

Fielding Environmental HFC Reclamation Offset Project – 2020

April 4, 2023

Fielding Environmental Inc.



**FIELDING
ENVIRONMENTAL**

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A.
PROJECT OVERVIEW

A1. PROJECT TITLE

Fielding Environmental HFC Reclamation Offset Project - 2020

A2. PROJECT TYPE

Industrial Process Emissions – Use of Certified Reclaimed HFC Refrigerants

A3. PROOF OF PROJECT ELIGIBILITY

Table 1: Applicability Requirements from Section 1.2 of the Methodology

Criterion	Requirement	Proof of Project Applicability
Project Location	The project must be located in the United States, Canada, or Mexico	Project location is 3575 Mavis Road, Mississauga, ON L5C 1T7, Canada
Sector or Segment	The project is within a sector and segment which has a low adoption rate for the relevant project activity	Project meets the eligible refrigerant sectors and segments as listed in Methodology Table 1
Certified reclaimed HFC refrigerant	The refrigerant, propellant, or fire suppressant must meet the definition of certified reclaimed HFC refrigerant, propellant, fire suppressant found in this Methodology.	<p>Used (recovered) HFC that has been reclaimed to meet or exceed the latest Air Conditioning, Heating, and Refrigeration Institute 700 Standard for Specifications for Fluorocarbon Refrigerants (i.e., AHRI Standard 700-2016 as of the date of this document) by an EPA-certified reclaimer (or equivalent in case of Canada and Mexico), and tested by an AHRI-certified refrigerant testing laboratory to meet the AHRI Standard, a laboratory accredited to ISO/IEC 17025, or a laboratory licensed and regulated by the federal government, and using the AHRI Standard 700 — Specifications for Refrigerants (AHRI 700).</p> <p>The Project and Proponent are located in Canada, and unable to obtain EPA-Certified Reclaimer status due to Canadian jurisdiction. The Proponent has completed the Checklist for Refrigerant Reclaimers Seeking EPA Certification Stationary Refrigeration and Air Conditioning US EPA and has been evaluated by the Validation/Verification Body (VVB) to ensure the Proponent and facility substantially meet the EPA requirements for certified reclaimers.</p> <p>Reclaimed HFC refrigerants in the project are tested to the AHRI 700-2016 standards at the proponent's refrigerant testing laboratory. This laboratory does not possess AHRI RTL Certification, ISO/IEC 17025</p>

		<p>accreditation, and is not a laboratory licensed or regulated by the federal government. The Proponent has submitted a Project Deviation for this requirement, per Section 6.D of the Standard, which was approved by the ACR on 2022-04-21 based on the fulfillment of sample testing conditions required for Fielding's in-house lab for ACR Project 760, which was developed by Fielding using the Methodology at the same facility.</p>
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Table 2: Eligibility Requirements from the Standard V7.0, Section 6

Criterion	ACR Requirement	Proof of Project Eligibility
Start Date	<p>Non-AFOLU Projects must be validated within 2 years of the project Start Date. AFOLU Projects must be validated within 3 years of the project Start Date.</p> <p>One exception applies to these timeframes: Projects using a newly approved methodology or a newly approved modification that expands the eligibility of a previously published methodology may submit it for listing with ACR within 10 years of the project Start Date. However, the date of listing submittal must be within 6 months of the methodology publication date, and the project must then be validated within 2 years of the listing.</p>	<p>The project Start Date is January 13, 2020.</p> <p>Per the Errata & Clarifications for the Methodology published May 5, 2022, a project must be validated within 3 years of its start date if it occurs at a facility that has been visited during a successful validation and verification for another project of this same type and registered on ACR by the same Project Proponent.</p> <p>The Project occurs at a facility that was visited during the successful validation and verification of ACR Project 663.</p>
Minimum Project Term	The Minimum Project Term for the specific project types is specified in the relevant ACR sector standard and/or methodology. Project types with no risk of reversal after crediting have no required Minimum Project Term.	There is no risk of reversal for this project, so the Minimum Project Term is not applicable.
Crediting Period	The crediting period for all project activities, except that include fire suppressants, shall be fifteen (15) years and is based on EPA's end-use-specific emission rates ¹	The crediting period is from January 13, 2020 to January 12, 2035.
Real	GHG reduction and removals shall result from an emission mitigation activity that has been conducted in accordance with an approved ACR	The GHG reductions occurred after HFC refrigerants were reclaimed and transferred to a user.

¹ Methodology Section 1.4

	methodology and is verifiable. Credits will not be issued on an ex-ante basis.	
Emission or Removal Origin	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.	Fielding Environmental Inc. holds and retains title to the HFC refrigerant and all environmental rights and benefits from purchase through reclamation until sale of the reclaimed refrigerant for use in the Canadian refrigerant market.
Offset Title	Project Proponents 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.	Fielding Environmental Inc. is the project proponent and sole owner of these emissions reductions. They own and operate the reclamation facility in Mississauga, Ontario, Canada, where recovered refrigerants are reclaimed to AHRI 700-2016 specifications, and are sold/transferred eligible end-users. Fielding retained title to the HFC refrigerants, beginning with purchase orders, receipt of the recovered refrigerants, through to reclamation, and finally the subsequent sale and title transfer
Additional	Every project shall use either an ACR-ap-proved performance standard and pass a regulatory surplus test, as detailed in the applicable methodology, 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.	The project passes the Regulatory Surplus Test and the Practice-Based Performance Standard. <u>Regulatory Surplus Test:</u> Currently, there are restrictions on the import and production of HFC refrigerants in Canada, as defined in the Amendments to the Ozone Depleting Substances and Halocarbon Alternatives regulations published in the Canada Gazette. These regulations define yearly import and production quotas for HFC refrigerants in Canada. They do not establish use or production quotas for reclaimed HFC

		<p>refrigerants and are not directly regulated by these which specifically state that the impacts to HFC reclamation activity in Canada are expected to be minimal.</p> <p><u>Practice-Based Performance Standard:</u></p> <p>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. Although data on the Canadian use of reclaimed HFC refrigerants are not published regularly, industry participation in reclamation activity is minimal (two reclaimers supply the vast majority of reclaimed HFC in Canada, one of whom is the Proponent). This suggests there is a low adoption rate for reclaimed HFC in Canada.</p>
Regulatory Compliance	<p>Projects must maintain material regulatory compliance. To do this, a regulatory body/bodies must deem that a project is not out of compliance at any point during a reporting period. Projects deemed to be out of compliance with regulatory requirements are not eligible to earn ERTs during the period of non-compliance. Regulatory compliance violations related to administrative processes (e.g., missed application or reporting deadlines) or for issues unrelated to integrity of the GHG emissions reductions shall be treated on a case-by-case basis and may not disqualify a project from ERT issuance.</p>	<p>This project maintains material regulatory compliance for the entire reporting period. Fielding Environmental Inc. has provided regulatory compliance attestations for each reporting period.</p>
Permanent	<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 this project type.</p>
Net of Leakage	<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</p>	<p>Projects using this methodology 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</p>

	project in excess of any applicable threshold specified in the methodology.	contrary), or increase refrigerant emissions rates. Therefore, for this project, “leakage” can be disregarded.
Independently Validated	ACR requires third-party validation of the GHG Project Plan by an accredited, ACR-approved VVB once during each Crediting Period and prior to issuance of ERTs. Validation can be conducted at the same time and by the same VVB as a full verification; however, the deadline for validation is determined by the methodology being implemented and the project Start Date (see above). Governing documents for validation are the ACR Standard, including sector-specific requirements, the relevant methodology, and the ACR	This project will be validated and verified by SCS Global Services, which is a third-party ACR-approved VVB, in accordance with the ACR Standard. SCS Global Services previously validated and verified ACR Project 663, which was developed by Fielding using the Methodology, for the project’s single reporting period of January 9, 2019 – December 31, 2019.
Independently Verified	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals. ACR requires verifiers to provide a reasonable, not limited, level of assurance that the GHG assertion is without material discrepancy. ACR’s materiality threshold is $\pm 5\%$.	This project will be validated and verified by SCS Global Services, which is a third-party ACR-approved VVB, in accordance with the ACR Standard.
Community and Environmental Impacts	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals. ACR requires verifiers to provide a reasonable, not limited, level of assurance that the GHG assertion is without material discrepancy. ACR’s materiality threshold is $\pm 5\%$.	There are no negative community or environmental impacts for this project type.

A4. LOCATION

The project location will be Mississauga, Ontario, Canada, as all HFC reclamation activity in the project will occur at Fielding Environmental Inc.’s (Fielding Environmental, or simply Fielding) facility (3575 Mavis Road, Mississauga, ON L5C 1T7, Canada). Fielding is one of the largest refrigerant reclaimers in the Canadian market and is an industry leader in responsible refrigerant management. All HFC refrigerant recovered, reclaimed, and sold for this project was sourced from the Canadian market. The GPS coordinates for Fielding Environmental Inc. are:

Latitude: 43.57788

Longitude: -79.64875

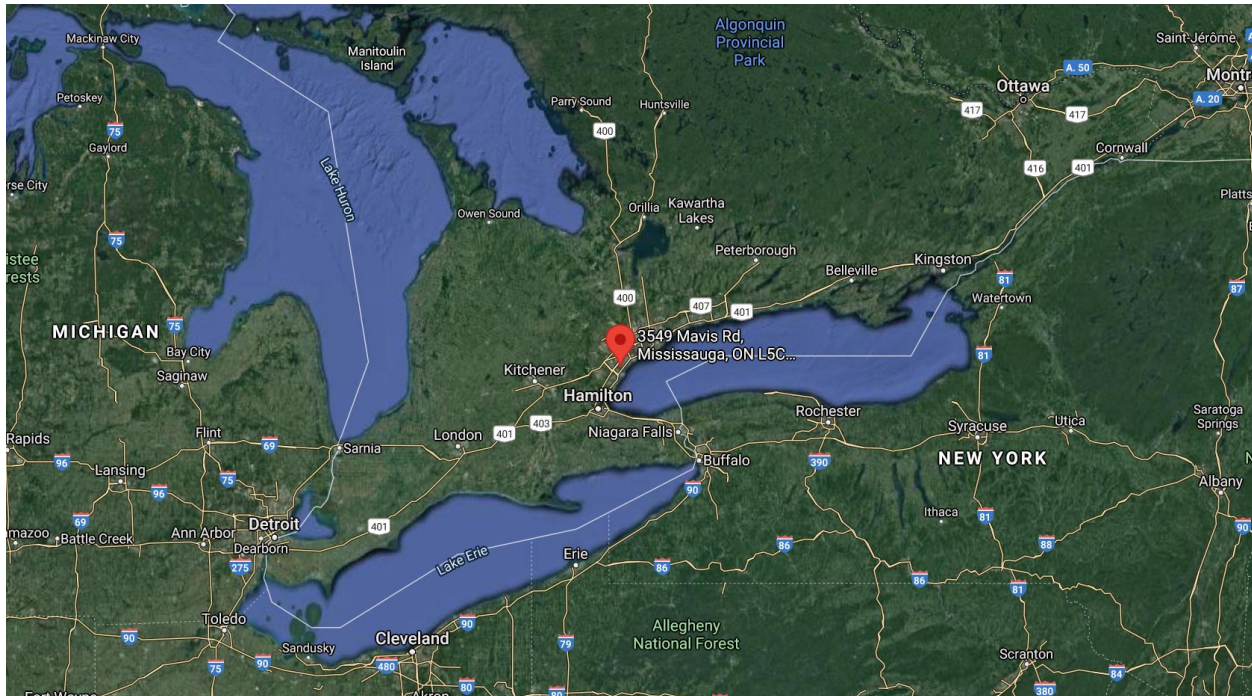


Figure 1: Location of project activity

A5. BRIEF SUMMARY OF PROJECT

Description of project activity

The Project involves the reclamation and use of certified reclaimed HFC refrigerants in refrigeration or air conditioning equipment throughout Canada. Per the Methodology, “reclamation and use” of certified reclaimed HFC refrigerant refers specifically to the production of such refrigerant and the subsequent sale, title transfer or return to a refrigerant distributor, refrigerant wholesaler, or end-user (either through direct sale, title transfer or return to an end user or through installation conducted via service technician) for use in refrigeration or air conditioning equipment. Fielding acquired the HFC refrigerants from multiple sources throughout the Canadian refrigerant market. Fielding retained title to the HFC refrigerants, beginning with purchase orders, receipt of the recovered refrigerants, through to reclamation, and finally the subsequent sale and title transfer.

Background information

In the majority of situations, virgin (newly produced, never used) refrigerant is used to charge new equipment and to “recharge” existing systems which have leaked their original charge during normal operations. Reclaimed refrigerants can be used as an alternative to virgin refrigerants effectively displacing the use, production, and eventual emission (by leaks through normal operation) of the virgin refrigerant.

Project purpose and objective

Using reclaimed refrigerant results in a net reduction in GHG emissions because there is capacity to significantly increase reclaimed refrigerant use within the Canadian refrigeration industry. By using

previously used, reclaimed HFC refrigerants, Fielding is displacing the production of virgin HFC refrigerants.

A6. PROJECT ACTION

Description of prior physical conditions

HFCs are powerful GHGs when released into the atmosphere. The Ozone-depleting Substances and Halocarbon Alternatives Regulations (ODSHAR), made under the authority of the Canadian Environmental Protection Act, 1999, and enforceable on December 30, 2016, include provisions to phase down the consumption and production of HFCs in alignment with Canada's adoption of the Kigali Amendment to the Montreal Accord. The ODSHAR does not set requirements for the production of reclaimed HFC, nor the purchase of reclaimed HFC. The regulations neither create financial incentives to reclaim HFC. Even with the ODSHAR imposing limits on HFC production and import, virgin HFC refrigerants are abundantly available and relatively inexpensive.

Although Pollution Prevention (P2) plans are in place to manage and incentivize the safe recovery, transportation, and disposal via destruction of HFC refrigerants, there exist significant additional costs to process refrigerants back to virgin purity levels. The lack of incentives, and significant financial and technical barriers to reclamation have resulted in low supply and demand for reclaimed HFC refrigerants in Canada.

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

In the majority of situations, virgin (newly produced, never used) refrigerant is used to charge new equipment and to "recharge" existing systems which have leaked their original charge during normal operations. Reclaimed refrigerants can be used as an alternative to virgin refrigerants effectively displacing the use, production, and eventual emission (by leaks through normal operation) of the virgin refrigerant.

Fielding Environmental Inc. is a refrigerant reclaimer, distributor, and wholesaler. Fielding will acquire, reclaim, and sell HFC refrigerant that has been previously used and recovered from air conditioning or refrigeration equipment to other wholesalers, contractors, and end users of the refrigerant, thereby displacing the use, production and eventual emissions associated with virgin HFC refrigerant.

Description of project technologies, products, services and expected level of activity

Eligible HFC refrigerants are reclaimed by extracting the material out of its original or bulked container and passing the material through a proprietary process and technology to restore the refrigerant to virgin purity before transferring it into a vacuumed receiving container. This process removes oil, excess moisture, and other contaminants. A sample of the resulting reclaimed refrigerant is analyzed in Fielding's refrigerant testing lab to assess the qualities of the refrigerant to confirm it meets the AHRI 700-2016 Standard for Specification for Fluorocarbon Refrigerants. See Figure 2 and Figure 3 below for a process flow diagram describing the high-pressure and low-pressure reclamation processes.

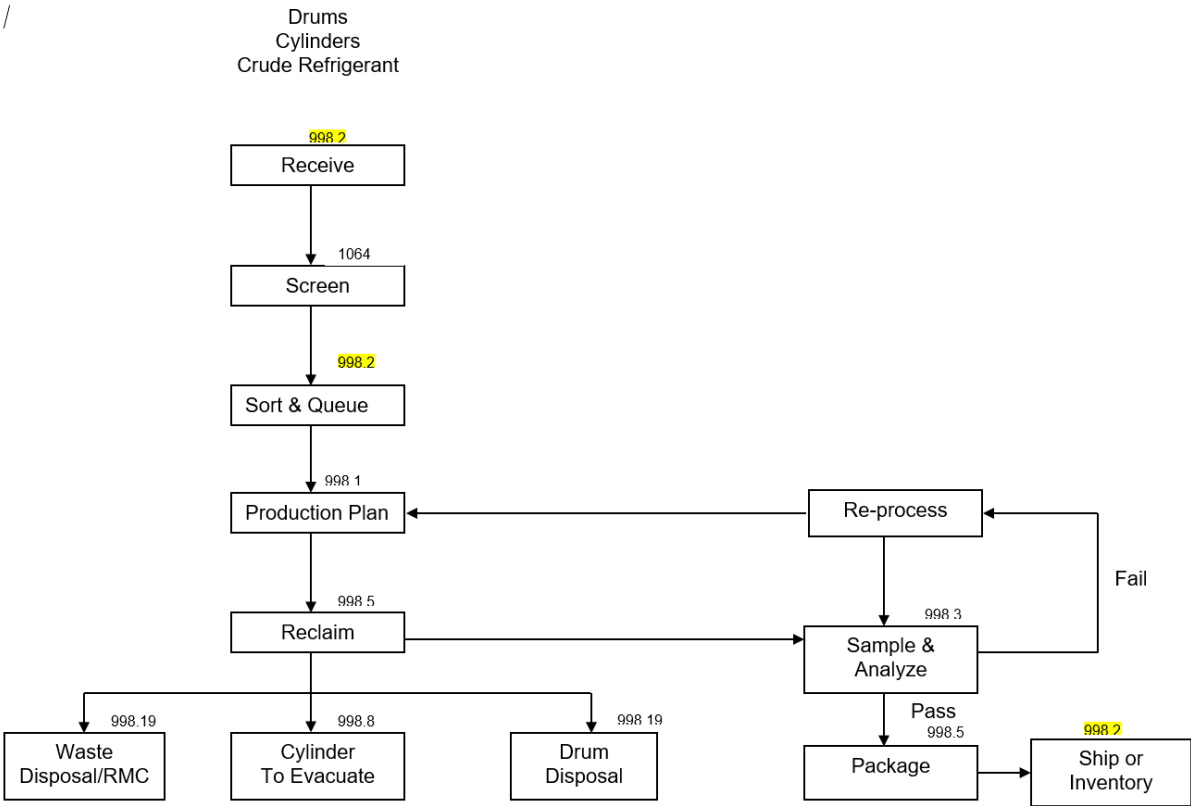


Figure 2: Process Flow Diagram of Fielding's HFC Reclamation Process (Low Pressure)

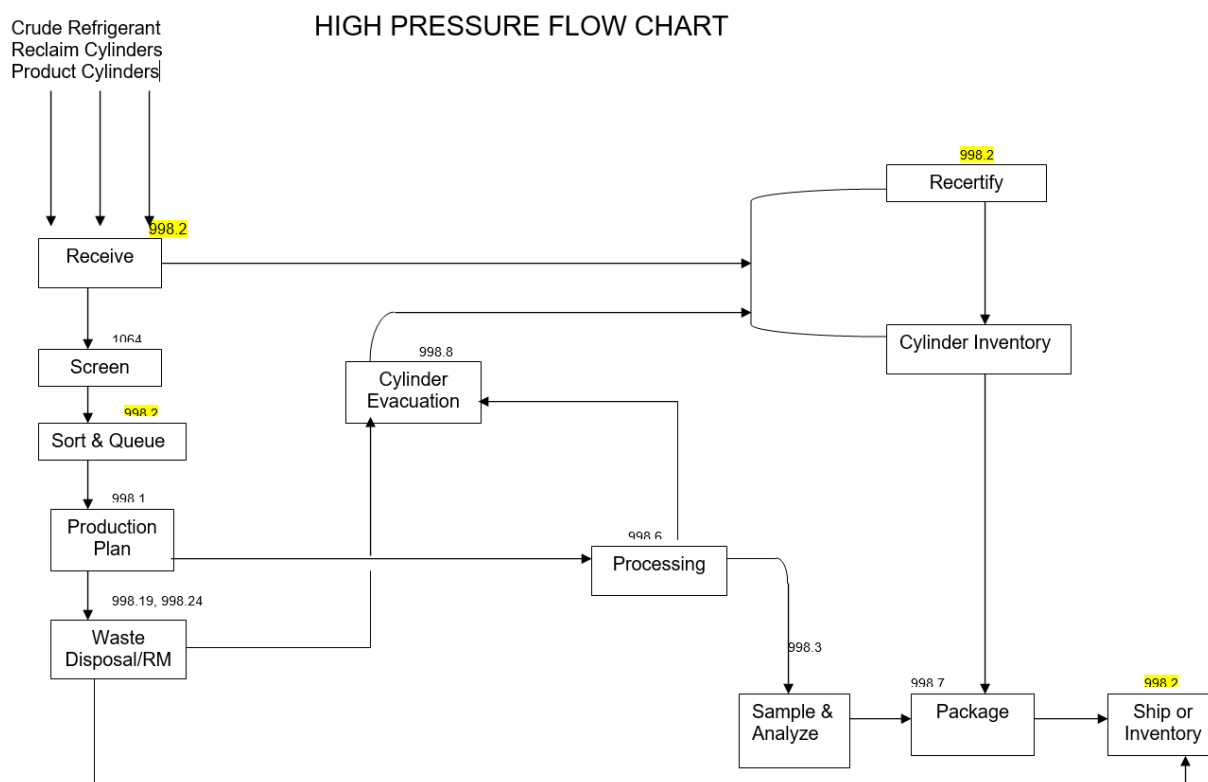


Figure 3: Process Flow Diagram of Fielding's HFC Reclamation Process (High Pressure)

This project is expected to reclaim a total of approximately 41,667.36 kg of recovered R-404A (2,536.58 kg), R-410A (22,555.99 kg), R-407C (4,651 kg), and HFC-134a (11,923.79 kg).

A7. EX ANTE OFFSET PROJECTIONS

GHG emissions reductions are estimated to be 80,697 tCO₂e over the reporting period.

Table 3: Ex Ante Offset Projection by Vintage Year

Vintage Year	Baseline Emissions (tCO ₂ e)	Project Emissions (tCO ₂ e)	Emissions Reductions (tCO ₂ e)
2020	80,697	0	80,697
Total	80,697	0	80,697

Table 4: Ex Ante Offset Projection by HFC species/blend

Vintage Year	Baseline Emissions (tCO ₂ e)	Project Emissions (tCO ₂ e)	Emissions Reductions (tCO ₂ e)
HFC-134a	16,709	0	16,709
R-404A	9,749	0	9,749
R-410A	46,154	0	46,154
R-407C	8,085	0	8,085

Total	80,697	0	80,697
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A8. PARTIES

Fielding Environmental Inc. is the Project Proponent and owner of all ERTs created by this project. Fielding Environmental Inc. owns and operates the Mississauga, Ontario, Canada facility where all HFC reclamation and sales occur.

Anew Canada ULC, is the technical consultant assisting Fielding in project development, quantification, serialization, registration, marketing, and transfer of ERTs.

Table 5: Parties involved in the Project

Name	Role/Title	Contact Info	Responsibility
Katelyn Imrie	Executive Vice President	3575 Mavis Road, Mississauga, ON L5C 1T7, Canada (416) 697-7764 katelyn.imrie@fieldingenv.com	Project Proponent – Coordination of project implementation and data collection
Tooraj Moulai, P.Eng, MSc,	Vice President, Technical Services	840 7 Avenue SW #1605, Calgary, AB T2P 3G2, Canada (403) 262-3026 x259 tmoulai@anewclimate.com	Technical Consultant – Project development, quantification of emissions reductions, assisting proponent with serialization, registration, marketing, and transfer of ERTs.

B.

METHODOLOGY

B1. APPROVED METHODOLOGY

The Project will use the *Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants, Propellants, and Fire Suppressants* Version 2.0 (April 2022) (hereinafter referred to as “Methodology”)

B2. METHODOLOGY JUSTIFICATION

The Project involves reclaiming HFC refrigerants to virgin-grade refrigerant purity to charge newly manufactured equipment or recharge existing systems that require servicing. The project will displace new production of virgin refrigerant that would otherwise need to be manufactured to meet of the eligible segments and sectors identified below.

Table 6: Eligible refrigerant sectors and segments

Project Activity	Refrigerant Sector	Eligible Segments in Sector
Use of Certified Reclaimed HFC Refrigerants	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
	Transportation 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

The chosen Methodology provides the quantification framework for the creation of ERTs from the reductions in GHG emissions resulting from the use of certified reclaimed HFC refrigerants.

B3. PROJECT BOUNDARIES

The physical boundary of the Project is Fielding Environmental Inc. located at 3549 Mavis Road, Mississauga, ON L5C 1T7, Canada. This is the physical and geographical site where the recovered HFC refrigerant in the project is reclaimed for use in newly manufactured equipment, or to recharge existing systems that require servicing.

B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Table 7: GHG sources, sinks, and reservoirs within the project boundaries

SSR		Source Description	Gas	Included (I) or Excluded (E)	Justification
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 Operation	Fossil fuel emissions from the operation of the refrigeration or A/C equipment or systems	CO ₂	E	N/A
			CH ₄	E	N/A
			N ₂ O	E	N/A
		HFC leaks from the operation of the refrigeration or A/C equipment or systems or product	HFCs	I	Included in baseline emissions calculation (Equation 1)
5	Service Equipment	Fossil fuel emissions from the servicing of refrigeration or A/C equipment or system to replace leaked refrigerant	CO ₂	E	Outside of the project boundaries. Applicable for advanced refrigeration only.
			CH ₄	E	Outside of the project boundaries. Applicable for advanced refrigeration only.
			N ₂ O	E	Outside of the project boundaries. Applicable for advanced refrigeration only.
		HFC emissions from servicing refrigeration or A/C equipment or system to replace leaked refrigerant	HFCs	I	Included in baseline emissions calculation (Equation 1)

B5. BASELINE

Under normal operating conditions, between 1 and 50% of the refrigerant in stationary and mobile air conditioning and refrigeration systems leaks each year (Methodology 3.1). To maintain proper performance, leaky equipment and systems require periodic servicing to replace the lost refrigerant. In the majority of situations, virgin (newly produced, never previously used) refrigerant is used both to charge newly manufactured equipment and systems, and to “recharge” systems that leak during normal operations.

The baseline HFC refrigerant reclamation rate has been set average annual HFC reclaim rate (2%) published by the EPA for 2017 – 2020, as noted in Appendix A of the Methodology. Reclaimers in the US are required to report to the EPA the quantities of CFCs and HCFCs reclaimed annually. Starting in 2017, reclaimers in the US are also required to report quantities of HFCs reclaimed to the EPA.

In contrast, as described in Section A6 above, the ODSHAR does not set requirements for the production of reclaimed HFC, nor the purchase of reclaimed HFC. The regulations also do not create financial incentives to reclaim HFC. Even with the ODSHAR imposing limits on HFC production and import, virgin HFC refrigerants are abundantly available and relatively inexpensive. Additionally, the ODSHAR do not require reclaimers to report to Environment and Climate Change Canada to report the quantities of CFCs, HCFCs, or HFCs reclaimed. As there is a lack of data rate of reclamation of HFC refrigerants in Canada, the conservative approach to estimate the amount of HFC refrigerant that is reclaimed in the baseline scenario is to use the HFC reclaim rate (2%) published by the US EPA for 2017 – 2020.

B6. PROJECT SCENARIO

As an alternative to using virgin refrigerant, reclaimed refrigerant can be used to “charge” and “recharge” refrigeration and A/C systems that leak during normal operations. Reclaimed refrigerant has been previously used, recovered from other air conditioning or refrigeration equipment, and processed to remove impurities and restored to virgin grade quality. Using reclaimed refrigerant effectively displaces the use and avoids production of virgin refrigerant.

Fielding purchases or acquires previously used, recovered refrigerant from air conditioning or refrigeration equipment that would otherwise be neglected, disposed of, or released into the atmosphere – either quickly because it is not captured from equipment at end of life, or slowly, because it is captured and placed in storage with no future use, or left in the original equipment. Fielding receives recovered refrigerants in containers of varying sizes, both below and above 500 lbs gross refrigerant weight. Fielding processes the recovered refrigerant to remove impurities and restore to virgin-grade quality, making it reclaimed refrigerant. Fielding transfers or sells the reclaimed refrigerant to refrigerant distributors, wholesalers, other equipment manufacturers, service technicians, or refrigerant end-users who are in the business of selling or using HFC refrigerant for use in refrigeration or air conditioning equipment. This activity displaces the production of virgin refrigerant, preventing the inevitable release of that virgin refrigerant to the atmosphere.

The project scenario assumes that certified reclaimed HFC's will leak completely (or 100%) within 15 years of being charged to an end-use equipment, consistent with Methodology Section 1.4 and the EPA's end-use-specific emission rates²

B7. REDUCTIONS AND ENHANCED REMOVALS

Through the collection, reclamation, and sale of HFC refrigerants, the project will achieve greenhouse gas reductions by preventing the inevitable release of virgin refrigerant to the atmosphere. As discussed in Section A6 above, there is little incentive to reclaim and reuse HFC refrigerants because of the abundance and affordability of virgin HFC. Using reclaimed HFC refrigerants effectively displaces the use – and therefore avoids the production and eventual emissions – of virgin refrigerant. Within the existing reclamation industry, there is capacity to significantly increase reclaimed refrigerant use, and the protocol will incentivize other companies to engage in refrigeration reclamation. Thus, using reclaimed refrigerant would result in new GHG emission reductions.

B8. PERMANENCE

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

² [Inventory of U.S. Greenhouse Gas Emissions and Sinks](#): 1990-2019 – Annex 3 Part A (epa.gov) (Section 3.9, Table A-131)

C. ADDITIONALITY

C1. REGULATORY SURPLUS TEST

To pass the regulatory surplus test, a project must not be mandated by existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the start date that directly or indirectly affect the credited offsets.

As of the project start date, the Ozone-depleting Substances and Halocarbon Alternatives Regulations (ODSHAR), made under the authority of the Canadian Environmental Protection Act, 1999, and enforceable on December 29, 2016, include provisions to phase down the consumption and production of HFCs in alignment with Canada's adoption of the Kigali Amendment to the Montreal Accord. The ODSHAR does not set requirements for the production of reclaimed HFC, nor the purchase of reclaimed HFC. The regulations neither create financial incentives to reclaim HFC. Even with the ODSHAR imposing limits on HFC production and import, virgin HFC refrigerants are abundantly available and relatively inexpensive.

Although Pollution Prevention (P2) plans are in place to manage and incentivize the safe recovery, transportation, and disposal via destruction of HFC refrigerants, there exists significant additional costs to process refrigerants back to virgin purity levels. The lack of incentives, and significant financial and technical barriers to reclamation have resulted in low supply and demand for reclaimed HFC refrigerants in Canada.

None of the above, or any other existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of January 13, 2020 require the project activity and its associated GHG emissions reductions/removal enhancements. Therefore, the project passes the regulatory surplus test.

The ODSHAR do not contain requirements for the certification of equipment used to recover ODS, the certification of service technicians that handle ODS, or certification for refrigerant reclaimers. The Under the Ontario Environmental Protection Act (EPA) 1990, the Ozone Depleting Substances and Other Halocarbons Regulations (December 3, 2010) require individuals handling and using ODS and halocarbons to possess certification in the use of refrigerants and refrigeration equipment. Fielding ensures that all employees handling and using refrigerants or refrigeration equipment possess ODS Certification following on-the-job training.

Fielding possesses regulatory approvals or permits under the Ontario EPA to operate as Waste Management Systems, a Waste Disposal Site, as well as Air and Noise permits under the Ontario EPA which specify the organizations limits on Air and Noise pollution. In Canada, ODS are considered a Dangerous Good, the transportation of which are regulated under the Transportation of Dangerous Goods (TDG) Act. Fielding ensures that all employees transporting dangerous goods possess valid TDG training certification, in compliance with the TDG Act.

C2. COMMON PRACTICE TEST

Per Methodology, not applicable for this project type.

C3. IMPLEMENTATION BARRIERS TEST

Per Methodology, not applicable for this project type.

C4. PERFORMANCE STANDARD TEST

In order for a project to qualify for offset credits under the Methodology it must be demonstrated that the sector has a low market adoption rate for certified reclaimed HFC refrigerant. Prior to the publishing of the Methodology, a market adoption analysis was conducted for the relevant sectors and segments, as shown in Table 6: Eligible refrigerant sectors and segments. A review of US EPA's reclamation data indicate that these sectors and segments have a low market adoption rate for using certified reclaimed HFCs (see Appendix A.1 in the Methodology). Although data on the Canadian use of reclaimed HFC refrigerants are not published regularly, industry participation in reclamation activity is minimal (two reclaimers supply the vast majority of reclaimed HFC in Canada, one of whom is the Proponent). This suggests there is a low adoption rate for reclaimed HFC in Canada. Therefore, project activities within these sectors and segments qualify for offset credit creation under the Methodology.

D. MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

<i>Data or Parameter Monitored</i>	$VR_{HFC,j,RP}$
<i>Unit of Measurement</i>	Kilograms
<i>Description</i>	Total quantity of virgin HFC refrigerant “j” that would have been used to recharge equipment during the reporting period (kgs), derived from the quantity of monitored certified reclaimed HFC refrigerant that is documented according to the procedures in Methodology Section 4.1 and Section 5
<i>Data Source</i>	HFC Reclamation Reports provided by Fielding Environmental Inc.
<i>Measurement Methodology</i>	Weigh Scales
<i>Data Uncertainty</i>	Low
<i>Monitoring Frequency</i>	Determined once for each project (which consists of only one reporting period)
<i>Reporting Procedure</i>	<ul style="list-style-type: none"> • Purchase Orders and Receiving Reports • Reclamation and Packaging Reports • Sales Records for Certified Reclaimed Gas
<i>QA/QC Procedure</i>	<ul style="list-style-type: none"> • Lab analyses of samples of reclaimed refrigerant documenting that the reclaimed gas meets the specifications set out in AHR-700-2016. • Documentation of recovered refrigerants cylinders weight, date of receipt, reclamation date, lab analyses date, and the date on which the reclaimed refrigerant is passed into bulk refrigerant inventory. • Records documenting the quantity and dates on which refrigerants were packaged and transferred/sold to end-users • Calibration records for measurement equipment (weigh scales).
<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 wholesalers, or an end-user for use in an eligible sector (as defined in Table 6: Eligible refrigerant sectors and segments) 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, with some coming from reclaimed HFCs (according to the baseline reclamation rate, as published in the Methodology).

Per the Methodology, for projects using certified reclaimed HFC refrigerant, the baseline emissions are calculated using Equation 1 below.

$$BE_{HFC_{RP}} = \sum_j^y [VR_{HFC,j_{RP}} \times GWP_{HFC,j}] \times (1 - RR_{BL}) \div 1000 \quad \text{Equation 1}$$

Where,

$BE_{HFC_{RP}}$	=	Baseline emissions during the reporting period (tCO ₂ e)
$VR_{HFC,j_{RP}}$	=	Total quantity of virgin HFC refrigerant “j” used to recharge equipment during the reporting period (kg), derived from the quantity of monitored certified reclaimed HFC refrigerant that is documented according to the procedures in Methodology Sections 4.1 and 5
$GWP_{HFC,j}$	=	The global warming potential of the HFC refrigerant j (see Methodology Table 3)
RR_{BL}	=	Baseline refrigeration reclamation rate (% per year)

A sample calculation is provided for the reclamation of 1000 kg of HFC-134a:

$$\begin{aligned} VR_{HFC-134a_{RP}} &= 1000 \text{ kg} \\ GWP_{HFC-134a} &= 1,430 \\ RR_{BL} &= 2.0\% \end{aligned}$$

$$BE_{HFC_{RP}} = [1000 \text{ kg} \times 1,430] \times (1 - 2.0\%) \div 1000$$

$$BE_{HFC_{RP}} = 1401.40 \text{ tCO}_2\text{e}$$

E2. PROJECT SCENARIO

As stated in Section 3 of the Methodology, by using reclaimed HFC refrigerants, project participants are displacing new production of virgin HFC. Per the Methodology, any project related emissions from using reclaimed refrigerant are considered negligible and outside the project boundary. Therefore, the project activity emissions can be disregarded. The baseline emissions for the reporting period equal the project emissions reductions.

E3. LEAKAGE

In GHG project literature (Methodology 4.3), leakage is a term that refers to secondary effects associated with where the GHG emission reductions of a project may be negated by shifts in market activity or shifts in materials, infrastructure, or physical assets associated with the project. Projects involving certified reclaimed HFC refrigerant would not increase demand for refrigerant beyond current baseline demand. Therefore, for this Methodology, “leakage” can be disregarded.

E4. UNCERTAINTY

There is no ex-post uncertainty to account for in the project. Baseline and project emissions are calculated using the actual quantities of reclaimed HFC refrigerant.

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

Project emissions reductions during the reporting period is equal to the baseline emissions of HFC refrigerant during the reporting period, as demonstrated in Equation 2.

$$ER_{RP} = BE_{HFC_{RP}} \quad \text{Equation 2}$$

Where,

$$\begin{aligned} BE_{HFC_{RP}} &= \text{Baseline emissions during the reporting period (tCO}_2\text{e)} \\ ER_{RP} &= \text{Project emission reductions during reporting period (tCO}_2\text{e)} \end{aligned}$$

E6. EX-ANTE ESTIMATION METHODS

Ex-ante GHG emission reductions are finally quantified using Equation 1

F.
COMMUNITY & ENVIRONMENTAL
IMPACTS

F1. NET POSITIVE IMPACTS

The net positive impacts from the project include the reduction of GHG emissions from the use of reclaimed HFC refrigerants, as well as economic benefits associated with the reclamation of refrigerants in Canada. No negative impacts to the environment are expected. No risks to the project are expected.

The implementation of the project activity is not expected to result in negative impacts to the environment. Fielding Environmental has previously operated their Mavis Rd. facility as a refrigerant wholesale, and solvent recovery business. The introduction of the project activity is not expected to introduce novel hazardous wastes, substances, or equipment for which Fielding was not already permitted, well-equipped, and trained to handle, recover, or dispose. The project is a brownfield development, as it makes use of the existing site and infrastructure owned and operated by Fielding.

Canada possesses zero production capacity for HFC products. In the absence of the project activity, entities would be charging or recharging their refrigeration and A/C systems using virgin refrigerants that are produced internationally. The implementation of the project activity provides well-paying, skilled employment for local workers.

The Project meets and fulfills the applicable sustainable development goals set by the United Nations Department of Economic and Social Affairs.

SDG Goal 9 – Industry, Innovation, and Infrastructure – is met, because the use of reclaimed refrigerant effectively displaces the use and avoids the production and eventual emissions of virgin refrigerant. The industry has little incentive to use reclaimed refrigerant because of abundantly and cheaply available virgin HFC refrigerants. There is capacity to significantly increase reclaimed refrigerant use in the refrigeration reclamation industry.

SDG Goal 12 – Responsible Consumption and Production – is met because the Project enables the end use of reclaimed HFC refrigerants to service existing and newly manufactured refrigeration and air conditioning equipment.

SDG Goal 13 – Climate Action – is met because the use of reclaimed refrigerant effectively displaces the use and avoids the production and eventual emissions of virgin refrigerant. HFC refrigerants are powerful GHGs, which contribute significantly to total GHG emissions, and thus anthropogenic climate change. The reclamation and use of reclaimed HFC refrigerant is undertaken voluntarily by all parties with the purpose of reusing existing supplies of HFC refrigerants, reducing GHG emissions, and reducing the impacts caused by refrigerant gas emissions.

F2. STAKEHOLDER COMMENTS

Not applicable for this project type

G. OWNERSHIP AND TITLE

G1. PROOF OF TITLE

Fielding Environmental Inc. is the project proponent and sole owner of these emissions reductions. They own and operate the reclamation facility in Mississauga, Ontario, Canada, where recovered refrigerants are reclaimed to AHRI 700-2016 specifications, and are sold/transferred eligible end-users.

Fielding retained title to the HFC refrigerants, beginning with purchase orders, receipt of the recovered refrigerants, through to reclamation, and finally the subsequent sale and title transfer

G2. CHAIN OF CUSTODY

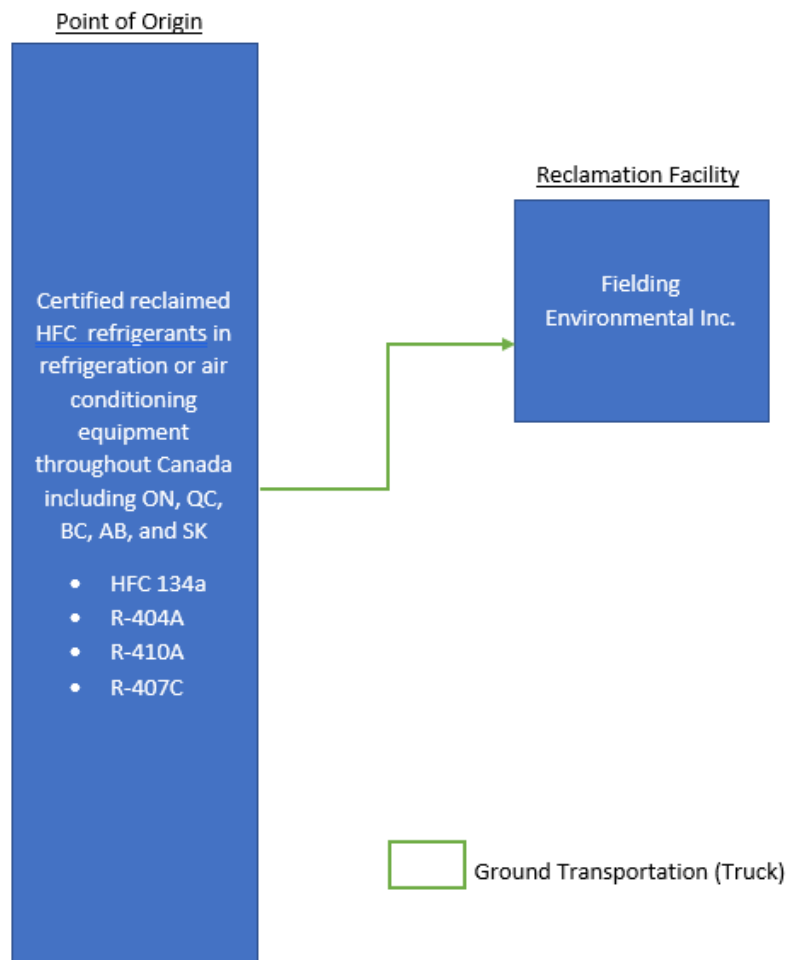


Figure 4: Chain of Custody

G3. PRIOR APPLICATION

Fielding Environmental Inc. has not applied for GHG emissions reduction or removal credits for this project through any other GHG emissions trading system or program.

H. PROJECT TIMELINE

H1. START DATE

The ACR Standard V7.0 defines the project start date for all projects other than AFOLU as the date on which the project began to reduce GHG emissions against its baseline. The Project start date is January 13, 2020 – the earliest date Fielding sold refrigerant to an eligible customer, as defined in Methodology Table 1, effectively displacing the use, and avoiding production of virgin refrigerant. Using reclaimed refrigerant would result in a net GHG reduction. The Project start date determination is consistent with the ACR Standard and Methodology.

H2. PROJECT TIMELINE

- Initiation of project activities
 - January 13, 2020
- Project term
 - Not applicable for this project type
- Crediting period
 - January 13, 2020 – January 12, 2035
- Frequency of monitoring, reporting and verification
 - Once per reporting period
- Relevant project activities in each step of the GHG project cycle
 - Quantification, monitoring report, verification will be completed at the end of each project reporting period