

A-Gas V8

September 19, 2022

A-Gas



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A.
PROJECT OVERVIEW

A1. PROJECT TITLE

A-Gas V8

A2. PROJECT TYPE

Industrial Process Emissions - Use of Certified Reclaimed HFC Refrigerants

A3. PROOF OF PROJECT ELIGIBILITY

Table 1: Eligibility Requirements

Criterion	Requirement	Proof of Project Eligibility
Start Date	Non-AFOLU Projects must be validated within 2 years of the project Start Date.	Project Start Date of January 6, 2021
Minimum Project Term	The Minimum Project Term for specific project types is specified in the relevant ACR sector standard and/or methodology. Project types with no risk of reversal subsequent to crediting have no required Minimum Project Term.	There is no risk of reversal for this project type.
Crediting Period	Crediting periods for all projects (except Fire Suppressants) are 15 years. Crediting period for Fire Suppressant projects will be 40 years.	The crediting period is 15 years.
Real	GHG reductions and removals shall exist prior to issuance. ACR will not forward issue nor forward register a projected stream of future offsets.	GHG reductions take place at the displacement of virgin HFC production, which takes place prior to the issuance.

<p>Emission or Removal Origin</p>	<p>Project Proponent shall own, have control, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, the Proponent shall document that effective control exists over the GHG sources and/or sinks from which the reductions/removals originate.</p>	<p>A-Gas holds and retains title to the HFC refrigerant from the purchase through reclamation, up until the sale of the AHRI certified reclaimed.</p> <p>https://www.agas.com/us/products-services/environmental-services/carbon-offsets/</p>
<p>Offset Title</p>	<p>Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain of custody documentation if offsets have ever been sold in the past. Title to offsets shall be clear, unique, and uncontested.</p>	<p>A-Gas has provided documentation of undisputed title to all offsets. Title to offsets is clear, unique, and uncontested.</p>
<p>Land Title</p>	<p>For U.S. projects, Project Proponent shall provide documentation of clear, unique, and uncontested land title. For international projects, Proponent shall provide documentation and/or attestation of land title; ACR may require a legal review by an expert in local law. Land title may be held by a person or entity other than the Project Proponent, provided the Project Proponent has clear, unique, and uncontested offsets title.</p>	<p>Not applicable to project type.</p>

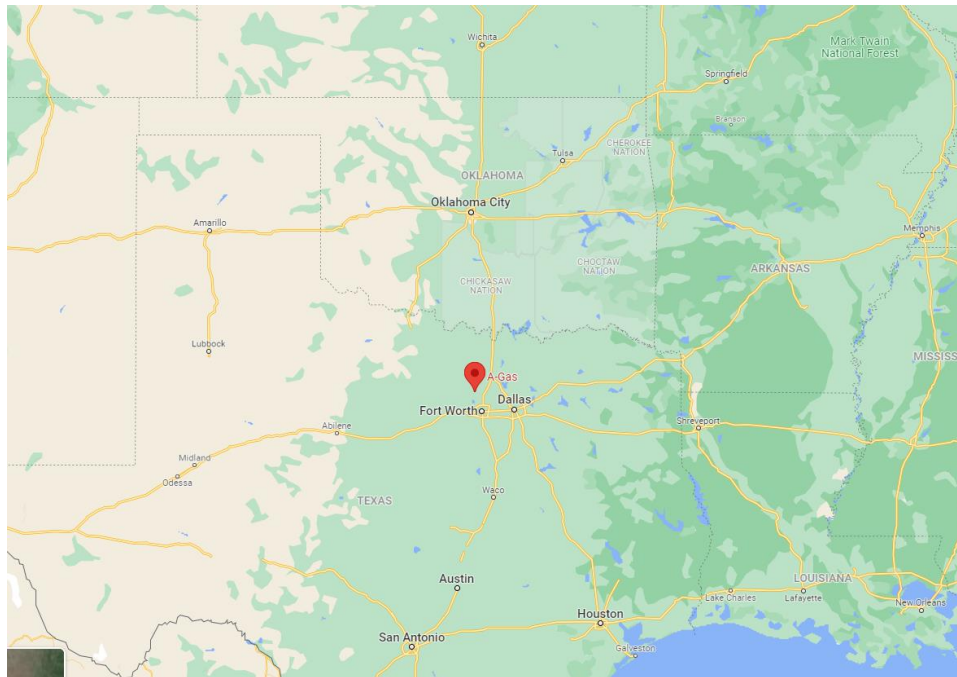
<p>Additional</p>	<p>Every project shall use either an ACR--approved performance standard and pass a regulatory surplus test or pass a three--pronged test of additionality in which the project must: 1) exceed regulatory/legal requirements; 2) go beyond common practice; and 3) overcome at least one of three implementation barriers: institutional, financial, or technical.</p>	<p>This project passes the regulatory surplus test and the ACR--approved practice--based performance test.</p> <p><i>Regulatory Surplus Test:</i> The project is not mandated by any existing law, regulation, statute, legal ruling, or other regulatory framework.</p> <p><i>Practice--Based Performance Standard:</i> A review of US EPA's reclamation data indicates that the HFC refrigerant sector has a low market adoption rate for using certified reclaimed HFCs.</p>
<p>Regulatory Compliance</p>	<p>Projects must maintain material regulatory compliance. To maintain material regulatory compliance, a project must complete all regulatory requirements at required intervals. Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of noncompliance with laws, regulations, or other legally--binding mandates directly related to project activities.</p>	<p>This project maintains material regulatory compliance for the entire reporting period.</p>

<p>Permanent</p>	<p>For projects with a risk of reversal of GHG removal enhancements, Project Proponents shall assess risk using an ACR--approved risk assessment tool.</p>	<p>There is no risk of reversal of GHG removal enhancements for project type.</p>
<p>Net of Leakage</p>	<p>ACR requires Project Proponents to assess, account for, and mitigate certain types of leakage, as summarized in relevant sector standards and approved methodologies. Project Proponents must deduct leakage that reduces the GHG emissions reduction and/or removal benefit of a project more than any applicable threshold specified in the methodology.</p>	<p>Projects involving certified reclaimed HFC refrigerant would not increase demand for refrigerant beyond current baseline demand, i.e., use of more reclaimed refrigerant would not cause an increase in virgin HFC production (to the contrary) or increase refrigerant emission rates. Therefore, for this project, "leakage" can be disregarded.</p>
<p>Independently Validated & Verified</p>	<p>ACR requires third--party validation and verification, by an ACR--approved Validation/Verification Body (VVB), at specified intervals to issue ERTs. Governing documents for validation and verification are the ACR Standard, relevant sector standard, relevant methodology, and the ACR Validation and Verification Guideline.</p>	<p>This project will be validated and verified by third-party, ACR-approved, ANAB Accredited Verification Body, First Environment.</p>

<p>Community & Environmental Impacts</p>	<p>ACR requires community and environmental impacts to be net positive overall. Project Proponents shall document in the GHG Project Plan a mitigation plan for any foreseen negative community or environmental impacts and shall disclose in their Annual Attestations any negative environmental or community impacts or claims of negative environmental and community impacts.</p>	<p>There are no negative community or environmental impacts for this project type.</p>
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A3. LOCATION

Wise County, Rhome, Texas USA **Latitude:** 33.03544 **Longitude:** -97.45346



A4. BRIEF SUMMARY OF PROJECT

Description of Project Activity:

A-Gas US Inc’s Voluntary Emission Reduction Project A-Gas V8 involves the recovery, reclamation, re-sale, and use of AHRI 700 certified HFC refrigerants to service/re-charge existing and newly

manufactured refrigeration and air conditioning equipment in the US. The benefit of using reclaimed HFCs is that it avoids future production of virgin high GWP HFCs and subsequent GHG emissions.

The HFCs used in the project were sourced domestically using our expansive refrigerant recovery network across the country (over 50 locations) from multiple sources. The HFCs recovered and reclaimed making up this project include R-134a, R-404a, R-407a, R407c, and R-410a. All are eligible per the HFC reclaim methodology.

These HFCs were reclaimed to industry specification standards at our EPA certified reclamation facility in Rhome, Texas with the intention to resell into the market. All applicable laws and regulations were followed throughout this project.

Background Information:

A-Gas provides turn-key recovery and reclamation offerings to a wide customer base in the US. We work closely with our customers to ensure that proper safety, environmental and operational procedures are followed throughout the entire recovery process from point of acquisition using our highly trained technicians and/or collaborating with industry using our Refri-claim Program (over the counter cylinder exchange). Reclamation at our EPA certified reclamation facility in Rhome uses modern state of the art reclamation and separation technology enabling the sale of the certified, reclaimed refrigerant.

Project Purpose and Objective:

The purpose of this project is to offset the production of virgin HFC refrigerants creating GHG emissions by implementing the recovery, reclamation, and the reselling of used HFC refrigerants thereby resulting in emission reductions.

A5. PROJECT ACTION

- Description of prior physical conditions
 - Our project actions occur within the USA & did not result in the release of GHGs outside of this geography. All recovery, reclamation, and sale activities have occurred and have contributed to emission reductions that will undergo verification by an independent verifier.

We ensure that our technicians, our equipment, our record keeping, and our operational activities on and off site meet the necessary Section 608 requirements of the Clean Air Act obligations for Stationary Refrigeration and Air Conditioning; this will ensure that we are further preventing and minimizing venting of emissions throughout our processes.

- Description of how the project will achieve GHG reductions and/or removal enhancements

- The project will achieve GHG reductions by reducing the need for and reliance on the import and manufacture of virgin high GWP HFCs for servicing existing and new refrigeration, domestic, and industrial air conditioning equipment that continue rely on HFCs for their operation.
- o Description of project technologies, products, services, and expected level of activity
 - An overview of the project technologies and flow incorporating key activities are summarized below.

Acquisition

The initial steps on the journey to emission reductions occurs at the acquisition phase. Our customers sell their used HFCs to A-Gas; these sales can occur through our various acquisition and recovery programs, including Refrigerant Buy Back, Refri-Claim & our Rapid Recovery Network. Our ability to respond quickly and comprehensively assures the material is properly picked up, safely recovered into various Department of Transportation (DoT) rated cylinders or vessels and transfer of ownership occurs seamlessly.

Shipping To A-Gas Rhome Facility

A-Gas uses its own vehicle fleet to pick up used HFC refrigerants or subcontracts transport to suitably qualified third-party service providers to return used HFCs to its plant in Rhome, Texas for subsequent sorting and processing.

Receipt

When used HFCs are delivered to our Rhome facility from various sources, the HFCs are checked in as per our in-house receipting procedures & entered our inventory database – Cyltrak.

Sorting & Initial Testing

After the HFCs have been checked in, each vessel or cylinder of refrigerant is tested by our QC lab. Gas chromatography (GC) enables the identification of actual product type and purity. Depending on these two factors, the refrigerants are sorted into batches to start the initial reclamation process of removing non HFC impurities such as refrigerant oil, moisture, and non-condensable gases.

Depending on the outcome of the GC results, the batches are classified into two groups, the first group are those batches that will require reclamation only, or the second group requiring further processing via our distillation towers. The latter necessitated because the

purity will not meet AHRI700 requirements without distillation processing to purify the material to meet industry specifications for the refrigerant aftermarket.

Reclamation

Prior to reclamation, the batches of HFC are transferred to bulk tanks that will feed either the reclaimer or the separation towers.

The reclaimer operation includes the reclaim machine, desiccant driers, and totes for refrigerant oil collection. The reclaimer has access to any bulk storage vessel within the A-Gas property.

Used HFCs are fed into the reclaim machine where a simple distillation process removes refrigerant oils & particulates, and to some extent acidity/chlorides, and water. Additional acidity/chlorides and water are removed through desiccant driers as necessary.

HFC batches that have been reclaimed or reclaimed &/or separated, are batched in dedicated storage tanks.

The batches are circulated to ensure a homogenous batch, and then tested to verify AHRI700 standards are met.

Separation Distillation Towers

Any HFC which does not meet the composition or assay requirements for AHRI specifications is sent to the separation distillation towers where the HFCs are distilled into segregated fractions for blending or batch certification.

HFCs in storage tanks are fed into the separation tower, where physical chemistry is used to distill refrigerants into different component or purity ranges. The separation towers utilize a heating system to evaporate the refrigerants and a cooling system to reflux the separation process. Once purified, the refrigerants are removed from the separation tower into storage tanks.

The process uses many types of storage tanks such as feed tanks, storage tanks, or reclaim tanks from clients. After the refrigerants are separated, the batches are stored in storage tanks pending laboratory testing.

Post Reclaim & Separation Testing

Upon reclamation and/or separation via our distillation towers, samples are taken from the various tanks and sent away for testing by an AHRI 700 certified laboratory. Our in-house laboratory at our Bowling Green facility in Ohio offers these services to our Rhome facility. If necessary and due to operational constraints at our Bowling Green laboratory, material processed at our Rhome facility can also be sent to AHRI certified third party laboratories

such as National Refrigerants for verification that the reclamation activity has been successful, and material meets AHRI 700 specification.

Packaging

Once the bulk tanks have had their batches certified, the HFCs are repackaged into various DoT cylinders and vessels. These vessels range in size from 24 lbs to 2000 lbs.

Shipping to Aftermarket

Once HFC material has been successfully reclaimed and certified to meet AHRI specification and repackaged, the material is now ready for sale and shipping.

A6. EX ANTE OFFSET PROJECTION

The following is the GHG emission reduction and removal enhancements from the reporting period stated in tonnes CO₂e.

Table 2: EX ANTE Emission Reductions

			Baseline reclaim rate	2.00%		
	Refrigerant Type	Lbs Reclaimed and Sold	Annual Consumption (kgs)	GWP	Emission Reductions	Rounded Emission Reductions
Vintage 2021	HFC-134a refrig	199,284	90,394	1301	115,250.067991	115,250
	R-404a	164,792	74,748	3945	288,984.529686	288,984
	R-407a	30,175	13,687	1923	25,793.960177	25,793
	R-407c	90,500	41,050	1624	65,332.016956	65,332
	R-410a	1,021,384	463,292	1923	873,091.573212	873,091
		1,506,135			1,368,452.148021	1,368,452

A7. PARTIES

Project Proponent & Reclamation Facility: A-Gas

A-Gas is one of the world leaders in the supply and life cycle management of specialty chemicals such as refrigerants, hydrocarbon blowing agents, and clean agent fire protection. A-Gas offers a full range of environmental services for the recovery and reclamation of environmentally sensitive products such as CFCs, HCFCs, HFCs, Halons and associated products.

Our decades of experience, depth of knowledge, and commitment to environmental solutions is unrivaled in the industries we serve.

Project activities for A-Gas V8: A-Gas has recovered, purchased, reclaimed, and sold all quantities of HFCs that makeup this project to customers in the wholesale and air conditioning sectors. A-Gas retains

all environmental rights and benefits for all material from purchase through the resale. This applies to all ERTs that it has registered with ACR.

A-Gas is responsible for contracting validation and verification services. A-Gas Personnel Roles and Responsibilities:

- 1) Sandra Hoffman – Project Documentation & Development
- 2) Gowtham Velu – Point of Contact for Rhome, Texas
- 3) JoLynn Schrader – Accounts Receivable for A-Gas / Sales Packets

Contact:

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B.

METHODOLOGY

B1. APPROVED METHODOLOGY

This project will be certified according to ACR Standard, Version 7.0. It will also follow the rules and calculations as described in ACR's methodology: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants, Propellants, and Fire Suppressants 2.0.

B2. METHODOLOGY JUSTIFICATION

This project tracks source, reclamation, and sale documentation for the use of certified reclaimed HFC refrigerants to quantify emission reductions from displacing the production and eventual emissions of virgin HFC refrigerants. The chosen methodology provides the quantification framework for the creation of carbon credits from the reductions in GHG emissions resulting from the use of certified reclaimed HFC refrigerants. In Table 3, eligible segments, and sectors relevant to this project are highlighted

Table 1: Eligible Sectors and Segments

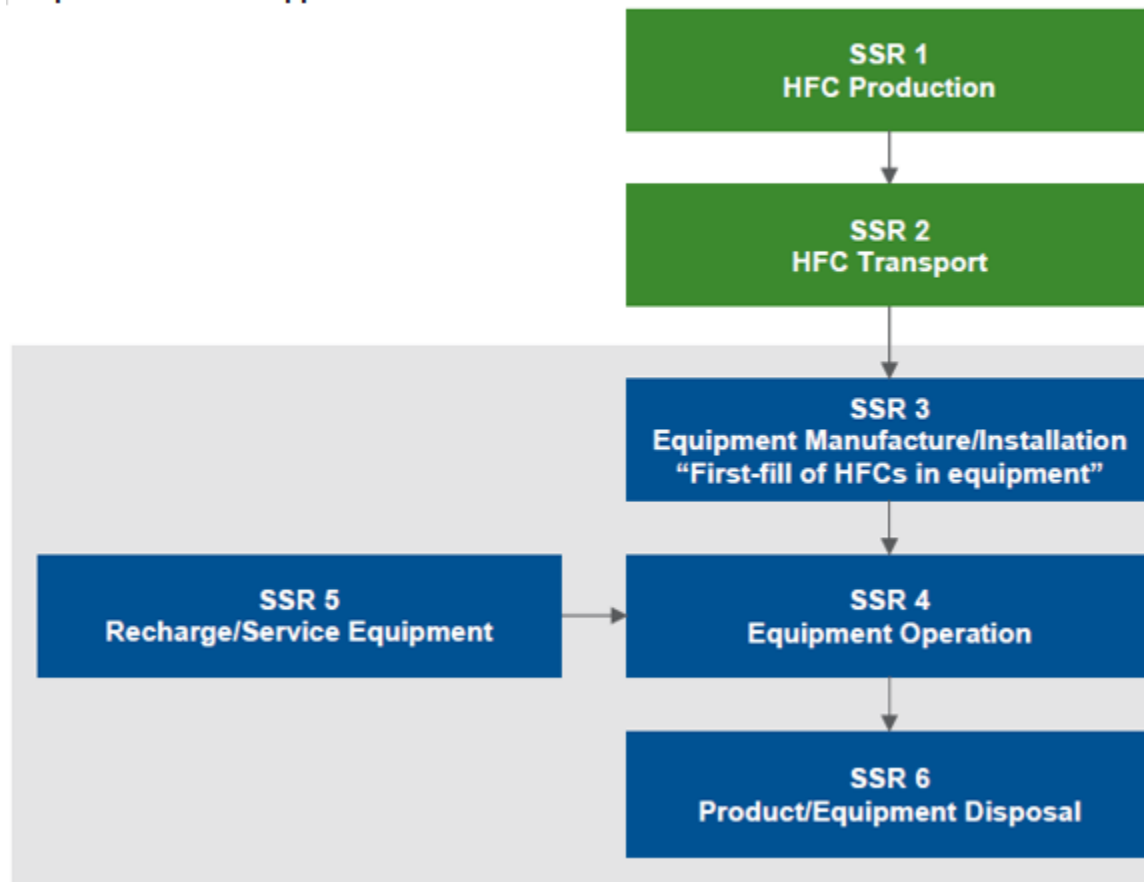
PROJECT ACTIVITY	ELIGIBLE SECTOR	ELIGIBLE SEGMENTS IN SECTOR
Use of Certified Reclaimed HFC Refrigerants, Propellants, and Fire Suppressants	Domestic Refrigeration	Residential refrigerators and freezers
	Commercial Refrigeration, also known as Retail Food Refrigeration	Equipment used to store and display chilled and frozen goods for commercial sale such as in supermarkets, convenience stores, bakeries, and restaurants. This equipment includes centralized supermarket systems, remote condensing units, and stand-alone equipment (e.g., beverage vending machines, stand-alone display cases).
	Cold Storage Warehouses	Storage for meat, produce, dairy products, and other perishable goods.
	Industrial Process Refrigeration	Chemical, pharmaceutical, petrochemical, and manufacturing industries, industrial ice machines and ice rinks.
	Transport Refrigeration	Refrigerated truck trailers, railway freight cars, ship holds, and other shipping containers.
	Mobile Air Conditioning	Automobiles, trucks, buses, and other motor vehicles.
	Stationary Air Conditioning	Comfort cooling for homes and commercial buildings, including multi-family buildings, office buildings, hospitals, universities, shopping malls, airports, sports arenas.
	Aerosols (Propellants)	Medical aerosol devices, consumer aerosol devices, technical aerosol devices
	Fire Suppression	Flooding agents, streaming agents

B3. PROJECT BOUNDARIES

Physical boundary: The physical boundary is A-Gas located at 11050 South Hwy 287, Rhome, Texas 76078. A-Gas is an EPA certified refrigerant reclaimer. It is the physical and geographical site where the recovered HFC refrigerant is reclaimed in the project for use in equipment operations and servicing/recharging to replace refrigerant that leaks or to charge newly manufactured refrigeration or air conditioning equipment.

Temporal boundary: Per the methodology, projects shall have one reporting period not to exceed 12 months in length. Per the ACR Standard, the project Start Date is the date on which the project began to reduce GHG emissions against its baseline. The reporting period for this project is January 6, 2021, to December 31, 2021. This is one reporting period that is less than 12 months in length, which complies with the temporal boundary stated in the methodology.

Project Boundary Diagram for Certified Reclaimed Refrigerant, Propellant and Fire Suppressant



B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Table 4: Greenhouse Gases and Sources (*Stated within Methodology*)

SSR	SOURCE DESCRIPTION	GAS	INCLUDED (I) OR EXCLUDED (E)	QUANTIFICATION METHOD
1 HFC Production	Fossil fuel emissions from the production of HFCs	CO ₂	E	N/A
		CH ₄	E	N/A
	HFC leaks during HFC production	HFCs	E	N/A
2 HFC Transport	Fossil fuel emissions from transport of HFCs	CO ₂	E	N/A
		CH ₄	E	N/A
		N ₂ O	E	N/A
	HFC leaks during transport	HFCs	E	N/A
3 Equipment Manufacture and Installation	Emissions of HFCs during manufacture or installation of equipment or system or product "First-Fill Emissions"	HFCs	I	N/A
4 Equipment Operations	Fossil fuel emissions from the operation of the equipment or system	CO ₂	E	N/A
		CH ₄	E	N/A
		N ₂ O	E	N/A
	HFC leaks from the operation of the equipment or system or product	HFCs	I	Equation 1
5 Service Equipment	Fossil fuel emissions from servicing equipment or system to replace leaked HFC	CO ₂	E	N/A
		CH ₄	E	N/A
		N ₂ O	E	N/A
	HFC emissions from servicing equipment or system to replace leaked HFC	HFCs	I	Equation 1
6 Equipment Disposal	Emissions from the disposal of the equipment at end-of-life	HFCs	I	Equation 1

B5. BASELINE

The baseline scenario comprises the emissions that would take place without the use of certified reclaimed HFC refrigerant. It is equal to the total amount of reclaimed HFC refrigerant produced and the subsequent sale, title-transfer or return to a refrigerant distributor, refrigerant wholesaler, or an end-user for use in refrigeration or air conditioning equipment during the reporting period. In the absence of this project, most of the refrigerant used to recharge a system would have come from virgin HFC production along with some small portion of reclaimed HFCs (current reclamation rate).

The baseline HFC refrigerant reclamation rate is provided in the methodology and is set at 2%.

B6. PROJECT SCENARIO

For this project, refrigerant gas HFCs were purchased and recovered by A-Gas Rapid Recovery network locations and returned to an A-Gas location in quantities under 500 pounds. In cases where the recovered HFCs were purchased by A-Gas in quantities over 500#, the Rapid Recovery Work Order (WO) or Job Site Report (JSR) are provided to demonstrate the point of origin for that specific volume.

A-Gas takes title to the HFC refrigerant upon delivery and retained title throughout the transportation and reclamation processes. A-Gas sold the certified reclaimed gas to various HVAC industry companies for use in the refrigerant aftermarket. According to the methodology, it is assumed that any refrigerant sold or otherwise transferred from the reclaimer to a distributor, wholesaler, service technician, or an end-user will be used. The sale of reclaimed refrigerant to A-Gas HVAC customers, displaced the production and eventual emissions of virgin refrigerant gas.

B7. REDUCTIONS AND ENHANCED REMOVALS

All refrigerant that is produced will eventually reach the atmosphere unless destroyed. Currently, there is little incentive to reclaim and reuse HFC refrigerants because of the low costs associated with virgin HFC production. Using reclaimed refrigerant effectively displaces the use – and therefore avoids production and eventual emissions – of virgin refrigerant. Within the existing reclamation industry, there is capacity to significantly increase reclaimed refrigerant use. Thus, using reclaimed refrigerant results in a GHG reduction. Reclaimed refrigerant can be used both to “charge” newly manufactured equipment and systems, and to “charge” systems that leak during normal operations.

B8. PERMANENCE

There is no risk of reversal of GHG removal enhancements for project type.

C.
ADDITIONALITY

C1. REGULATORY SURPLUS TEST

There are no requirements on the quantities of reclaimed HFC refrigerants that must be used for any application. Users are free to choose virgin HFC, stockpiled HFC, recycled or reclaimed HFC refrigerant in any amount of their choosing. There are regulatory requirements pertaining to certification of the equipment used to recover ODS refrigerants for servicing equipment and the service technicians that handle ODS refrigerants, as well as certification requirements for refrigerant reclaimers. These regulatory requirements must be complied with as part of projects involving HFC refrigerants for this project.

There is currently little incentive for recovery, reclamation, and re-sale of HFC refrigerants. Based on U.S. EPA data on reclamation of HCFC-22 (for which there is a strong incentive to recover and reclaim), and industry information, the percentage of available HFCs that are reclaimed in the U.S. is extremely low.

A-Gas continually monitors any changes in refrigerant policy and, where necessary, actively engages with regulators and registries when changes are being proposed to HFC regulations.

We conform to all laws relating to the handling of refrigerants and our recovery technicians hold the necessary EPA 608 licenses. All processing equipment used to process refrigerants follows local, state, and federal requirements.

C2. COMMON PRACTICE TEST

A market adoption analysis laid out in the methodology was conducted for the relevant HFC refrigerant sectors and segments. Review of US EPA's reclamation data indicates that the sectors and segments have a low market adoption rate for using certified reclaimed HFCs. Therefore, project activities within these sectors and segments qualify for offset credit creation under this Methodology.

C3. IMPLEMENTATION BARRIERS TEST

Not applicable for A-Gas V8

C4. PERFORMANCE STANDARD TEST

Not applicable for A-Gas V8

D.
MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Monitoring Plan

A-Gas Personnel Roles and Responsibilities:

- 1) Sandra Hoffman – Project Documentation & Development
- 2) Gowtham Velu – Point of Contact for Rhome, Texas
- 3) JoLynn Schrader – Accounts Receivable for A-Gas / Sales Packets

GHG Management System Requirements:

- 1) All records for purchases, processing, and sales are kept at the Bowling Green, Ohio facility.
 - a. These are stored as hard copies and electronically
 - b. Records are retained for a minimum of 7 years unless otherwise required

- 2) The methods used to generate data include accessing reports from the A-Gas inventory system, Cyltrak. This program tracks material from the time it enters the facility, through processing, packaging, and sale. This data is captured in real time and monitored daily by operators and Finance Inventory Control.
 - a. Within the system, there are identifiers that allow the tracking of material through purchase order numbers, reference numbers, lot numbers, serial numbers, batch numbers, and order numbers.
 - b. Manual entry sheets are required at each step of the data entry process. These manual entries are done while the information is input into the inventory system.
 - c. Data is checked/audited by several departments that have access to the Cyltrak system: Operations, Logistics, Quality Control, Finance, and Environmental Services. The documentation begins with Operations recording weight and material transfers and laboratory testing. This paperwork is then supplied to Quality Control to verify the weights and laboratory testing prior to passing the documents to Logistics for shipping. Once Logistics includes the bill of lading with the documentation, it is turned over to Finance for invoicing. Finance maintains ownership of process documentation and, once again, verifies refrigerant volumes that are processed for invoicing. Environmental Services utilizes all relevant information, discussed above, to verify that process documentation is complete including operations paperwork, quality control documentation including certificates of analysis, Logistics bills of lading, and Finance invoicing. This process documentation is then reviewed by at least two people within Environmental Services to validate refrigerant weights and information used to calculate GHG emission reductions.

- 3) All A-Gas scales are calibrated quarterly & equipment inspected regularly

- 4) Quality Control ensures the refrigerant has met AHRI 700 industry specifications based on lab sampling.
 - a. Samples of the material are turned into the AHRI Lab throughout the processing of the material.

- 5) Project implementation occurs once a reporting period has been established with all relevant data mentioned above is captured and completed.

<i>Data or Parameter Monitored</i>	$VR_{HFC, j, rp}$
<i>Unit of Measurement</i>	kg
<i>Description</i>	Total quantity of virgin HFC refrigerant j that would have been used to recharge equipment during the reporting period, derived from the quantity of monitored certified reclaimed HFC refrigerant that is documented according to the methodology.
<i>Data Source</i>	Purchase orders, operating records, & sales packets
<i>Measurement Methodology</i>	Reclaimer weighs the individual containers of reclaimed HFC refrigerant using calibrated weight scales
<i>Data Uncertainty</i>	Low
<i>Monitoring Frequency</i>	Determined once per reporting period
<i>Reporting Procedure</i>	Purchase orders, operating records, & Sales packets
<i>QA/QC Procedure</i>	Multiple A-Gas departments work in parallel during each process – Please refer to the detail description above.
<i>Notes</i>	

E.

QUANTIFICATION

E1. BASELINE

The baseline emissions are the emissions that would take place without the use of certified reclaimed HFCs. It is equal to the amount of HFC refrigerant reclaimed and the subsequent sale, title transfer or return to a refrigerant distributor, refrigerant wholesaler, or an end-user for use in refrigeration or air conditioning equipment during the reporting period. In the absence of the project, most of the refrigerant used to recharge the system would have come from virgin HFC production, and some would come from HFCs that would normally be reclaimed. The baseline calculation takes into consideration the 2% current HFC refrigerant reclamation rate.

The baseline emissions are calculated as follows:

$$BE_{HFC, rp} = \sum_j [(VR_{HFC, j, rp} \times GWP_{HFC, j})] \times (1 - RR_{BL}) \div 1000$$

$BE_{HFC, rp}$	Baseline emissions during the reporting period (MT CO ₂ e)
$VR_{HFC, j, rp}$	Total quantity of virgin HFC j used to recharge equipment during the reporting period (kgs), derived from the quantity of monitored certified reclaimed HFCs that is documented according to the procedures in Section 3.1 and Section 5
$GWP_{HFC, j}$	The global warming potential of HFC or HFC Blend j (see Table 3)
RR_{BL}	Baseline Virgin HFC Replacement Rate (% per year) ¹⁵

A-Gas V8, baseline calculations:

2021 Reclaim R-134a		2021 Reclaim R-404a	
Parameter	Value	Parameter	Value
BE_{HFC, rp}	115,250 tonnes CO ₂ e	BE_{HFC, rp}	288,984 tonnes CO ₂ e
VR_{HFC, j, rp}	90,394 kgs	VR_{HFC, j, rp}	74,748 kgs
GW_{HFC, j}	1,301	GW_{HFC, j}	3,945
RR_{BL}	2.00%	RR_{BL}	2.00%

2021 Reclaim R-407a		2021 Reclaim R-407c	
Parameter	Value	Parameter	Value
BE_{HFC, rp}	25,793 tonnes CO ₂ e	BE_{HFC, rp}	65,332 tonnes CO ₂ e
VR_{HFC, j, rp}	13,687 kgs	VR_{HFC, j, rp}	41,050 kgs
GW_{HFC, j}	1,923	GW_{HFC, j}	1,624
RR_{BL}	2.00%	RR_{BL}	2.00%

2021 Reclaim R-410a	
Parameter	Value
BE_{HFCrp}	873,091 tonnes CO ₂ e
VR_{HFC,j, rp}	463,292 kgs
GW_{HFC, j}	1,923
RR_{BL}	2.00%

E2. PROJECT SCENARIO

By using previously used, reclaimed HFC refrigerants, this project displaces new production of virgin HFC. Any project related emissions from using reclaimed refrigerant, for example, from transport of certified reclaimed HFCs, are considered negligible and outside the project boundary. Project emissions can be disregarded.

E3. LEAKAGE

Projects involving certified reclaimed HFC refrigerant would not increase demand for refrigerant beyond current baseline demand, i.e., use of more reclaimed refrigerant would not cause an increase in virgin HFC production or increase refrigerant emission rates. For this project, leakage can be disregarded.

E4. UNCERTAINTY

For the purposes of this methodology, it is assumed that from the time any reclaimed HFC refrigerant is sold or otherwise transferred from the reclaimer to a distributor, wholesaler, service technician, or an end-user that refrigerant will be used. There is no ex-post uncertainty accounted for in this methodology.

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

Project emission reductions during reporting period equals baseline emissions of HFC refrigerant during reporting period.

Parameter	Value
BE_{HFCrp}	1,368,452 tonnes CO ₂ e
ER_{rp}	1,368,452 tonnes CO ₂ e

E6. EX-ANTE ESTIMATION METHODS

Emission reductions from project A-Gas V8 used the equations within the Methodology to calculate the GHG reductions achieved during the reporting period. There is one reporting period for this project from January 6, 2021 – December 31, 2021.

Project	Vintage	Total ERTs (tonnes CO ₂ e) ₂
A-Gas V8	2021	1,368,452 tonnes CO ₂ e

F.
COMMUNITY & ENVIRONMENTAL
IMPACTS

F1. NET POSITIVE IMPACTS

Positive community impacts from the project include the reduction of emissions and economic benefit to refrigerant reclamation facilities. HFC refrigerants are the ozone friendly alternative to CFC and HCFC refrigerants, but HFC refrigerants are powerful greenhouse gases. As discussed, there is little incentive to reclaim and reuse HFC refrigerants because of the low costs associated with virgin production. Decreasing virgin production creates an emissions reduction. The purpose of this methodology is to transition the refrigerant industry from using virgin HFC refrigerants to using reclaimed HFC refrigerants.

There are no negative community or environmental impacts for this project. The Sustainable Development Goals set forth by the United Nations are met initially by the 9th goal to build resilient infrastructure, promote sustainable industrialization, and foster innovation through the recovery and reclamation of used HFCs that reduce reliance on virgin HFC production, eliminating the potential for release to the atmosphere. Goal 12, ensure sustainable consumption and production patterns, is also met as more HFC users are adopting sustainable infrastructure with the use of reclaimed HFCs, adding in the reduction of the future environmental costs of climate change. Additionally, Goal 13 (urgent action to combat climate change and its impacts) is met as recovery, reclamation, and reuse of HFCs results in fewer overall emissions of HFC and the associated climate change impacts that would result in the absence of the project.

F2. STAKEHOLDER COMMENTS

Not applicable for A-Gas V8

G.
OWNERSHIP AND TITLE

G1. PROOF OF TITLE

A-Gas retains title to all refrigerant and environmental attributes once purchased from the entity selling the material, or transferring to A-Gas for reclamation, destruction, and/or resale.

Additional evidence can be found on the A-Gas website: <https://www.agas.com/us/products-services/carbon-offsets/>

G2. CHAIN OF CUSTODY

The offsets from this project have not been bought or sold previously. There is no forward option contract for the offsets from this project.

G3. PRIOR APPLICATION

A-Gas has not applied for GHG emission reduction or removal credits for this project through any other GHG emissions trading system or program.

H.

PROJECT TIMELINE

H1. START DATE

The reporting period start date for this project is January 6, 2021. The reporting period begins on the date that the initial volume of certified reclaimed HFC was sold to an A-Gas Wholesale or HVAC customer.

H2. PROJECT TIMELINE

- Initiation of project activities: January 6, 2021
- Project term: January 6, 2021 – December 31, 2021
- Crediting period: January 6, 2021 – January 5, 2036
- Frequency of monitoring, reporting and verification: Once during reporting period.
- A-Gas provides turn-key HFC recovery and reclamation offerings to a wide customer base in the US. We work closely with our customers to ensure that proper safety, environmental and operational procedures are followed throughout the entire recovery process from point of acquisition using our highly trained technicians and/or collaborating with industry using our Refri-claim Program (over the counter cylinder exchange). Reclamation at our EPA certified reclamation facility in Rhone uses modern state of the art reclamation and separation technology enabling the sale of the certified, reclaimed refrigerant.