



## **Offset Verification Report**

**CAOD5521-ACR521**

Reporting Period: 10/9/2019 – 12/2/2019

California Air Resources Board Compliance Offsets Program

Prepared for:

Reclamation Technologies, Inc., dba A-Gas

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## **1.0 Introduction**

Ruby Canyon Engineering, Inc. (RCE) was contracted by Reclamation Technologies, Inc. dba A-Gas Americas (A-Gas), the Offset Project Operator (OPO) to perform the verification of the CAOD5521 – ACR521 A-Gas 1-2020 (Project) under the California Cap-and-Trade Program, Final Regulation Order: Article 5: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (Regulation) for the reporting period of October 9, 2019 – December 2, 2019. RCE is an accredited verification body (H2-19-008) under the California Cap-and-Trade Program and this verification was conducted under Regulation requirements in addition to the requirements of the California Air Resources Board (ARB) Compliance Offset Protocol Ozone Depleting Substances (ODS) Projects (Protocol), adopted on November 14, 2014. The American Carbon Registry (ACR) is serving as the Offset Project Registry (OPR) for the Project.

### **1.1 Project Background**

The Project involves GHG emission reductions from destruction of ODS that would have otherwise been released into the atmosphere. For the Project, A-Gas purchased refrigerant that originated from domestic U.S. supplies (non-federal government installations or stockpiles). Destruction followed all requirements defined in the Regulation and Protocol. The Project consisted of four destruction events labeled Plas-1103B, Plas-1103C, Plas-1103D and Plas-1130.

### **1.2 Responsible Parties**

#### Offset Project Operator

Reclamation Technologies, Inc. dba A-Gas Americas  
1100 Haskins Road  
Bowling Green, OH 43402

#### Destruction Facility

A-Gas  
1100 Haskins Road  
Bowling Green, OH 43402

#### Transport Companies

Several transport companies were used to deliver ODS from points of origin to aggregation location as well as to A-Gas. Please see sections 3.3.8 and 3.5 of this report for more detail regarding these transport companies.

#### Laboratory

National Refrigerants, Inc. (NRI)  
661 Kenyon Avenue  
Bridgeton, NJ 08032

### **1.3 Verification Team**

The RCE verification team consisted of the following individuals, all employed by RCE, who were selected based upon ARB accreditation, verification experience, and knowledge of ODS projects.

Lead Verifier and Project Specialist: Zach Eyler (ARB ID: H2-19-116)

Verifier-in-training: Jessica Stavole-Carter

Independent Reviewer: Nina Pinette (ARB ID: H2-19-130)

## 1.4 Objectives

The goal of the verification activities was to ensure that the OPO's total reported GHG reductions are free of offset material misstatement (as defined in the Regulation §95802(a)(244)) and that the Offset Project Data Report (OPDR) conforms to the requirements of the compliance offset protocol and the Regulation.

## 1.5 Scope

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

- Review A-Gas's submitted OPDR;
- Conduct a site visit to the destruction facility;
- 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;
- Submit requests for corrective actions, additional documentation, and clarifications, as necessary, and document all items in the Issues Log; and
- Issue an Offset Verification Report (OVR) and Offset Verification Statement (OVS) to A-Gas and the ACR.

## 1.6 Verification Criteria

**Table 1. Verification Criteria**

<b>Criteria</b>	<b>Details</b>
<b>Regulatory Documents</b>	<ul style="list-style-type: none"><li>• California Air Resources Board (ARB) Compliance Offset Protocol Ozone Depleting Substances Projects (November 14, 2014)</li><li>• Final Regulation Order, Subchapter 10 Climate Change, Article 5, Sections 95800 to 96022, Title 17, California Code of Regulations, (April 1, 2019)</li></ul>
<b>Guidance Documents</b>	<ul style="list-style-type: none"><li>• ARB Compliance Offset Program Ozone Depleting Substances Offset Protocol (November 14, 2014) Frequently Asked Questions (June 8, 2016)</li><li>• ARB Technical Guidance for Offset Verifiers Verification of Offset Project Data Reports (October 2013)</li></ul>
<b>Level of Assurance</b>	Reasonable Level of Assurance
<b>Offset Material Misstatement</b>	A discrepancy, omission, misreporting, or aggregation of the three, identified in the course of offset verification services that leads an offset verification team to believe that an OPDR contains errors resulting in an overstatement of the reported total GHG emission reductions or GHG removal enhancements greater than 5 percent.

## 2.0 Verification Activities Summary

As the first step in verification activities, the Lead Verifier/Project Specialist developed an Offset Verification Plan (Appendix A) to be followed throughout the verification. The verification plan included the following activities:

- RCE completed the Project Evaluation of Conflict of Interest (COI) for Offset Projects form to identify any potential conflicts of interest with the Project or A-Gas. The COI form was submitted to the ACR for review on December 5, 2019 and was approved on December 5, 2019.

- RCE completed the Project Notice of Verification Services form (NOVS) and submitted the form on December 5, 2019.
- The Lead Verifier/ Project Specialist held a verification planning meeting, via conference call, with A-Gas on December 20, 2019. RCE confirmed that the OPDR was submitted prior to the planning meeting. The planning meeting was attended by:
  - Ruby Canyon Engineering
    - Zach Eyler
  - A-Gas
    - Sandy Hoffman

During the planning meeting the Lead Verifier/ Project Specialist discussed the scope of the verification with A-Gas in addition to reviewing the verification team, verification objectives, and verification process. The Lead Verifier/ Project Specialist also requested from A-Gas information and documents needed for the verification. The planning meeting included a review of the timing of offset verification services including:

- Dates of proposed meetings and interviews with personnel
  - Follow up with A-Gas after site visit
- Date of proposed site visit
  - January 16, 2020
- Types of proposed document and data reviews
  - Point of origin documentation, chain of custody (CoC) documents, lab analysis, sampling documents, weight tickets, emission reduction calculations, permits, and other documents related to requirements of the Regulation or Protocol.
- Expected date for completing offset verification services
  - Late February 2020 (later revised to early March)
- The Lead Verifier/Project Specialist 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. Specifically, the Lead Verifier/Project Specialist determined the following risks:

**Table 2. Risk Assessment**

#	Identified areas of risk	Qualitative narrative for reason that uncertainty risk exists	Level of Risk (high, med, low)
1	Data acquisition equipment	Was equipment appropriately utilized, maintained and calibrated (if required)? i.e. PLC, Historian	Medium
2	Data sampling and frequency	The Protocol has specific requirements. Were all sampling and timing of sampling requirements met?	Medium
3	Data processing and tracking	How does the project track data? How is data processed? Manually?	Low
4	Project baseline and annual GHG emissions, GHG reductions, and GHG removal enhancement calculations	Were calculations performed according to Protocol equations?	Low
5	Data reporting	Has the project provided all the required documentation for verification to the OPR and ARB?	Low

6	Management policies or practices in developing Offset Project Data Reports	Does the report contain any material misstatements? Does it contain all required sections?	Low
7	Regulatory Compliance	Were there any violations at the destruction facility during the reporting period? Does the project have all applicable permits?	Medium
8	Point of origin	A-Gas can have complicated points of origin for some of their material.	Medium

- Pursuant to §95977.1(b)(3)(G)(2) of the Regulation, the Lead Verifier/Project Specialist developed a ranking of GHG emissions sources, GHG sinks, and GHG reservoirs (SSRs) within the offset project boundary by percent contribution to total CO<sub>2</sub>e emissions, GHG reductions, and GHG removal enhancements. The Lead Verifier/Project Specialist also ranked GHG emissions sources, GHG sinks, and GHG reservoirs by calculation uncertainty. RCE used these rankings to target areas for document reviews and data checks. The methods of the reviews and checks were noted, and the information analyzed was summarized in the sampling plan. The full SSR table in the sampling plan can be found in Appendix B.
- Pursuant to §95977.1(b)(3)(G) of the Regulation, the Lead Verifier/Project Specialist developed a risk-based sampling plan based upon the strategic review, risk assessment, and GHG emissions ranking. The verification plan and sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- The verification team reviewed a variety of documents and files provided by A-Gas throughout the verification process. These documents were provided at the start of verification activities or were provided to RCE in response to items noted in the Issues Log. All documents and files reviewed by the verification team as part of the verification can be found listed in Appendix C.
- The Lead Verifier/Project Specialist and Jessica Stavole-Carter conducted a site visit to the A-Gas destruction facility on January 16, 2020 as required by the Regulation and Protocol. During the site visit the Lead Verifier/Project Specialist completed the items listed below (more detail on these activities is provided in following report sections) as required in Section §95977.1(b)(3)(D) of the Regulation:
  - Assessed offset project eligibility and additionality according to Section 95973 of the Regulation and the Protocol – See Section 3.3 of the report
  - Reviewed the information submitted for listing pursuant to Section 95975 of the Regulation – See Section 3.3.3 of the report
  - Confirmed that the offset project boundary was appropriately defined for the Project and that all applicable GHG SSRs in the ODS Protocol were appropriately identified
  - Reviewed project baseline calculations – See Section 3.9 of the report
  - Assessed the operations, functionality, data control systems, GHG measurement and monitoring techniques – See Section 3.8 of the report
  - Confirmed that all applicable eligibility criteria to design, measure, and monitor the Project conformed to the Regulation and Protocol – See Section 3.0 of the report
  - Reviewed the rigor and appropriateness of data management systems A-Gas used to track, quantify, and report GHG reductions – See Sections 3.5, 3.6 and 3.8 of the report
    - This included reviewing data collection processes and procedures, sampling techniques and metering accuracy, quality assurance/quality control processes and procedures, and missing data procedures

- RCE also evaluated the uncertainty and effectiveness of these systems in relation to the Project
- Interviewed key personnel at A-Gas involved in collecting offset project data and preparing the Offset Project Data Report – See Section 2.0 of the report
- RCE made direct observations of equipment for data sources and equipment supplying data for GHG emission sources – See Sections 3.6.1 and 3.7.1 of the report
- Collected other information that RCE deemed necessary to complete the verification process

During the site visit, the Lead Verifier/Project Specialist met with the following individuals:

- A-Gas
  - Sandy Hoffman – Manager of Environmental Services
  - Zach Babb – Environmental Services Business Developer
  - Briana Reinke – Environmental Services
- Pursuant to §95977.1(b)(3)(D)(2)(f) of the Regulation, the verification team performed a comprehensive desk review of the submitted verification documents, relevant regulations and U.S. EPA, OH EPA, and OSHA compliance databases to confirm that the Project was in compliance at all times with all local, state, or federal environmental regulatory requirements, including health and safety regulations.
- Pursuant to §95977.1(b)(3)(D)(2)(g) of the Regulation, the Lead Verifier/ Project Specialist performed a desk review of all CoC documents as required in the Protocol.
- Pursuant to §95977.1(b)(3)(L), the Lead Verifier/Project Specialist performed data checks (more detail on data checks performed is provided in following report sections).
- Pursuant to §95977.1(b)(3)(O) of the Regulation, the Lead Verifier/Project Specialist submitted corrective action requests (CARs), additional documentation requests (ADRs) and clarification requests (CRs) to A-Gas as necessary throughout the verification and all requests are documented in the Issues Log (detailed in Section 4 of the report).
- Pursuant to §95977.1(b)(3)(R)(2) of the Regulation, RCE’s Independent Reviewer conducted a review of all verification activities, verification sampling, data checks, verification Issues Log, OVR, and OVS. The Independent Reviewer maintained independence from the offset verification services prior to conducting the review.
- The Lead Verifier/Project Specialist issued a final OVR and OVS.
- Pursuant to §95977.1(b)(3)(D)(4)(d) of the Regulation, the Lead Verifier/Project Specialist held a verification exit meeting, via conference call. The exit meeting was attended by:
  - Ruby Canyon Engineering
    - Zach Eyler
  - A-Gas
    - Sandy Hoffman

## 3.0 Verification Findings

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

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 ODS, emissions from the use of substitute refrigerants, and emissions from the destruction event. Table 3 lists the sources

of GHG emissions that RCE confirmed during the verification of the Project as required in §95977.1(b)(3)(D)(2)(a).

**Table 3. Project GHG Sources, Sinks and Reservoirs**

Activity	GHG Sources, Sinks & Reservoirs
<b>Baseline</b>	<ul style="list-style-type: none"> <li>SSR 6: Emissions of ODS from leaks and servicing through continued operation of equipment</li> </ul>
<b>Project</b>	<ul style="list-style-type: none"> <li>SSR 5: CO<sub>2</sub> emissions from the vehicular transport of ODS from aggregation point to the destruction facility</li> <li>SSR 6: CO<sub>2</sub>e emissions of substitute refrigerants from leaks and servicing through continued operation of equipment</li> <li>SSR 7: Emissions of ODS from incomplete destruction at destruction facility</li> <li>SSR 7: CO<sub>2</sub> emissions from the oxidation of carbon contained in the destroyed ODS</li> <li>SSR 7: CO<sub>2</sub> emissions from fossil fuel used for the destruction of ODS at the destruction facility</li> <li>SSR 7: CO<sub>2</sub> emissions from the use of grid-delivered electricity</li> </ul>

### **3.2 Eligible ODS**

The Project was composed of eligible refrigerants from a variety of points of origin. RCE confirmed that all ODS material was sourced from domestic U.S. supplies, that it was not extracted from foam sources, and that it was not from federal government installations, stockpiles, or tribal lands. RCE confirmed that the ODS material for this Project was not produced for, used as, or intended for use as solvents, medical aerosols, or other ODS applications.

RCE confirmed that all refrigerant collection, handling, and destruction was performed in accordance with the reporting and operation requirements of the Regulation and Protocol. A-Gas maintains numerous employees that have EPA Universal Refrigerant certifications, allowing them to handle and consolidate refrigerant that was purchased for the Project. Purchased ODS material was transported following all applicable regulations.

### **3.3 Project Eligibility Criteria**

During verification activities, RCE confirmed the eligibility of all ODS destroyed during the reporting period for this Project. The Protocol specifies eight eligibility requirements that all Projects must meet in order to be eligible. Below is a summary of the eligibility requirements and the Project's compliance to each requirement.

#### **3.3.1 General**

RCE confirmed that the project met the general eligibility requirements as outlined in the Protocol:

1. It collects and destroys ODS that would otherwise be emitted to the atmosphere,
2. It destroyed the recovered ODS through an eligible end-use management option,
3. It conforms with the point of origin documentation requirements specified in the Protocol, and
4. It conforms to the chain of custody documentation requirements specified in the Protocol.



### **3.3.2 Location**

Pursuant to §95973(a)(3) of the Regulation, RCE confirmed that the OPO sourced all Project ODS from stocks in the U.S. and destroyed the ODS within the U.S. at the A-Gas destruction facility located in Bowling Green, OH. RCE confirmed that the Project was not located on tribal lands.

### **3.3.3 Offset Project Operator**

RCE verified that A-Gas has the legal authority to implement the offset project and that it owned the ODS destroyed in the Project. RCE also confirmed that A-Gas submitted an Application for Listing an Ozone Depleting Substances Offset Project form pursuant to §95975 of the Regulation and the Protocol and confirmed that the OPDR was submitted by A-Gas within 28 months of listing and within four months after the end of the reporting period.

### **3.3.4 Additionality**

Pursuant to §95973(a)(2)(A) of the Regulation, RCE confirmed that the activities performed by A-Gas were not required by law, regulation, or any legally binding mandate applicable in the offset project's jurisdiction and would not otherwise occur in a conservative business-as-usual scenario. 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.

### **3.3.5 Offset Project Commencement**

Pursuant to §95973(a)(2)(B) of the Regulation, the Offset Project Commencement date is October 9, 2019 (after December 31, 2006) as confirmed through the dates listed on the COD for the first destruction event and through the continuous emissions monitoring system (CEMS) data tracked by A-Gas. This date also matches the OPDR submitted by A-Gas.

### **3.3.6 Offset Project Reporting Period**

The reporting period is October 9, 2019 to December 2, 2019. RCE confirmed that this is the only reporting period for the project, that it includes four destruction events, and that the reporting period begins on the offset project commencement date. Additionally, the reporting period does not exceed 12 months. RCE reviewed other offset project registries in order to confirm that no double counting of emission reductions has occurred.

### **3.3.7 Offset Project Crediting Period**

The Project crediting period is October 9, 2019 through October 8, 2029. It began on the offset project commencement date.

### **3.3.8 Regulatory Compliance**

Pursuant to §95977.1(b)(3)(D)(2)(f) of the Regulation, RCE verified that the Project was in compliance with all applicable laws from the point of origin to the end of the reporting period on December 2, 2019. RCE confirmed that there were no applicable local, regional and national requirements on environmental impact assessments based on the Project location.

#### **A-Gas**

RCE confirmed that the A-Gas destruction facility was in compliance with all local, regional, and national requirements related to environmental and health and safety regulations related to the Project activity during the reporting period. RCE searched the U.S. EPA and OSHA IMIS databases and found no issues of

noncompliance related to the reporting period. RCE searched electronic files at the Ohio EPA's website and found no compliance issues related to the destruction facility for this reporting period. RCE also confirmed that A-Gas and its employees have either 608 or 609 certifications, as applicable.

In addition, RCE reviewed the following documents from A-Gas, which were the most recent documents available at the time of verification:

- City of Bowling Green – Industrial User Permit, issued November 14, 2016
- Letter and U.S. EPA website with respect to EPA-Certified Refrigerant Reclaimers
  - A-Gas is an EPA-certified refrigerant reclaimer and is currently listed on the EPA website.
  - No U.S. EPA inspections have ever occurred.
- 2018 Annual U.S. EPA Reclaimer report
- 2018 Annual Ohio State Emergency Response Commission (SERC) report
- 2018 OSHA 300A form

#### Transporters

RCE confirmed that FedEx, Landstar, YRC Freight, XPO Logistics, Schneider Logistics and Rapid Recovery met all applicable DOT shipping requirements for the Project. RCE reviewed the companies' U.S. Department of Transportation (DOT) certifications to transfer hazardous material and the certificates were up to date. RCE found no indication of any violations associated with the transportation of ODS destroyed as part of the Project.

#### Reclaimers/Aggregators

RCE confirmed that Rapid Recovery was in compliance with all local, regional, and national requirements related to environmental and health and safety regulations related to the Project activity. RCE searched the EPA ECHO and OSHA IMIS databases and found no instances of non-compliance. RCE also confirmed that Rapid Recovery's employees have either 608 or 609 certifications, as applicable. Rapid Recovery performed all recoveries from points of origin for the Project.

### ***3.4 Point of Origin Documentation***

RCE verified the point of origin for all ODS included in this Project through purchase records, shipping records, and internal records from A-Gas. There were multiple points of origin, including A-Gas.

RCE reviewed documentation to ensure that the point of origin requirements were met, including:

- Facility name and physical address
- Point of origin zip code
- Identification of the system by serial number, if available, or description, location, and function, if serial number is unavailable (for quantities greater than 500 pounds)
- Serial or ID number of containers used for storage and transport

The points of origin for the Project were:

Point of Origin	City and State
The Hotel Annapolis	Annapolis, MD
The Point at Silver Spring	Silver Spring MD
Tysons International Plaza I	Vienna, VA
Delta Hotels	Mesa, AZ
CenterPoint Energy	Houston, TX

Frontier Funding	Houston, TX
Greater Baltimore Medical Center	Baltimore, MD
Meenan Heating and AC	Wantagh, NY
Pure Tech - Office Building	Branchburg, NJ
Macdonald Miller	Portland, OR
Texas Health Harris Methodist Hospital	Fort Worth, TX
E.M Pease Middle School	San Antonio, TX
James Center Tower	Richmond, VA
Therrien Waddel Inc	Gaithersburg, MD
DXC Technology	Blythewood, SC
Smyrna Rigging	Smyrna, GA
Milliken & Co	Nicholls, GA
Saildrone	Alameda, CA
Macy's Men's Store	Valley Stream, NY
Master Cooling	Brooklyn, NY
Xtreme Auto Body	Elgin, IL
Sealed Air Corporation	Simpsonville, SC
Sacramento Convention Center	Sacramento, CA
Department of Medical Assistance Services	Richmond, VA
Alcoa	Lancaster, PA
Lockheed-Martin	Littleton CO
Ryan Companies	Westmont, IL
The New Yorker Condos of Chicago	Chicago, IL
Tootsie Roll	Chicago, IL
McGough - Office Space	Bloomington, MN
WellStar Cobb Hospital	Austell, GA
US Navy Memorial Plaza	Washington, DC
Gosvenor Park	Rockville, MD
Northrop Grunman	Sykesville, MD
Chester County Government Services	West Chester, PA
Rapid Recovery	Peoria, AZ
Coolgas	Magnolia, TX
Diversified Pure Chem	Rhome, TX
A-Gas	Bowling Green, OH

### ***3.5 Chain of Custody and Ownership Documentation***

Pursuant to §95977.1(b)(3)(D)(2)(g) of the Regulation, RCE verified the CoC for ODS from the points of origin to A-Gas. All ODS was recovered by Rapid Recovery and transported from their regional locations to their headquarters in Peoria, AZ. All ODS was loaded into one ISO cylinders for shipment to A-Gas. RCE reviewed the bills of lading (BOL) for all applicable shipments. The shipment details are described below:

- Rapid Recovery

- Transported ODS originating from numerous points of origin to Rapid Recovery regional locations. Rapid Recovery regional locations include:
  - Denver
  - Chicago
  - Minneapolis
  - Atlanta
  - Baltimore
  - Allentown
  - Houston
  - Philadelphia
  - Bergen
  - Portland
  - Dallas
  - San Antonio
  - Richmond
  - Augusta
  - Northern California
  - New York
  - Charlotte
  - Sacramento
- Transported ODS from Rapid Recovery regional locations to Rapid Recovery facility in Peoria, AZ
- YRC Freight
  - Transported ODS originating from Alcoa to A-Gas
- XPO Logistics
  - Transported ODS originating from Diversified Pure Chem to A-Gas
  - Transported ODS originating from Coolgas to A-Gas
- Schneider Logistics
  - Transported ODS originating from Diversified Pure Chem to A-Gas
- Landstar
  - Transported ODS originating from Coolgas to A-Gas

Additionally, RCE verified the CoC documentation for the ODS samples taken for the Project and sent from A-Gas to the National Refrigerants, Inc. analytical laboratory. All CoC documentation met Protocol requirements and matched all relevant dates found in corresponding documentation.

### ***3.6 ODS Composition and Quantity Analysis***

#### **3.6.1 Scales**

RCE confirmed that A-Gas used calibrated scales to measure the pre- and post-destruction weights for the Project and that a single scale was used for each destruction event. A-Gas loaded the ODS into individual tanks (5006, 5007, 5008, 5009) each with its own scale. RCE reviewed the third-party calibration reports from prepared by Brechbuhler Scales, Inc. and confirmed each scale was calibrated at least on a quarterly basis and its accuracy was within 5% of reading.

- Plas-11103B (Tank 5009)

- The pre-destruction weight was measured at 8:50am on 11/11/2019 and the post-destruction weight was measured at 12:48pm on 11/18/2019. The destruction event commenced at 1:30pm on 11/11/2019 and concluded at 9:40am on 11/18/2017.
- Plas-1103C (Tank 5007)
  - The pre-destruction weight was measured at 8:58am on 11/11/2019 and the post-destruction weight was measured at 1:23pm on 11/15/2019. The destruction event commenced at 12:35pm on 11/11/2019 and concluded at 10:25am on 11/15/2019.
- Plas-1103D (Tank 5006)
  - The pre-destruction weight was measured at 7:22am on 11/19/2019 and the post-destruction weight was measured at 1:44pm on 12/3/2019. The destruction event commenced at 1:25pm on 11/19/2019 and concluded at 8:40pm on 12/2/2019.
- Plas-1130 (Tank 5008)
  - The pre-destruction weight was measured at 7:23am on 10/9/2019 and the post-destruction weight was measured at 7:00am on 10/16/2019. The destruction event commenced at 12:50pm on 10/9/2019 and concluded at 10:55am on 10/16/2019.

### 3.6.2 Composition Sampling

RCE verified that the procedures for the sampling of the ODS for all destruction events (mixed and non-mixed) met the requirements of the Protocol by reviewing the Batch Mixing & Sampling Forms, the Certificates of Mixing and or Sampling to Determine Composition and Concentration of ODS by Third Party Contractor or A-Gas, the ODS Sampling Certificates, the Request for Analysis forms, and the Chain of Custody Analysis Request Forms. The Lead Verifier/ Project Specialist confirmed that the following requirements were met:

- The samples must be taken while ODS is in the possession of the company that will destroy the ODS
  - RCE confirmed through the ODS Sampling Certificates and the Certificates of Mixing and or Sampling to Determine Composition and Concentration of ODS by Third Party Contractor or A-Gas, signed by Derrick Mobus or Terry Krieger of Refrigeration Mechanics, Inc.
- Samples must be taken by a technician unaffiliated with the Offset Project Operator or Authorized Project Designee.
  - RCE confirmed through the ODS Sampling Certificates signed by Derrick Mobus or Terry Krieger of Refrigeration Mechanics, Inc.
- Samples must be taken with a clean, fully evacuated sample bottle that meets applicable U.S. Department of Transportation requirements with a minimum capacity of one pound.
  - RCE confirmed through the ODS Sampling Certificates signed by Derrick Mobus or Terry Krieger of Refrigeration Mechanics, Inc.
- Each sample must be taken in liquid state.
  - RCE confirmed through the ODS Sampling Certificates signed by Derrick Mobus or Terry Krieger of Refrigeration Mechanics, Inc.
- A minimum sample size of one pound must be drawn for each sample.
  - RCE confirmed through the ODS Sampling Certificates signed by Derrick Mobus or Terry Krieger of Refrigeration Mechanics, Inc.
- Each sample must be individually labeled and tracked according to the container from which it was taken, and the following information recorded: time and date of sample, name of Offset Project Operator or Authorized Project Designee, name of technician taking sample, employer of

technician taking sample, volume of container from which sample was extracted, and the ambient air temperature at time of sampling.

- RCE confirmed through the ODS Sampling Certificates signed by Derrick Mobus or Terry Krieger of Refrigeration Mechanics, Inc.
- Chain of custody for each sample from the point of sampling to the AHRI lab must be documented by paper bills of lading or electronic, third-party tracking that includes proof of delivery (e.g., FedEx, UPS).
  - RCE confirmed through each Chain of Custody Form.

The Verification Team also confirmed that the following additional requirements were met for mixed ODS for Plas-1103B, Plas-1103C and Plas-1103D:

- Circulation and sampling activities must be conducted by a contracted third-party and by individuals who have been properly trained for the functions they perform
  - RCE confirmed through the Mixed ODS Procedures Documentation signed by Refrigeration Mechanics, Inc. technician Derick Mobus
- The offset project documentation must specify the procedures by which mixed ODS are analyzed
  - RCE confirmed through the Mixed ODS Procedures Documentation signed by Refrigeration Mechanics, Inc. technician Derick Mobus
- Prior to sampling, the ODS mixture must be circulated in a container that meets all of the following criteria listed in Section 6.5.1 of the Protocol
  - RCE confirmed through the Mixed ODS Procedures Documentation signed by Refrigeration Mechanics, Inc. technician Derick Mobus; and
  - through a review of the mixing tank specifications
- Circulation of mixed ODS must be conducted as described in Section 6.5.1 of the Protocol
  - RCE confirmed through the Mixed ODS Procedures Documentation signed by Refrigeration Mechanics, Inc. technician Derick Mobus; and
  - through a review of the mixing tank specifications
- Within 30 minutes of the completion of circulation, a minimum of two samples shall be taken from the bottom liquid port, and both samples must be analyzed at an AHRI approved laboratory
  - RCE confirmed through the Mixed ODS Procedures Documentation signed by Refrigeration Mechanics, Inc. technician Derick Mobus
- The Offset Project Operator or Authorized Project Designee must calculate the project GHG emission reductions using both sample results, and choose the sample resulting in the lower project emission reductions
  - RCE confirmed through the emission reduction calculations

#### Refrigerant Analysis Report

RCE reviewed the Certificates of Analysis that NRI provided for the destruction events. RCE confirmed that the analyses demonstrate that the ODS met the requirements of the Protocol as outlined in Section 6.5. The analyses provided:

- Refrigerant identification:
  - Plas-1103B: Mix
  - Plas-1103C: Mix
  - Plas-1103D: Mix
  - Plas-1130: R-11
- Purity of the eligible ODS mixture by weight:
  - Plas-1103B: 62.12%, R-12: 18.15%, R-113: 4.57%, R-114: 0.04%, R115: 1.02%

- Plas-1103C: R-11: 65.18%, R-12: 15.38%, R-113: 5.82%, R-114: 0.04%, R115: 0.78%
  - Plas-1103D: R-11: 62.45%, R-12: 17.10%, R-113: 4.97%, R-114: 0.04%, R115: 1.04%
  - Plas-1130: R-11: 98.33%, R-12: 0.16%, R-113: 0.21%, R-114: 0.02%
- 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:
  - Plas-1103B: 45ppm, saturation of R-12 is 71ppm and R-11 is 84ppm at 67 degrees F
  - Plas-1103C: 15ppm, saturation of R-12 is 80ppm and R-11 and R-113 is 74ppm at 62 degrees F
  - Plas-1103D: 42ppm, saturation of R-12 is 63ppm and R-11 and R-113 is 76ppm at 63 degrees F
  - Plas-1130: 27ppm, saturation of R-11 is 99ppm at 74 degrees F
- Analysis of high boiling residue (HBR) indicating less than 10 percent by mass:
  - Plas-1103B: 1.591%
  - Plas-1103C: 1.444%
  - Plas-1103D: 2.111%
  - Plas-1130: 0.345%
- Analysis of other ODS:
  - Plas-1103B: Other ODS percentages included in the analysis report
  - Plas-1103C: Other ODS percentages included in the analysis report
  - Plas-1103D: Other ODS percentages included in the analysis report
  - Plas-1130: Other ODS percentages included in the analysis report

### ***3.7 Destruction Facility Requirements***

RCE confirmed that the A-Gas destruction facility located in Bowling Green, OH is a TEAP approved facility that operates two plasma arc destruction units (PDU1 and PDU2). Specifically, RCE reviewed the following documents:

- Compliance Stack Emission Test Report conducted by Wilcox Environmental Engineering dated November 2, 2016 for PDU2.
  - RCE confirmed that the testing as required by TEAP was conducted from October 20-21, 2016, and it does not need to be re-tested until December 31, 2019.
- Compliance Stack Emission Test Report conducted by Wilcox Environmental Engineering dated January 3, 2017 for PDU1.
  - RCE confirmed that the testing as required by TEAP was conducted from December 15-16, 2016, and it does not need to be re-tested until December 31, 2019.
- Intertek Reports: Third-Party Certification of A-Gas Destruction Facility, Bowling Green, Ohio, dated November 4, 2016 and January 13, 2017
  - These reports were provided for the facility as a certification that the A-Gas destruction facility meets the requirements for qualifying destruction facilities specified by the Climate Action ACR and California Air Resources Board in each of their respective offset project protocols.
  - The report was, in part, based on the Wilcox Environmental Engineering reports generated from the results of testing conducted in October and December 2016
  - The reports concluded that the A-Gas facility can be considered a qualified destruction facility and specifically, Intertek confirmed:
    - The PDU1 and PDU2 units meet the technical performance criteria for destruction technologies, and



- The A-Gas facility is in conformance with the requirements in the TEAP Code of Good Housekeeping.

During the site visit, the Lead Verifier/Project Specialist reviewed the monitoring equipment and how it was used to obtain the performance parameters required by the Protocol and TEAP. RCE also confirmed, as described in Section 3.3.8 of this Report, that there were no violations at the facility during this reporting period for the Project or prior to destruction that would have any impact on the destruction events.

### 3.7.1 Monitoring Parameters

A-Gas provided an excel file download of the real-time monitoring parameters data for the reporting period as defined in section 6.1 of the Protocol. A secure SQL file logs the CEMS data and A-Gas downloads this data to excel on an as-needed basis. The destruction facility tracked the following information during destruction:

- Batch Number
- Feed Tank
- Run Number
- Date
- Time Run
- Time
- Effluent Gas Carbon Monoxide (ppm)
- ODS Feed Rate (kg/h)
- Effluent Gas Oxygen Level (%)
- Molecular Weight MW (r/mol)
- Effluent Liquid pH Level Gas off Pressure (kPag)
- Final Segment Temp. (°C)
- Operating Temp. of Injection Manifold (°C)
- ODS Temp. Exiting Vaporizer (°C)

To determine whether the PDU units operated within the parameters recorded during DRE testing, RCE reviewed all CEMS data provided by A-Gas including the concentration of carbon monoxide (CO) data. RCE confirmed that the Plascon units operated within the parameters recorded during DRE testing. If the CO concentration maintains levels above 100 ppm for 10 minutes, then the unit will automatically shutdown to ensure proper destruction of ODS. RCE confirmed that A-Gas followed their shutdown/startup plan for any instances.

### 3.7.2 Certificate of Destruction

A-Gas issued four CODs with the Certificate IDs Plas-1103B, Plas-1103C, Plas-1103D and Plas-1130 that were signed by A-Gas' Manager of Environmental Services Sandy Hoffman. In addition, RCE confirmed that the Certificates of Destruction contained Protocol required parameters including:

- Offset Project Operator or Authorized Project Designee:
  - Plas-1103B: A-Gas Americas
  - Plas-1103C: A-Gas Americas
  - Plas-1103D: A-Gas Americas
  - Plas-1130: A-Gas Americas
- Destruction facility:
  - Plas-1103B: A-Gas Americas



- Plas-1103C: A-Gas Americas
  - Plas-1103D: A-Gas Americas
  - Plas-1130: A-Gas Americas
- Certificate of Destruction ID number:
  - Plas-1103B
  - Plas-1103C
  - Plas-1103D
  - Plas-1130
- Serial, tracking, or ID number of container for which ODS destruction occurred:
  - Plas-1103B: 5009
  - Plas-1103C: 5007
  - Plas-1103D: 5006
  - Plas-1130: 5008
- Weight and type of ODS destroyed from each container.
  - Plas-1103B: Please see section 3.6.2 of the OVR for specific concentrations of eligible ODS in the destruction event: 7,713 pounds
  - Plas-1103C: Please see section 3.6.2 of the OVR for specific concentrations of eligible ODS in the destruction event: 8,067.5 pounds
  - Plas-1103D: Please see section 3.6.2 of the OVR for specific concentrations of eligible ODS in the destruction event: 6,554 pounds
  - Plas-1130: Please see section 3.6.2 of the OVR for specific concentrations of eligible ODS in the destruction event: 9,449 pounds
- Destruction Start Date:
  - Plas-1103B: 11/11/19
  - Plas-1103C: 11/11/19
  - Plas-1103D: 11/19/19
  - Plas-1130: 10/9/19
- Destruction End Date:
  - Plas-1103B: 11/18/19
  - Plas-1103C: 11/15/19
  - Plas-1103D: 12/2/19
  - Plas-1130: 10/16/19

### ***3.8 Data Management Systems***

Pursuant to §95977.1(b)(3)(D)(2)(b) and §95977.1(b)(3)(D)(2)(c) of the Regulation, the Lead Verifier/Project Specialist gained an understanding of the controls put in place to account for the refrigerant received, processed, transported, sampled, and destroyed in the Project during the site visits, interviews with key personnel, and through the review of all documentation provided by A-Gas. A-Gas maintains records for all purchases of ODS and tracks ODS from the time of purchase to final delivery at the destruction facility. A-Gas maintains an inventory database that tracks all cylinders under their control. All Project ODS is tracked with Purchase Order numbers in A-Gas' database and with tank history reports. The Project data consists of both electronic and hard copy data that meets or exceeds the requirements of the Regulation and Protocol.

### ***3.9 GHG Emission Reductions Calculations and Data Checks***

Pursuant to §95977.1(b)(3)(L) of the Regulation, 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 confirmed that the Project used the appropriate emission factors and values from the Protocol (Table 4).

**Table 4. Verified Emission Factors and Rates**

Refrigerant	Global Warming Potential (GWP)	10-year Cumulative Emission Rate	Substitute Emission Factor
R-11	4,750	89%	223
R-12	10,900	95%	686
R-13	14,440	61%	7,144
R-113	6,130	89%	220
R-114	10,000	78%	659
R-115	7,370	61%	1,139

- Pounds to metric tons conversion
  - 1 pound = 0.45359 kilogram
- Default Emission Factor for ODS Transportation and Destruction
  - 7.5 tCO<sub>2</sub>e/tODS
  - RCE confirmed that this factor was applied to the total mass sent for destruction including HBR, moisture, ineligible ODS, and other ineligible ODS.

RCE performed data checks on all GHG emissions sources and project emissions. Specifically, RCE performed the following checks:

- Traced data in the OPDR to its origin
  - RCE reviewed the lab analyses, weight tickets, the CODs, point of origin information, ODS purchase information, bills of lading, and shipping documentation related to the Project.
- Reviewed process for data compilation and collection
  - RCE reviewed data management system and process for all parameters relevant to emission reduction calculations.
- Reviewed all GHG inventory designs for GHG SSRs and sampling procedures
  - RCE reviewed documents from A-Gas related to the receiving, consolidating, and the shipping of ODS cylinders. RCE was able to follow all refrigerant in the project through from the points of origin to destruction.
- Recalculated GHG emissions, project emissions, GHG reductions, and GHG removal enhancements estimates to check original calculations
  - RCE recalculated all emissions (detailed below).
- Reviewed calculation methodologies used by A-Gas
  - RCE reviewed all calculation methodologies against the Protocol and Regulation and all were correct.
- Reviewed instrumentation calibration
  - RCE reviewed calibrations relevant to the calculations (scale calibrations).

RCE also compared its own calculated results with the reported Project emission reductions. RCE's calculations of the Project data are summarized below with detailed re-calculations found in Appendix D.

#### Baseline Emissions

RCE used the total amount of ODS destroyed as found on the CODs provided by A-Gas and then removed the amount of high boiling residue (HBR) as shown in the CODs (if applicable) or the HBR from the lab analyses, whichever was more conservative. The moisture determined by the NRI lab analyses was also

removed from the weights. Once these weights were removed, the remaining weights were multiplied by the percent compositions of eligible refrigerants in the ODS destroyed during each destruction event as documented on the lab analyses provided by NRI. RCE confirmed the more conservative result of any lab analyses was used. The weights of eligible ODS were then converted from pounds to metric tons to calculate  $Q_{refr_i}$  for each eligible refrigerant.  $Q_{refr_i}$  was then multiplied by the appropriate 10-year cumulative emission rate and GWPs for each refrigerant to determine  $BE_{refr,i}$ . Due to rounding, some values might not equate to the final values claimed by A-Gas. Please see Appendix D for more detail.

#### Project Emissions

RCE calculated the project emissions from substitute refrigerants by multiplying the quantities of eligible ODS by the appropriate refrigerant substitute emission factors. RCE calculated the project emissions from transportation and destruction by multiplying the total weight of all ODS destroyed in the CODs, by the appropriate default emission factor. RCE then added these values together to determine total project emissions. Due to rounding, some values might not equate to the final values claimed by A-Gas. Please see Appendix D for more detail.

#### GHG Emission Reductions

RCE calculated the total GHG emission reductions by subtracting the project emissions from the baseline emissions.

$$ER_t = 65,881.63 - 3,874.37 = \mathbf{62,007.26 \text{ tCO}_2e}$$

#### Final Assessment

The GHG emission reductions calculations assessment and data checks included a review of the Project assumptions, raw data inputs, and accuracy of calculations. RCE found no discrepancies, omissions or misreporting in A-Gas's final calculations and OPDR.

% Error =  $([\sum \text{Discrepancies} + \sum \text{Omissions} + \sum \text{Misreporting}] \times 100\%) / \text{Total Reported Emission Reductions and Removal Enhancements}$

$$\% \text{ Error} = [0 + 0 + 0] \times 100\% / 62,007 \text{ tCO}_2e = \mathbf{0.00\%}$$

### **3.10 Document and Record Retention**

Pursuant to Section 7.2 of the Protocol and §95976(e)(1) of the Regulation, RCE confirmed that A-Gas follows the applicable document and record retention requirements as found in Section 7.2 of the Protocol and Section 95976 of the Regulation. A-Gas's record retention procedures are to keep all records for a minimum of 15 years.

## **4.0 Verification Results**

A-Gas provided sufficient evidence and documentation of its 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 A-Gas to quantify the emission reductions as found in the OPDR and in accordance with the Regulation and the Protocol. The following is a summary of the verification results.

The Project reported emission reductions of **62,007** metric tons CO<sub>2</sub>e as per the information provided in the Project calculation spreadsheet. Table 6 defines the emission reductions verified for this reporting period.

## 4.1 Issues Log

During the verification process the Lead Verifier/ Project Specialist submitted corrective action requests (CARs), non-material findings (NM), additional documentation requests (ADRs), and clarification requests (CRs) to A-Gas. A-Gas sufficiently addressed all items and the details of the requests are documented in the Issues Log shown in Appendix E.

## 5.0 Conclusion

RCE conducted an analysis of the CAOD5521-ACR521 A-Gas 1-2020 project 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 ODS during the reporting period October 9, 2019 – December 2, 2019 can be considered:

- In conformance with California Air Resources Board (ARB) Compliance Offset Protocol Ozone Depleting Substances Projects
- In conformance with Final Regulation Order, Subchapter 10 Climate Change, Article 5, Title 17, California Code of Regulations, Sections 95800-96022,
- Without Offset Material Misstatement, and
- Verified to a reasonable level of assurance.

The verified emission reductions are listed in Table 5.

**Table 6. Total Emission Reductions for October 9, 2019 – December 2, 2019**

<b>Destruction Event</b>	<b>Baseline Emissions (tCO<sub>2</sub>e)</b>	<b>Project Emissions (tCO<sub>2</sub>e)</b>	<b>Emission Reductions (tCO<sub>2</sub>e)</b>
Plas-1103B	16,746.33	1,019.99	15,726.34
Plas-1103C	17,179.48	1,024.17	16,155.31
Plas-1103D	14,013.00	850.75	13,162.25
Plas-1130	17,942.68	979.45	16,963.23
<b>Total</b>	<b>65,881.49</b>	<b>3,874.36</b>	<b>62,007.13</b>

Lead Verifier Signature



Zach Eyer

Independent Reviewer Signature



Nina Pinette

## Appendix A – Verification Plan

### RCE Verification Plan California Air Resources Board Compliance Offsets

#### CAOD5521-ACR521 A-Gas 1-2020

Verification Sampling Plan for Reporting Period 10/9/2019 – 12/2/2019

Verification Assumptions	
Level of Assurance	Reasonable Level of Assurance
Objective Agreement	The goal of this GHG emission reduction verification is to ensure that the GHG assertion is materially correct, that the data provided to RCE can be documented and if errors or omissions are detected, they be corrected by A-Gas.
Criteria	California Air Resources Board Compliance Offset Protocol Ozone Depleting Substance Projects (November 14, 2014)
	Final Regulation Order: Article 5: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (April 1, 2019)
Scope	
Reporting Period (RP)	10/9/2019 – 12/2/2019
Offset Project Boundaries	A-Gas Americas located in Bowling Green, OH
Verification Deliverables	Offset Verification Report
	Offset Verification Statement
Offset Material Misstatement	Greater than 5% overstatement

Timing of Offset Verification Services	Proposed Dates
Contract award	12/5/2019
Submit COI and NOVS forms to OPR/ARB	12/5/2019
Planning	12/20/2019
Site visit	1/16/2020
Provide Issues Log to OPO	Late January 2020
Complete Issues Log	Early February 2020
Provide draft deliverables to OPO	Mid-February 2020
Final meeting and submittal of deliverables to OPR/ARB	Late February 2020 (revised to early March 2020)

Information Requirement	Information Provided by the OPO/APD
Information to allow the offset verification team to develop a general understanding of offset project boundaries, operations, project baseline emissions, and annual GHG reductions and GHG removal enhancements	Yes, OPDR provided and project diagram.
Information regarding the training or qualifications of personnel involved in developing the Offset Project Data Report	Sandy Hoffman, she is very experienced.
The name and date of the Compliance Offset Protocol used to quantify and report project baselines, GHG reductions, GHG removal enhancements, and other required data as applicable in the Compliance Offset Protocol;	Yes, ODS November 14, 2014.
Information about any data management system, offset project monitoring system, and models used to track project baselines, GHG reductions, GHG removal enhancements, and other required data as applicable in the Compliance Offset Protocol.	Yes, OPDR provided and project diagram.

Pre-Engagement	
RCE Management has completed and signed the V&V team selection form	Complete
Complete the Evaluation of Conflict of Interest for Offset Projects form and submit to Offset Project Registry	Complete
Individual COIs for all team members (and subcontractors) are in the folder for this client	Complete
Save COI-Determination letter and or renewal email received from the OPR/ARB	Complete

Send the Notice of Offset Verification Services form to the OPR and ARB at least 10 calendar days prior to beginning verification and 30 calendar days prior to the site visit	Complete
Non-Disclosure Agreement (NDA) - execute agreement (Both parties agree to the NDA)	N/A
<b>Create Verification Service Agreement (VRSA)</b>	
The original proposal is included as an exhibit with the correct scope of work defined in the Assumptions table.	Complete
Both parties agree to and sign the VRSA	Complete
<b>Planning meeting and required documents</b>	
Planning meeting agenda sent to client	Complete
Verification Process Overview (with terms and definitions table correctly completed)	Complete
Team Roster	Complete
Schedule provided to client	Complete
Request data and supporting documentation (if applicable)	Complete
Record minutes of planning meeting & save in Project file	Complete
<b>Verification Plan and Sampling Plan</b>	
Created sampling plan based on the project assumptions	Complete
Ranking of GHG emission sources, GHG sinks, and GHG reservoirs	Complete
Confirm OPDR uploaded prior to beginning verification activities	Complete
Qualitative narrative of uncertainty risk assessment	Complete
Identification of sources, sinks, and reservoirs targeted for document reviews and explanation of why they were chosen	Complete
Summary of information analyzed in data checks and document reviews	Complete
Samples identified in the sampling plan	Complete
Data checks	Complete
Verification of GHG assertion with any discrepancies identified and percent error calculated	Complete
Approved and protected by the Lead Verifier	Complete
<b>Issues Log</b>	
All Corrective Actions are closed or the status is marked appropriately	Complete
All Clarifications are addressed	Complete
All document requests are received	Complete
<b>Verification Documents</b>	
Issue Offset Verification Report and Offset Verification Statement	Complete

Emission totals match in OVR and OVS	Complete
Report and Statement signed by both Lead Verifier and Independent Reviewer	Complete
<b>Independent Review</b>	
Mandatory items approved, and all findings closed by the Independent Reviewer	Complete



## Appendix B – SSR Ranking and Review

SSR #	SSR Description	Ranking and % Contribution	Ranking for Uncertainty	Selected for Document Review	Selected for Data Checks/Calc. Review	Method	Summary of Review	Quantity of Data Reviewed	Documents Reviewed	Discrepancies Identified	Discrepancy Description and Reason for it
Sources											
6	Emissions of ODS from leaks and servicing through continued operation of equipment (baseline)	#1 This SSR represents the majority of emissions (~95%)	1	Yes	Yes	Review eq. 5.3: Check weight of ODS sent for destruction; Confirm that weight of ineligible ODS was deducted from total destroyed (if applicable); Check emission rate used from table 5.2	Reviewed weight tickets, reviewed point of origin of all ODS.	100% - As this is the largest source, RCE reviewed all data	Pre/post weight tickets, lab analysis, point of origin information	None	N/A
6	Emissions from the use of substitute refrigerants (project)	#2 This SSR is dependent on the refrigerant, but is a relatively small source (~4%)	2	No	Yes	Check use of emission factor from table 5.4	Correct emission factors were applied in calculations	100% - The data for this source is the same as #1 so RCE reviewed all data	Lab analysis, Compliance Protocol	None	N/A
5	Transport of ODS to destruction facility (project)	#3 This SSR is very small compared to other sources (<1%)	3	No	Yes	Check use of Eq. 5.8 and use of the default emission factor for transportation and destruction of ODS (7.5 for refrigerant)	Confirmed that calculation of emissions for transport included all ODS (eligible and ineligible since it was all transported) Defaults used - appropriately applied	100% - There is very little data to review for this source so RCE reviewed all data	Compliance Protocol	None	N/A
7	Fossil fuel emissions from the destruction of ODS at destruction facility (project)										
	Indirect emissions from the use of grid-delivered electricity (project)										
	Emissions from the oxidation of carbon contained in destroyed ODS (project)										
	Emissions of ODS from incomplete destruction at destruction facility (project)										
Sinks											
None											
Reservoirs											
None											

## Appendix C – Documents/Files Reviewed

#	Document	Reviewed By	Reviewed At
1	A-Gas 2018 Ohio EPA SERC Submittal	Lead Verifier/Project Specialist	Desk review
2	A-Gas Batch Mixing & Sampling Forms	Lead Verifier/Project Specialist	Desk review/Site Visit
3	A-Gas Certificate of Mixing and or Sampling to Determine Composition and Concentration of ODS by Third Party Contractor of A-Gas	Lead Verifier/Project Specialist	Desk review/Site Visit
4	A-Gas Certificates of Destruction	Lead Verifier/Project Specialist	Desk review/Site Visit
5	A-Gas Certificates of Sampling	Lead Verifier/Project Specialist	Desk review/Site Visit
6	A-Gas Continuous Emissions Monitoring System data (excel)	Lead Verifier/Project Specialist	Desk review/Site Visit
7	A-Gas EPA ECHO Report	Lead Verifier/Project Specialist	Desk review/Site Visit
8	A-Gas EPA Refrigerant Reclaimer Certificate	Lead Verifier/Project Specialist	Desk review
9	A-Gas Ohio EPA industrial general permit	Lead Verifier/Project Specialist	Desk review/Site Visit
10	A-Gas OSHA IMIS search	Lead Verifier/Project Specialist	Desk review/Site Visit
11	A-Gas OSHA Violation	Lead Verifier/Project Specialist	Desk review/Site Visit
12	A-Gas Plascon Maintenance Log for each destruction event	Lead Verifier/Project Specialist	Desk review/Site Visit
13	A-Gas receiving reports for all applicable cylinders	Lead Verifier/Project Specialist	Desk review
14	A-Gas Requests for Analysis for each destruction event	Lead Verifier/Project Specialist	Desk review/Site Visit
15	A-Gas signed Chain of Custody for samples sent to A-Gas laboratory for each destruction event	Lead Verifier/Project Specialist	Desk review/Site Visit
16	A-Gas Tank History reports and Tank Routing for all tanks for all destruction events	Lead Verifier/Project Specialist	Desk review/Site Visit
17	A-Gas Universal Refrigerant Technician cards (multiple employees)	Lead Verifier/Project Specialist	Desk review/Site Visit
18	A-Gas weight certificates for the pre/post weight of the destruction cylinders for each destruction event	Lead Verifier/Project Specialist	Desk review/Site Visit
19	A-Gas weight certificates for the sample containers	Lead Verifier/Project Specialist	Desk review/Site Visit
20	ARB TEAP PDU1 response	Lead Verifier/Project Specialist	Desk review
21	Bills of lading for all shipments from a point of origin to A-Gas	Lead Verifier/Project Specialist	Desk review
22	Calculation spreadsheets for the destruction events	Lead Verifier/Project Specialist	Desk review/Site Visit
23	EPA letter - April 2018	Lead Verifier/Project Specialist	Desk review
24	Final OPDR submitted by A-Gas	Lead Verifier/Project Specialist	Desk review
25	Hazardous freight certificates for applicable companies	Lead Verifier/Project Specialist	Desk review
26	Industrial User Permit from City of BG, effective 11/14/2016	Lead Verifier/Project Specialist	Desk review/Site Visit
27	Initial OPDR submitted by A-Gas	Lead Verifier/Project Specialist	Desk review/Site Visit
28	Intertek's Destruction Facility Certification Letter	Lead Verifier/Project Specialist	Desk review/Site Visit
29	Listing form submitted by A-Gas	Lead Verifier/Project Specialist	Desk review
30	NRI lab Certificates of Analysis reports for each destruction event	Lead Verifier/Project Specialist	Desk review/Site Visit
31	Point of origin information for all appropriate shipments	Lead Verifier/Project Specialist	Desk review

32	Rapid Recovery consolidation reports for applicable cylinders	Lead Verifier/Project Specialist	Desk review
33	Rapid Recovery EPA ECHO Report	Lead Verifier/Project Specialist	Desk review
34	Rapid Recovery OSHA IMIS search	Lead Verifier/Project Specialist	Desk review
35	Rapid Recovery refrigerant technician #s	Lead Verifier/Project Specialist	Desk review
36	Scale calibration report by Brechbuler Scales, Inc. - All relevant quarters	Lead Verifier/Project Specialist	Desk review

## Appendix D – Recalculations

Emission Reductions	OPO Total	RCE Total
BE (CO <sub>2</sub> e)	65,881.49	65,881.63
Sub <sub>ref</sub> (CO <sub>2</sub> e)	3,764.89	3,764.89
Tr + Dest (CO <sub>2</sub> e)	109.47	109.47
PE <sub>t</sub> (CO <sub>2</sub> e)	3,874.37	3,874.37
ER <sub>t</sub> (CO <sub>2</sub> e)	62,007.12	62,007.26

Note: Values in the above table might not match the final OPDR due to rounding.

## Appendix E – Issues Log

Corrective Action Request, Non-Material Finding, Additional Documentation Request, or Clarification Request ID#	Finding	Section of Regulation or COP	Offset Material Misstatement (OMM) or Conformance (C)	OPO/APD response	RCE response	Additional OPO/APD response	Additional RCE response	Open or Closed
CAR 1	The OPDR has the following errors: -Hutchinson Plumbing and Heating zip code incorrect. -Lockheed-Martin zip code incorrect. -Eleven Thirty Apartments is included as a point of origin, but it appears only one cylinder (076267C) from this location is included in the project as part. of CHI111018. Please remove from OPDR or clarify.	COP 7.2	C	Didn't see Hutchinson Plumbing in this template. Updated Lockheed Martin and deleted Eleven Thirty Apt.	Hutchinson Plumbing from WO is "Pure Technologies- Commercial Office Building" on OPDR - please correct zip code.  Update: Please also correct the following: -Schneider Logistics (DPC TRF3618) is not listed as a transporter. -RR Peoria is not noted as "Origin" -Coolgas is not listed as origin -Dayton Freight was not used as a transporter. -Schneider needs listed as a transporter -Therrien Waddell and Brickman Group are both listed on OPDR – it appears Therrien Waddell should be origin with the address noted under Brickman Group. Brickman Group was not found as an origin.  Based on ACR review, please revise the OPDR for the following: -Delete Old Dominion as transporter -Add YRC as transporter -End date for destruction event 1 should be 10/16/19 -Number of parties in the chain of custody needs revision -Question 3e – Please add OH and remove NM from states -Question 3f – Please mark this question "no". -The street address/zip code is incorrect for the following parties: 14, 16, 23, 28, 32, 33, 39, 41, 45, 47	Updated OPDR provided.	All corrections made, closed.	Closed
NM 1	Plas-1103C: The calculations deduct both measured residue and the HBR % from the lab analysis.	COP 5	C	corrected and does not change the most conservative COA	Calculation corrected, closed.			closed
NM 2	Plas-1130: The calculation does not include HBR.	COP 5	C	The HBR is not included in the calculation for the actual oil weight. That is why there are two tabs for calcs	Calculation corrected, closed.			closed
ADR 1	Plas-1130: We are missing the EPA certifications for the following RR employees that recovered refrigerant for TRF4792: Austin Christians, Tony Fillman, James Herpeche, David Stewart, Ken Coleman	COP 2.2 (J)	C	Uploaded updated spreadsheet	Confirmed			closed
ADR 2	Plas-1130: Please provide the Work Order 179869 and point of origin information for PHIL061119.	COP 6.2	C	uploaded and added to OPDR	Work order provided, closed.			Closed
ADR 3	Plas-1130: Please provide the Work Order 179769 and point of origin information for Point at Silver Spring (part of BALTO52219).	COP 6.2	C	Uploaded	Provided requested documentation. Matches OPDR.			closed
ADR 4	Plas-1103B/C/D: Please provide the Work Order 150877 and point of origin information (part of CHI111018).	COP 6.2	C	uploaded and added to OPDR	Confirmed; added to OPDR as "The New Yorker Condos of Chicago"			closed
ADR 5	Plas-1103B/C/D: We are missing the EPA certifications for the following RR employees that recovered refrigerant for TRF3764: Michael Celke	COP 2.2 (J)	C	Uploaded updated spreadsheet	Confirmed			closed
ADR 6	Plas-1103: Please provide point of origin information for TRF3158, TRF3022, and TRF3267. The PDF file with their name in it only contains info on TRF3595.	COP 6.2	C			DPC & Coolgas packets - Coolgas to be added to OPDR As well as Landstar, Schneider Logistics, and RapRec Peoria	Documentation provided and sufficient.	closed
ADR 7	Plas-1103: Please provide point of origin information for the 4,680 lbs of material included from Plas-1109.	COP 6.2	C			Combo batch of older mixed material. Pulling from Tank Database and providing explanation - Alcoa and YRC to be added to OPDR	Documentation provided and sufficient.	Closed
CR 1	Plas-1130: Please clarify the point of origin for the 5 drums in BALTO52219 (WO 195314) and whether they are stockpile.	COP 6.2	C	This location is called "Tyson International Plaza I" owned by Rock Hill Management. The chiller info the R11 was recovered from, by Greg Sheets of Rapid Recovery is: Trane CVHE025FAK2EB / 186G39361	Thank you for this clarification. Do you have documentation regarding the chiller info provided?	The information is put into our Salesforce program. Screenshot uploaded. Service of the unit was input separately	Documentation provided and sufficient.	Closed
CR 2	Plas-1130: Please clarify who recovered the material from the following points of origin - the name is missing or illegible: CenterPoint Energy, Frontier Funding, Therrien Waddell, Macy's, Master Cooling, Xtreme Auto Body.	COP 2.2 (J)	C	All updated and uploaded on the 608 sheet. Center Point & Frontier Funding pg. 24 Houston J.C., Therrien Waddell - Michael Oelke, Macy's & Master Cooling - New York signature cannot read, Xtreme Auto pg. 130 - Chicago H.R. Signature 1- Anthony Malanga - 718897512710 Signature 2- Hayden Racine - 990408512714 Signature 3- Nick Aranda - 849390012780	Technician names and cert #s provided, closed.			Closed
CR 3	Plas-1130: Please clarify the point of origin for the drums NY061119/PHIL061119 (WO 181455) and whether they are stockpile.	COP 6.2	C	The R11 in the drums for WO 181455 were recovered from Action Trucking drums that were in their shop that were aggregated in quantities under 500 pounds as they serviced their trucks.	Thanks for this clarification. Do you have documentation from Action Trucking to confirm that they aggregated in quantities <500 lbs? Attestation?	Customer completed attestation	Attestation acceptable, closed.	Closed
CR 4	Plas-1130: Please clarify the point of origin for the drums in PORT061419 (WO 123218) and whether they are stockpile.	COP 6.2	C	The R11 collected from Macdonald Miller shop is also R11 that was aggregated at their shop in quantities under 500 pounds from different job sites as they are a mechanical contractor	Thanks for this clarification. Do you have documentation from Macdonald Miller to confirm that they aggregated in quantities <500 lbs? Attestation?	Customer completed attestation	Attestation acceptable, closed.	Closed
CR 5	Plas-1130: Please clarify whether Macy's Coronado Center is a point of origin - >500lbs recovered from site, but less than 500 lbs included in project.	COP 6.2	C	remove from OPDR	Confirmed removal from OPD, closed.			closed
CR 6	Plas-1130: Please clarify the point of origin for the drums in BALTO71819 and whether they are stockpile. Drums not included on workorder.	COP 6.2	C	These drums were not put into the ISO, I have updated consolidation report.	Drums were not put into ISO; do not need Point of Origin documentation.			closed
CR 7	Plas-1103B/C/D: Please clarify who recovered the material from the following points of origin - the name is missing or illegible: Ryan Companies, Eleven Thirty Apartments	COP 2.2 (J)	C	Ryan Companies is John White. pg. 19 1130 apartments - Chicago	Thanks for the clarification on Ryan Companies. Please clarify what is meant by Chicago.	That our Rapid Recovery Chicago location was responsible for this and this was also part of the Chicago shipment statement	Clarification acceptable.	closed