for determining emission reductions. The primary components of this review are confirmation of baseline model eligibility, review of a theoretical verification plot, on-site inventory verification check, inventory and baseline carbon calculation review, review of the risk of reversal rating, and assessment of GHG emission reduction calculations. Each of these elements are reviewed below.

6.1 *Baseline & Project Modeling*

Blue Source undertook baseline modeling on behalf of Audubon. The legality of the proposed baseline management practice was confirmed by RCE through a review of information on the South Carolina Forestry Commission's website indicating that there are no laws or regulations restricting forest harvest on private lands in South Carolina, aside from quasi-regulatory Best Management Practices (BMPs) for the protection of water quality to which Blue Source adhered when modeling baseline management. Blue Source's baseline model assumes clear-cut harvests on a 60-year rotation over nearly the entire project acreage. RCE reviewed and did a basic recalculation the financial model provided by Blue Source to determine financial feasibility of the baseline harvest scenario. The model assumptions were obtained from relevant sources at the time of project initiation.^{1,2,3,4} RCE's calculation generally agreed with Blue Source's, showing a positive per-acre net present value of the baseline harvest scenario over the 100-year project period. Additionally, Blue Source provided aerial imagery of harvests on lands adjacent to the project which indicate the validity of their harvest assumptions. Clear-cut harvests of the type proposed

¹ Straka, T. J. (2007). Economic Analysis of Conservation Forestry Practices Applicable to the South Carolina Lowcountry. Clemson University

² Bush, T. (2009). Economic Analysis of Bottomland Hardwood Silviculture. Timberland Associates

³ USDA Forest Service. (2012). Cost Estimating Guide for Road Construction.

⁴ Timber Mart-South. (2012). South Carolina Timber Prices, 2nd Quarter 2012.

by Blue Source as the baseline scenario have occurred on surrounding lands with similar slope within the past ten years.

To determine baseline and project carbon pools over the 100-year project period, Blue Source utilized the USDA's Forest Vegetation Simulator (FVS) Southern Variant, a Reserve approved growth model. The FVS model was appropriately calibrated for local conditions by inputting the nearest National Forest, the Francis Marion Forest. Local Site Index values were used for modeling, which were derived from an analysis of height and age samples of co-dominant sweetgums and blackgums sampled along transects within the project area. For the baseline scenario, clear-cuts of roughly 300-acres were selected for removal each year, naturally regenerating based on defaults of the FVS Southern Variant. Given the 5-year minimum model increment in FVS, an entire 10-year harvest block would be scheduled for harvest in the fifth year, with the result being that average baseline harvests were reflected over that 10-year period. The growth-harvest data was used to populate spreadsheets which calculated 100-year baseline carbon. Harvest breakpoints for sawtimber and pulpwood were adjusted in the model to account for regional standards. Additionally, cut-lists were exported from FVS as the basis for determining baseline carbon in harvested wood product, which were used to populate the harvested wood product calculations spreadsheets. RCE confirmed that the appropriate wood product classifications and mill efficiencies were used. A few stands—in particular those found within the Streamside Management Zones (SMZs)—were subject to unique modeling constraints. Stands found within the SMZs were never modeled for harvest. In the baseline model, a handful of stands were thinned, not clear-cut, only once.

Baseline models must be compared to the common practice metric to ensure that average standing live carbon stocks modeled over the 100-year baseline period are at or above common practice. Common practice values for assessment areas are found in the Protocol companion document, "Assessment Area Data File", and are dependent on site productivity. RCE reviewed both Blue Source's determination of site index values for co-dominant species, and their process for converting them to Forest Service site class productivity values used in the common-practice lookup table. Based on this process, RCE can confirm the choice of common practice method of 76.68 tonnes CO₂e per acre—the value for low productivity in the Atlantic Coastal Plain Swamp Hardwood & Cypress assessment area—as appropriate. The modeled 100-year baseline value developed by Blue Source is 76.95 tonnes CO₂e per acre, meeting the requirement that they be at or above the common practice metric.

All of the modeling commands were reviewed to ensure that they accomplish the modeling goals described in the PDD. In addition, RCE re-ran a sub-sample of the modeling pertaining to Compartment 2 from the source data, compared outputs to what was used to calculate baseline carbon stocks, and found overall agreement. In addition to the forward projection for the baseline, Blue Source also used modeling to back-cast their 2012 inventory to the 2007 start date. This involved growing the model forward from 2012 by one five-year period, then using the individual tree diameter and height growths as the basis for back-casting. For the 100-year project scenario, inventory was simply grown forward without any harvests projected, implying no active management would take place. These processes were reviewed by RCE to ensure they were correctly carried out. Resultant outputs were integrated into carbon calculations, which were reviewed as described in Section 6.4 below.

6.2 Verification Plot

The Forest Project Verification Protocol v. 3.0 requires that verifiers provide a theoretical "verification plot" containing all tree species found within the project with varying heights and diameter to ensure that the representative carbon tonnes per acre as calculated by the project developer agrees with the output

separately calculated by the verifiers. RCE/FCO provided such a plot to Blue Source, who calculated representative carbon tonnes per acre which matched RCE/FCO’s calculation. RCE also audited the calculation spreadsheets provided by Blue Source to ensure conversions and expansion factors matched source material and were correctly applied.

6.3 On-site Inventory Verification Check

During the site visit, RCE and FCO verified inventory estimates based on our understanding of inventory risk and the “verification field intensity” determined following the assessment criteria found in the Verification Protocol, Checklist 5.5.

The following verification criteria were considered to have either a weak or strong demonstration, affecting the verification field intensity.

1. Plot location: **Strong** – Permanent plots were monumental with a metal bolt, piece of PVC pipe and flagged. GPS locations were also provided. Despite swampy conditions, plots were found easily based on the GPS and visual indicators.
2. Inventory methodology: **Weak** – While an inventory document was provided, demonstrations by the project developer’s representative who was involved in the field work indicated a lack of adherence to it. This was unexpected at the outset of verification and caused RCE and FCO to increase the number of plots to be verified from 6 to 12, per the increased field intensity.
3. Forest vegetation is stratified: **Strong** - Forest area is divided into two strata based on infrared areal imagery.
4. Updating process: **Strong** – Forest owner was able to demonstrate the update process, which was current.
5. Inventory/field correlation: **Strong** – Field and provided aerial photos showed strong correlation with the stratification and inventory reports.

Given that the project covers ~5,200 acres of forestland, the verification field intensity as determined per the FPVP Checklist 5.5 is shown in Table 3.

Table 3. Verification Field Intensity

Verification Multiplier for Acreage	Verification Criteria 1	Verification Criteria 2	Verification Criteria 3	Verification Criteria 4	Verification Criteria 5	Verification Field Intensity
1.5	1	2	1	1	1	3

The number of required plots is based on field intensity multiplied by 4, so a minimum of 12 plots were required to be verified. Plots chosen for verification were all located in the Compartment 2, Stand 1 stratum. This stratum was the highest stocked and represented the largest stratum, containing roughly 50% of carbon stocks and covering 42% of total project acreage. Given the “verification field intensity” of 3, 60% of plots verified should be in plots within the highest 33% stocking level, and 40% of plots are required to be in plots within the middle 33% project stocking level. To approximate this, the random selection of plots included seven plots located in the highest 33% stocking level, and four plots located in the middle 33% stocking level, and one plot in the lowest 33% (plots outside of sampled strata were included when ranking plot stocking level).

The plots selected for verification were as follows:

Table 4: Site Verification Plots

Plot ID	Stocking Level
2198	Highest 33%
21108	Highest 33%
2151	Highest 33%
21160	Highest 33%
21157	Highest 33%
2164	Highest 33%
21171	Highest 33%
21146	Middle 33%
2167	Middle 33%
2186	Middle 33%
21180	Middle 33%
2173	Lowest 33%

Once plot data were collected, verifiers compared the mean carbon stocking provided by Blue Source with the data collected during the site verification. The results were analyzed using a paired t-test at the 80-percent confidence interval. Inventory carbon stocking levels calculated by verifiers were not found to be significantly different from Blue Source’s calculations, therefore the inventory was considered to pass the verification requirements.

6.3.1 Project Area

During the site visit, verifiers conducted boundary-line reconnaissance by visiting project boundary edge lines and points, plotting edge and corner points with GPS receivers, and determining whether there were discrepancies with the digital project boundary files provided by the project developers and the physical boundary witnessed on site. This was done to determine the risk that project area inaccuracies could contribute to a material misstatement in project emission reductions. During this assessment we noted errors in boundary line identification for the project. Audubon was able to provide a revised boundary GIS shapefile based on its ongoing boundary-line identification and refinement process. RCE used the updated boundary shapefile to determine that the probability of misstatement resulting in a material over-issuance of credits was exceptionally unlikely, given the inventory statistics.

6.4 Inventory and Baseline Carbon Calculation Review

RCE conducted a risk-based review of baseline inventory, project inventory, baseline harvest, and emission reduction calculations to ensure conformance with Protocol requirements and agreement with emission reductions/removals reported in monitoring reports and the CAR online reporting system. As part of our baseline calculation review, RCE recalculated the 100-year baseline carbon inventory levels for Compartment 3 (approximately 60% of total plots in the project) from the modeled individual tree growth,

finding agreement with average carbon stocking levels within the compartment. RCE separately calculated 100-year baseline average carbon stockings levels for the entire project area based on plot-level CO₂ inventory and harvest data, finding material agreement with the reported 100-year average of 96.64 tonnes CO₂ per acre (76.95 tonnes CO₂ per acre above ground). RCE reviewed use of the Reserve Harvested Wood Product spreadsheet, tracking inputs from the cut-list FVS outputs and confirming 100-year baseline average CO₂ from harvested wood product. RCE also fully recalculated 2012 inventory levels from the tree-level data, agreeing with the reported levels. Given a recent effort to re-measure plots during the most recent verification period (9/1/2013 – 08/31/2014), Blue Source was able to lower the sampling error associated with the current project inventory. RCE confirmed proper calculation of inventory sampling error (5.4% at the 90% confidence interval), and application of the confidence deduction required due to this level of sampling error (confidence deduction of 0.3%).

6.5 Project Reversal Risk Rating and the Project Implementation Agreement

The Protocol sets out a standard for determining the risk of project reversals from several project risk categories listed in Appendix D of the Protocol. This rating determines the percent of project credits issued to the program buffer to maintain permanence of the GHG removals in case of project failure. RCE reviewed the 9 individual types of risk identified in the Protocol as well, ensuring the correct default or assessment area-specific factors were applied, and recalculated the Project Reversal Risk Rating. RCE's independent calculation confirmed the project developer's assertion of a 20.9% Reversal Risk Rating.

Permanence is further safeguarded through the Project Implementation Agreement (PIA), an agreement between the Reserve and Audubon that commits Audubon to maintaining the project per the protocol requirements for the duration of the Project's Minimum Time Commitment. Audubon is required to register and executed copy of the PIA in each county containing a portion of project lands. RCE reviewed evidence confirming that an executed PIA has been registered in Dorchester, Berkeley, and Orangeburg counties prior to issuance of credits reviewed during this verification.

6.6 Assessment of GHG Emissions Reductions Calculations

RCE used data checks to ensure that the appropriate methodologies and GHG emission factors were applied in calculating the Project baseline and annual GHG emissions, project emissions, and GHG reductions. RCE's emission reduction calculations assessment included a check of the inputs into the Reserve Monitoring Calculation Worksheet uploaded to the Reserve for the reporting period. RCE confirmed that Blue Source appropriately filled out the worksheet based on its baseline and project calculations for all required pools. Date adjustments were used to correct for differences in carbon stocks between the end-date of model projections and the end-date of reporting periods, and RCE confirmed that these were appropriately calculated and applied. RCE separately recalculated the total GHG emission reductions based on RCE's recalculations from inventory data and compared the results to Blue Source's calculations; RCE identified no material misstatements in the final reported GHG emission reductions.

7.0 Verification Results

Blue Source and Audubon provided sufficient evidence and documentation of their emission reduction estimates, data collection procedures, and monitoring and quality control procedures. The verification

process focused on verifying the emission reduction calculations and the source data used to quantify the emissions reductions in accordance with Protocol requirements.

Table 5 defines the emission reductions verified for this reporting period. During final review, RCE identified no material misstatements in the data or emission reduction calculations.

During the verification process, RCE made requests for clarifications, corrective actions, and supplemental documentation to complete the verification. Blue Source and Audubon sufficiently addressed all corrective actions. The details of these requests are documented in RCE’s list of findings provided to the Reserve and Blue Source.

8.0 Conclusion

RCE conducted a risk-based analysis of the CAR683 Blue Source – Francis Beidler Improved Forest Management Project emission reduction assertions including a strategic review of the Project data and evidence. Based upon the processes and procedures and the evidence collected, RCE concludes that the GHG assertion is a fair representation of the Project emission reductions resulting from the capture and destruction of biogas during the reporting periods November 1, 2012 through August 31, 2013 and September 1, 2013 through August 31, 2014 and can be considered:

- In conformance with the Reserve U.S. Forest Project Protocol Version 3.1,
- Without material discrepancy, and
- Verified to a reasonable level of assurance.

The verified emission reductions are listed in Table 5.

Table 5. Emission Reductions Verified for November 1, 2012 through August 31, 2013 and September 1, 2013 through August 31, 2014

Emissions Verified	Total Emission Reductions CO ₂ e (metric tons)	Buffer Pool Contribution CO ₂ e (metric tons)	Total Emission Reductions Issued to Account Holder CO ₂ e (metric tons)
2012 Emission Reductions	1,650	345	1,305
2013 Emission Reductions	11,665	2,438	9,227
2014 Emission Reductions	16,150	3,376	12,774
Total	29,465	6,159	23,306

Lead Verifier Signature



Bonny Crews

Senior Internal Reviewer Signature



Zach Eyler



Verification Report for CAR441 George DeRuyter & Sons Dairy
January 1, 2014 – December 31, 2014

Prepared for:

Origin Climate Inc.

June 5, 2015

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1.0 Introduction

Origin Climate Inc. (Origin Climate) contracted Ruby Canyon Engineering (RCE) to perform the verification of the George DeRuyter & Sons Dairy project (Project) for the reporting period January 1, 2014 through December 31, 2014 to the Climate Action Reserve (CAR) Livestock Project Protocol Version 3.0 (Protocol). The Project involves greenhouse gas (GHG) emission reductions from the capture and destruction of methane from a biogas control system at the George DeRuyter & Sons Dairy.

1.1 Project Background & Site Description

The George DeRuyter & Sons Dairy is located near Outlook, Washington. The dairy includes dairy cows, non-milking dairy cows, and heifers whose waste the Project Developer included in the baseline and project scenarios. The Project commenced in November 2006. Prior to the installation of the Project, the manure was treated in uncovered anaerobic lagoons that exceeded one meter in depth.

1.2 Responsible Parties

Project Developer: Origin Climate, Inc.

1.3 Verification Team

The RCE verification team consisted of the following individuals who were selected based upon verification experience and knowledge of the livestock methane sector.

Lead Verifier: Phillip Cunningham

Team Member: Samantha Phillips

Senior Internal Reviewer: Bonny Crews

1.4 Objectives

The goal of the verification activities was to ensure that the claimed GHG emission reductions were complete, consistent, accurate, transparent, and permanent and that the Project was in compliance with the Reserve's project additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to RCE is well documented and free of any material errors or omissions.

1.5 Scope

The scope of the verification consisted of the following independent and objective activities:

- Review the Project Monitoring Plan
- Conduct a site visit to the Project location
- Review Project eligibility
- Review the Project's baseline scenario and project boundaries
- Review Project data acquisition and quality control procedures
- Review Project documents and data against the Verification Criteria listed in Table 1
- Review the Project's emission reduction calculations
- Issue requests for additional documentation, clarifications, and corrective actions as necessary
- Issue a verification report, list of findings, and verification statement to Origin Climate and the Reserve

1.6 Verification Criteria

Table 1 Verification Criteria

Criteria	Details
Standard of Verification	<ul style="list-style-type: none"> • Climate Action Reserve U.S. Livestock Project Protocol Version 3.0 (September 29, 2010) • Errata and Clarifications to U.S. Livestock Project Protocol Version 3.0 (January 21, 2014) • Climate Action Reserve Program Manual (October 26, 2011) • Climate Action Reserve Verification Program Manual (December 20, 2010)
Verification Process	ISO 14064-3 Specification with guidance for the validation and verification of greenhouse gas assertions
Level of Assurance	Reasonable assurance
Materiality	A +95% accuracy level (less than 5% error) because total annual ERs are less than 25,000 tCO ₂ e

2.0 Verification Activities Summary

Prior to starting the verification, RCE developed a verification plan to be followed throughout the verification. The verification plan consisted of the following activities:

- RCE completed the Project NOVA/COI form to identify any potential conflicts of interest with the Project or Project developer and submitted the NOVA/COI form to the Reserve. The COI assessment revealed no conflicts of interest and was approved on March 16, 2015.
- RCE held a verification kickoff meeting with Origin Climate on March 20, 2015. During the kickoff meeting RCE reviewed the verification objectives, verification process, and the verification schedule.
- RCE performed a strategic review and risk assessment of the received data and support documents in order to understand the scope and areas of potential risk in the GHG emission reductions.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment and used the verification plan and sampling plan throughout the verification. RCE revised the plan as needed based upon additional risk assessments.
- RCE conducted a site visit on April 1, 2015. During the site visit RCE performed key personnel interviews, inspected the Project equipment, and observed the onsite GHG management systems and data gathering, monitoring, and handling practices.
- RCE performed a risk-based desktop review of the submitted verification documents including an assessment of the GHG calculation methods and inputs into the Reserve Livestock Calculation Tool, source data completeness, GHG management and monitoring systems, evidence of regulatory compliance, and record retention practices.
- RCE's senior internal reviewer conducted a review of the verification sampling, verification report, and verification statement.
- RCE developed a final verification report, verification statement, and list of findings.
- RCE held an exit meeting with Origin Climate on June 5, 2015.

3.0 Verification Findings

3.1 Assessment of the GHG Reduction Project Operations

The Project collects biogas at the George DeRuyter & Sons Dairy and destroys it via combustion through one of four combustion devices: two Gauscor SFGLD 480 600kW engines which generate electricity, a custom open flare, and a boiler. Each of the destruction devices has a dedicated flow meter (the boiler came on-line after one of the engines failed, using the same flow meter to measure biogas). The biogas control system (BCS) consists of a two-stage mixed-plug flow anaerobic digestion treatment facility that has a retention time of twenty-one days.

Pre-project, there were four uncovered anaerobic lagoons that received all of the waste from the free-stall barns and the milking parlor via a daily scrape routine from the North and South farms. The waste stream passed through stationary screens before being sent to the lagoons. The dairy cleaned out one of the four lagoons annually and applied that lagoon's waste to crop fields. RCE confirmed that this baseline lagoon cleanout is applied in the calculation of emission reductions to the month of July each reporting period. The lagoons, now part of the effluent ponds, exceeded one meter in depth and thus provided anaerobic conditions.

A flushing system automatically delivers manure and milking center wastewater from the main barns to a manure collection pit. Effluent exiting the digester is passed through a screw press and roller drum to remove solids before entering the effluent ponds, a sequence of four ponds the last of which is seasonally applied to the farm's fields. During the site visit, RCE confirmed that there was no crust cover on the effluent ponds.

3.2 GHG Project Boundary (sources, sinks and/or reservoirs)

The Reserve methodology quantifies GHG emission reductions for the Project by comparing actual project emissions to baseline emissions. The calculation of GHG emission reductions includes the use of modeled reductions as well as ex-post metered data from the BCS as a check on modeled reductions. According to the Protocol, carbon dioxide and methane are the only GHGs included in the Project boundary from the baseline and Project activities.

The GHG emission sources included in this Project are emissions from waste collection and transport, the effluent pond, emissions from combustion during flaring including emissions from incomplete combustion of biogas, emissions from incomplete combustion during electric generation, emissions from the boiler, and emissions from support equipment.

There are manure management practices that generate emissions, including composting and dry lot storage; however, these practices are the same in the baseline and project scenarios and the fractions of manure sent to each management practice does not change from the baseline to the project. Table 2 lists the sources of GHG emissions reviewed during the verification of the Project.

Table 2 Project GHG Sources, Sinks, and Reservoirs

Activity	GHG Sources, Sinks & Reservoirs
Baseline	<ul style="list-style-type: none"> • CH₄ emitted to the atmosphere from uncontrolled anaerobic treatment and storage of manure. • CH₄ emissions from composting • CH₄ emissions from dry lot storage
Project	<ul style="list-style-type: none"> • CH₄ emissions from composting • CH₄ emissions from dry lot storage • CH₄ emissions from the effluent pond • CH₄ emissions from the incomplete combustion of biogas in the engines, flare, and boiler • CO₂ emissions from the combustion of fossil fuels used during operation and maintenance activities for the Project activity • CO₂ emissions resulting from the consumption of imported electricity • CH₄ emissions from the venting of biogas from the digester, if applicable

3.3 Project Eligibility Criteria

The Protocol specifies five eligibility rules that a livestock project developer must meet in order to register reductions with the Reserve: Location, Project Start Date, Anaerobic Baseline, Additionality, and Regulatory Compliance. RCE verified that the Project meets all eligibility rules. Below is a summary of the Protocol eligibility rules and the Project’s compliance to each requirement.

Eligibility Rule 1: Location

The Project is at a U.S.-based dairy farm located in Outlook, Washington. It therefore meets this eligibility requirement. RCE confirmed the Project location during the site visit.

Eligibility Rule 2: Project Start Date

The start date for a livestock project is defined as the date at which the project’s BCS becomes operational—begins producing and destroying methane gas upon completion of an initial start-up period. RCE confirmed November 3, 2006 as the Project start date by reviewing a letter from the digester general contractor.

Eligibility Rule 3: Anaerobic Baseline

Project developers must demonstrate that the depth of the anaerobic lagoons or ponds prior to the Project’s implementation were sufficient to prevent algal oxygen production and create an oxygen-free bottom layer—at least one meter deep. RCE viewed the lagoons at the site visit to confirm that the depth exceeds one meter.

Eligibility Rule 4: Additionality

Performance Standard Test

For livestock projects, the Reserve uses a technology-specific threshold (or practice-based threshold); by installing a BCS, a project passes the Test. The Performance Standard Test is applied at the time of the Project’s start date and all projects that pass are eligible to register reductions with the Reserve

throughout the duration of the first crediting period even if the Reserve revises the Performance Standard Test in subsequent versions of the Protocol. Based on RCE's review of the Project and equipment, the Project passes the Test.

Legal Requirement Test

RCE confirmed that the Project passes the Legal Requirement Test because there are no local, state, or federal laws, statutes, regulations, court orders, or other legally binding mandates requiring the installation of a BCS at the dairy farm. The Project must only pass this test once for the duration of its first crediting period, even if legal requirements change or new legal requirements are enacted during that period. RCE verified that the Project passes the Test by reviewing permits and confirming that there are no local or State of Washington laws requiring the installation of a biogas collection and control system. RCE also verified that the project developer completed the Attestation of Voluntary Implementation form and uploaded it to the Reserve after the end of the reporting period.

Eligibility Rule 5: Regulatory Compliance

The dairy also had no instances of non-compliance to report to RCE. RCE verified that the Project was in compliance with all applicable laws throughout the reporting period. The lead verifier emailed several state EPA regulators listed on Washington's state EPA website and received confirmation via email and phone conversation that the dairy did not have any state regulatory violations during the 2014 reporting period. The lead verifier also emailed several federal EPA personnel responsible for regulatory violations pertaining to dairies in EPA Region 10 who confirmed that the dairy did not have any federal regulatory violations during the 2014 reporting period.

The owner of the dairy signed a consent order with the United States EPA on March 5, 2013 which stipulates certain actions that the dairy must perform. None of the EPA respondents that RCE contacted indicated that the dairy was not following the consent order.

Finally, RCE reviewed permits and the Environmental Protection Agency's Environmental Compliance History Online (ECHO) database and could not find any outstanding violations or any other evidence that the dairy had any regulatory violations. Origin Climate completed the Attestation of Regulatory Compliance and uploaded it to the Reserve after the end of the reporting period.

3.4 Ownership of GHG reductions

RCE reviewed evidence that Origin Climate owns full title to any emission reductions generated at George DeRuyter & Sons Dairy. In support of this, RCE viewed the redacted contract between Origin Climate and George DeRuyter & Sons Dairy which transfers all GHG attributes to Origin Climate. Origin Climate completed the Attestation of Title and uploaded to the Reserve after the end of the reporting period.

3.5 Assessment of Information System Controls

RCE reviewed the data management systems during the site visit and desktop review but completed the majority of the GHG management systems' review during the site visit by observing the onsite procedures and interviewing the Project personnel. The onsite review included an assessment of the Project data collection, processing and handling procedures, recordkeeping and data storage, quality control and assurance procedures, record retention systems, and a field tour of the Project equipment. The desktop review included a detailed review of the Project monitoring plan and its conformance to Protocol requirements.

Meter				
Activity	Sage 42436 (Engine #1)	Sage 42435 (Engine #2)	Sage 33233 (Flare)	Sage 81119 (Spare Meter)
Cleaned & Inspected	3/6/14		3/28/14	Not installed
	6/18/14	6/19/14		Not installed
	9/30/14			Not installed
	11/18/2014			Not installed
Accuracy checks	3/6/14		3/28/14	--
	6/18/14	6/19/14		--
	9/30/14			--
	11/18/14			--

None of the field checks indicated that any of the flow meters in use for the reporting period were ever outside of the ± 5 percent accuracy threshold as required by the Protocol. RCE confirmed that the site technician performed the final flow meter accuracy field checks in the last two months of the reporting period as required by the Protocol and that all project flow meters were reading within the ± 5 percent accuracy threshold.

RCE confirmed that calibration by the manufacturer or certified calibration service is required every five years per Protocol guidance. The Sage flow meter Operations and Instruction Manual does not specify or provide guidance on recommended calibration frequency except for conducting the zero-flow field checks which eliminate the need for annual factory calibrations. Origin Climate specifies a five year calibration schedule on all flow meters in their Monitoring Plan, and all flow meters were factory calibrated within the last five years.

3.7 Assessment of GHG Emissions Reductions Calculations

RCE's emissions reduction calculations assessment included a check of the inputs into the Reserve calculation tool and the raw methane flow data. For the reporting period, modeled emissions reductions were less than the metered emissions reductions and represented the total emissions reductions for the reporting period.

RCE confirmed that Origin Climate used site specific values for the average number of animals for each livestock category, fraction of manure from each livestock category managed by each manure management system, and average monthly temperature from a local weather station near the dairy farm. The verification team reviewed methods and source documentation used as inputs for these values and confirmed that the Project Developer included all livestock categories whose waste contributed to the baseline lagoons. Origin Climate used default values for the average live weight by livestock category, daily volatile solid production, and the maximum methane producing capacity for manure by livestock category.

Origin Climate used missing data substitution for data gaps due to the malfunctioning in data logging. RCE re-calculated all missing data substitution events and there were non-material differences between RCE's and Origin Climate's calculations.

Table 4 Emission Reductions Verified for January 1, 2014 through December 31, 2014

Emissions Verified	Total Modeled Emissions Reductions CO ₂ e (metric tons)	Baseline Emissions CO ₂	Project Emissions CO ₂	Emission Reductions CO ₂ e (metric tons)
2014 Emission Reductions	23,220	0	1	23,219

Lead Verifier Signature



Phillip Cunningham

Senior Internal Reviewer Signature



Bonny Crews



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
11/04/2016

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PRODUCER KNODE & ASSOCIATES, LLC INSURANCE 331 Main, PO BOX 40 PALISADE, CO 81526 David A Woll	CONTACT NAME: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">PHONE (A/C, No, Ext):</td> <td style="width:30%;">FAX (A/C, No):</td> </tr> <tr> <td colspan="2">E-MAIL ADDRESS:</td> </tr> <tr> <td colspan="2">PRODUCER CUSTOMER ID #: RUBYC-1</td> </tr> </table>	PHONE (A/C, No, Ext):	FAX (A/C, No):	E-MAIL ADDRESS:		PRODUCER CUSTOMER ID #: RUBYC-1									
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INSURED Ruby Canyon Engineering Inc. 743 Horizon Ct. # 385 Grand Junction, CO 81506	<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">INSURER(S) AFFORDING COVERAGE</th> <th style="text-align: center;">NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A : Hartford Fire Insurance Co A+</td> <td style="text-align: center;">00914</td> </tr> <tr> <td>INSURER B : Pinnacol Work Comp</td> <td style="text-align: center;">41190</td> </tr> <tr> <td>INSURER C : Admiral Ins Comp A+ XV</td> <td></td> </tr> <tr> <td>INSURER D :</td> <td></td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : Hartford Fire Insurance Co A+	00914	INSURER B : Pinnacol Work Comp	41190	INSURER C : Admiral Ins Comp A+ XV		INSURER D :		INSURER E :		INSURER F :	
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COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS				
C	GENERAL LIABILITY			FEI ECC 10850-04	10/28/2016	10/28/2017	EACH OCCURRENCE	\$ 4,000,000			
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 50,000			
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person)	\$ 5,000			
	GEN'L AGGREGATE LIMIT APPLIES PER:							PERSONAL & ADV INJURY	\$ 4,000,000		
	<input checked="" type="checkbox"/> POLICY	<input type="checkbox"/> PRO-JECT	<input type="checkbox"/> LOC					GENERAL AGGREGATE	\$ 4,000,000		
								PRODUCTS - COM/OP AGG	\$ 4,000,000		
									\$		
									\$		
A	AUTOMOBILE LIABILITY			34 SBA UH2338	10/24/2016	10/24/2017	COMBINED SINGLE LIMIT (Ea accident)	\$ 2,000,000			
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person)	\$			
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident)	\$			
	<input type="checkbox"/> SCHEDULED AUTOS						PROPERTY DAMAGE (PER ACCIDENT)	\$			
	<input checked="" type="checkbox"/> HIRED AUTOS							\$			
<input checked="" type="checkbox"/> NON-OWNED AUTOS				\$							
	UMBRELLA LIAB		<input type="checkbox"/> OCCUR				EACH OCCURRENCE	\$			
	EXCESS LIAB		<input type="checkbox"/> CLAIMS-MADE				AGGREGATE	\$			
	DEDUCTIBLE							\$			
	RETENTION							\$			
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			4097380	11/01/2016	11/01/2017	<input type="checkbox"/> Y / <input checked="" type="checkbox"/> N	N / A			
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)									WC STATUTORY LIMITS	<input checked="" type="checkbox"/> OTH-ER
	If yes, describe under DESCRIPTION OF OPERATIONS below									E.L. EACH ACCIDENT	\$ 1,000,000
										E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
C	E & O			FEI-ECC-10850-04	10/28/2016	10/28/2017	AGG	\$ 5,000,000			
				RETRO DATE	10/28/2005		Deductibl	2,500			

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER Ruby Canyon Engineering 743 Horizon Ct. # 385 Grand Junction, CO 81506	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE David A Woll
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