

VALIDATION AND VERIFICATION REPORT

American Carbon Registry

Hudson Technologies HFC Reclamation Project 2020-1

Reporting Period:

January 2, 2019 to December 31, 2019

Prepared for:

Hudson Technologies Company

4 November 2020



AMERICAN CARBON REGISTRY

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Executive Summary

This report describes the validation and initial verification services provided for the Hudson Technologies HFC Reclamation Project 2020-1 project (“the project”), at the Hudson Technologies Company facility located in Champaign, IL, USA.

This report presents the validation and verification process, the findings raised during verification, and the conclusions reached by the verification body (VB). This assessment covers the greenhouse gas (GHG) emissions reductions reported to the American Carbon Registry (ACR) for the monitoring period of 2 January 2019 to 31 December 2019.

The validation and verification was undertaken to evaluate the representations provided in the project plan and the current monitoring report, and to assess whether the compiled data conforms to the validation and verification criteria: American Carbon Registry Standard, Version 6.0, July 2019; American Carbon Registry Validation and Verification Guidelines, Version 1.1, June 2012; and Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants, Version 1.1, Sept. 2018.

In the course of the verification SCS verifiers developed findings which included New Information Requests (NIRs), Non-Conformity Reports (NCRs) and Opportunities for Improvement (OFIs). All New Information Requests and Non-Conformity Reports have been adequately responded to, resulting in their closure. Opportunities for Improvement are potential non-conformances that have been memorialized for future verifications. During this verification nine (9) findings were issued which resulted in clarifications and new documents being provided. These clarifications and documents were sufficient to ensure conformance with the verification criteria and were closed.

SCS verified the adequacy of the information provided in the project plan and the current monitoring report, confirming that these documents meet the requirements of the ACR standard. On the basis of the information made available to SCS and the analyses completed during the verification, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the emission reductions represented by the project proponent during the monitoring period of 02 January 2019 to 31 December 2019 are free from material misstatement and equal in number to 189,916 tCO₂e.

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1 Introduction

1.1 About SCS Global Services

SCS Global Services (SCS) is a global leader in third-party certification, auditing, testing services, and standards. Established as an independent third-party certification firm in 1984, our goal is to recognize the highest levels of performance in environmental protection and social responsibility in the private and public sectors, and to stimulate continuous improvement in sustainable development. In 2012, Scientific Certification Systems, Inc. began doing business as SCS Global Services, communicating its global position with offices and representatives in over 20 countries.

SCS' Greenhouse Gas (GHG) Verification Program has been verifying carbon offsets since 2008 and to date has verified over 250 million tonnes of CO₂e, providing GHG verification services to a wide array of industries including manufacturing, transportation, municipalities, and non-profit organizations. The GHG Verification Program draws upon SCS's established expertise to serve the global carbon market.

1.2 Objectives

1.2.1 Validation Objectives

The overall goal of third-party validation was to review impartially and objectively the GHG project plan against the requirements laid out in the ACR Standard and relevant methodology. SCS independently evaluated the project design and planning information, based on supporting documentation and GHG validation best practices.

The objectives of validation were to evaluate:

- Conformance to the ACR Standard.
- GHG emissions reduction project planning information and documentation in accordance with the applicable ACR-approved methodology, including the project description, baseline, eligibility criteria, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures.
- Reported GHG baseline, ex ante estimated project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

SCS reviewed any relevant additional documentation provided by the project proponent to confirm the project's eligibility for registration on ACR.

1.2.2 Verification Objectives

The overall goal of third-party verification was to review impartially and objectively the claimed GHG emission reductions/removal enhancements against relevant ACR standards and the approved

methodology. SCS independently evaluated the GHG assertion, based on supporting evidence and GHG verification best practice. The objectives of verification were to evaluate:

- Reported GHG baseline, project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).
- Any significant changes to the project procedures or criteria since the last verification.
- Any significant changes in the GHG project's baseline emissions and emission reductions/removal enhancements since the last verification.

SCS reviewed the GHG project plan, GHG assertion, and any additional relevant documentation provided by the client to determine:

- That the reported emissions reductions and/or removal enhancements are real.
- Degree of confidence in and completeness of the GHG assertion.
- That project implementation was consistent with the GHG project plan.
- Eligibility for registration on ACR.
- Sources and magnitude of potential errors, omissions, and misrepresentations, including the
 - Inherent risk of material misstatement.
 - Risk that the existing controls of the GHG project would not have prevented or detected a material misstatement.

1.3 Scope

1.3.1 Scope of Validation

The validation included examination of all of the following elements of the GHG project plan:

- Project boundary and procedures for establishing the project boundary
- Physical infrastructure, activities, technologies, and processes of the project
- GHGs, sources, and sinks within the project boundary
- Temporal boundary
- Description of and justification for the baseline scenario
- Methodologies, algorithms, and calculations that will be used to generate estimates of emissions and emission reductions/removal enhancements
- Process information, source identification/counts, and operational details
- Data management systems
- QA/QC procedures
- Processes for uncertainty assessments

- Project-specific conformance to ACR eligibility criteria

1.3.2 Scope of Verification

Verification included examination of all of the following elements of the GHG project report:

- Physical infrastructure, activities, technologies, and processes of the GHG project
- GHG SSRs within the project boundary
- Temporal boundary
- Baseline scenarios
- Methods and calculations used to generate estimates of emissions and emission reductions/removal enhancements
- Original underlying data and documentation as relevant and required to evaluate the GHG assertion
- Process information, source identification/counts, and operational details
- Data management systems
- Roles and responsibilities of project participants or client staff
- QA/QC procedures and results
- Processes for and results from uncertainty assessments
- Project-specific conformance to ACR eligibility criteria

SCS examined the reported data, quantification methodologies, calculation spread-sheets or databases, source data, project data management systems, data quality controls in place, measurement and monitoring systems, and records pertaining to emissions quantification. Calculation and error checks, site inspections, interviews with project participants, an iterative risk assessment, sampling plan, and audit checklist were performed to the extent necessary for SCS to develop an understanding of how data are collected, handled, and stored for a specific project.

1.4 Validation and Verification Criteria

The validation and verification criteria were comprised of the following:

- ACR Standard, Version 6.0, July 2019
- Methodology for The Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants, Version 1.1, Sept. 2018, (“the methodology”)
- American Carbon Registry Validation and Verification Guidelines, Version 1.1, May 2018;

The validation/verification was carried out in accordance with ISO 14064-3:2006, *Greenhouse gases – Specification with guidance for the validation and verification of greenhouse gas assertions*.

1.5 Level of Assurance

The level of assurance was reasonable.

1.6 Treatment of Materiality

A material misstatement is an inaccurate assertion of an offset project's GHG emission reductions and/or removals, which may reasonably be expected to influence decisions or actions taken by the users of the GHG project information. To accept a verification statement, ACR requires that discrepancies between the emission reductions and/or removal enhancements claimed by the Project Proponent and estimated by the verification body be less than ACR's materiality threshold of $\pm 5\%$.

1.7 Summary Description of the Project

The Project Activity is the reclamation and use of certified reclaimed HFC refrigerants to service existing refrigeration and air conditioning equipment throughout the US.

Typically, virgin refrigerant is used to "charge" refrigeration and A/C systems and various types of equipment when they are manufactured and installed, and during normal operations. Re-using previously consumed HFC that has been recovered and reclaimed to virgin-grade refrigerant purity, either to "recharge" existing systems or in newly manufactured equipment, displaces the new production of virgin refrigerant that would otherwise be manufactured to meet that demand.

The purpose of this project was to offset the production, and eventual emission, of virgin HFC refrigerants by recovering, reclaiming, and recycling used HFC refrigerants, which results in a GHG emissions reduction. Hudson Technologies acquired the HFC refrigerants from multiple sources throughout the US refrigerant market, reclaimed the refrigerant as an EPA certified refrigerant reclaimer and then sold the reclaimed refrigerant for re-use in the refrigerant aftermarket.

2 Assessment Process

2.1 Method and Criteria

The validation and verification services were provided through a combination of document review, interviews with relevant personnel and remote on-site inspections, as discussed in Sections 2.2 through 2.4 of this report. At all times, an assessment was made for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5 of this report, findings were issued to ensure conformance to all requirements.

The audit team created a sampling plan following a proprietary sampling plan template developed by SCS. The audit team identified areas of “residual risk”—those areas where there existed risk of a material misstatement (see Section 1.6 above) that was not prevented or detected by the controls of the project. Sampling and data testing activities were planned to address areas of residual risk. The audit team then created a validation and verification plan that took the sampling plan into account.

2.2 Document Review

SCS conducted a document review to inform the planning process prior to validation and verification activities. SCS carefully reviewed the initial GHG Project Plan (the “Plan”) for conformance to the validation and verification criteria. The audit team also reviewed subsequent copies of the Plan as it was updated by Hudson Technologies, (the Project Proponent) in response to findings issued by the team throughout the validation and verification process. A list of other documentation reviewed by the audit team is provided below.

The validation and verification process is a risk based assessment aimed at identifying key factors that impact the reported emission reductions and removals. As a result of the document review and correspondence with project personnel, an audit plan and a sampling plan were developed for this engagement. An audit agenda was submitted prior to the site visit. SCS assessed the GHG Project Plan with actual project conditions, reviewed the baseline and project scenarios, assessed the eligibility, additionality, GHG emission reduction assertion and the underlying monitoring data to determine if either contained material or immaterial misstatements. The results of these reviews are discussed in greater detail below.

Documentation Reviewed During the Course of Validation and Verification Activities		
#	Type	File Name
1	ACR Project Plan	HT HFC Reclamation Project 2020-1 GHG Project Plan V3.1
2	Monitoring Report	HT HFC Reclamation Project 2020-1 Monitoring Report V3
3	Project flow	Tank layout
4	Project flow description	Hudson Standard Reclaim Procedure
5	Calculation Workbook	HT HFC Reclamation Project 2020-1 ER Calculations Worksheet v3
6	Reclaimed HFC Qty	HT HFC Reclamation Project 2020-1 ER Calculations Worksheet v3 (tabs for each HFC)
7	AHRI Certified Labs	AHRI Lab Certs
8	AHRI Standard	AHRI_Standard_700-2015
9	EPA Reclaimer List	EPA-Certified Refrigerant Reclaimers
10	EPA Certification	Hudson Company EPA cert

11	EPA 608 Licenses	File:608 Certifications
12	Reclaimer Certification	120914 Certification
13	EPA Annual Reclaimer report	Hudson EPA Reclamation #s 2019 - Confidential
14	POO documentation	Purchase Orders, Refrigerant Handling Sheets, BOLs samples for R-134A
15	POO documentation	Purchase Orders, Refrigerant Handling Sheets, BOLs samples for R-404A
16	POO documentation	Purchase Orders, Refrigerant Handling Sheets, BOLs samples for R-407C
17	POO documentation	Purchase Orders, Refrigerant Handling Sheets, BOLs samples for R-410A
18	POO documentation	Purchase Orders, Refrigerant Handling Sheets, BOLs samples for R-422d
19	DOT Haz Mat Certificates	Old Dominion
20	DOT Haz Mat Certificates	Estes
21	DOT Haz Mat Certificates	Fed Ex
22	DOT Haz Mat Certificates	XPO
23	Scale Calibrations	Hudson IL01 Scale Calibrations 2019
24	Sales Invoices	HFC Process and Sales Report- 134a
25	Sales Invoices	HFC Process and Sales Report- 404a
26	Sales Invoices	HFC Process and Sales Report- 407c
27	Sales Invoices	HFC Process and Sales Report- 410a
28	Sales Invoices	HFC Process and Sales Report- 422d
29	Sales Year End Report	HFC project sales report 9.2.2020
30	Bulk Tank Analysis	IL19036 - R134a
31	Bulk Tank Analysis	IL19106 - R407c
32	Bulk Tank Analysis	IL19113 - R404a
33	Bulk Tank Analysis	IL19124 - R422d
34	Bulk Tank Analysis	IL19182 - R410a

2.3 Interviews

2.3.1 Interviews of Project Personnel

The process used in interviewing Project personnel was a process wherein the audit team elicited information from project personnel regarding (1) the work products provided to the audit team in support of the Project Description and Monitoring Report; (2) actions undertaken to ensure conformance with various requirements and (3) implementation status of the project activities. The following provides a list of personnel associated with the project proponent who were interviewed.

Interview Log: Individuals Associated with Project Proponent			
Individual	Affiliation	Role	Date(s) Interviewed
Jonathon Stacks	Hudson Technologies	Director of Sustainability	Throughout Audit
Andrew Smith	Hudson Technologies	Plant Manager	August 26, 2020
Dave Watson	Laboratory Manager	Hudson Technologies	August 26, 2020
Krystal Gates	Office Administration Manager	Hudson Technologies	Throughout Audit

2.4 Site Inspections

The objectives of the on-site inspections were as follows:

- Confirm the validity of the statements made in the Plan and associated project documentation;
- Interview project personnel to determine if the Plan correctly identifies project activity and assess project personnel competencies
- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the Project; and
- Perform a risk-based review of the project area to ensure that the Project is in conformance with the eligibility requirements of the validation/verification criteria.

In support of the above objectives, the audit team performed a virtual site inspection of the project area on 26 August 2020. The audit team performed an in-depth assessment of the conformance of the Project to the validation and verification criteria. The inspection included the review of records and discussing the project activities and touring the HFC reclamation facility in Champaign, IL. While touring the project area, the audit team visually observed the HFC receiving and storage processes; the

laboratory and testing processes; the reclamation and aggregation processes; as well as the monitoring, measuring, and final sale of the reclaimed HFC.

2.5 Resolution of Findings

Any potential or actual discrepancies identified during the audit process were resolved through the issuance of findings. The types of findings typically issued by SCS during this type of validation and verification engagement are characterized as follows:

- **Non-Conformity Report (NCR):** An NCR signified a discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a validation and/or verification statement.
- **New Information Request (NIR):** An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an NIR did not necessarily indicate that the project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a validation and/or verification statement.
- **Observation (OBS):** An OBS indicates an area where immaterial discrepancies exist between the observations, data testing results or professional judgment of the audit team and the information reported or utilized (or the methods used to acquire such information) within the GHG assertion. A root cause analysis and corrective action plan are not required, but highly recommended. Observations are considered by the audit team to be closed upon issuance, and a response to this type of finding is not necessary.

As part of the audit process, 6 NCRs, 3 NIRs and 0 OBS were issued. All findings issued by the audit team during the audit process have been closed. All findings issued during the audit process, and the impetus for the closure of each such finding, are described in Appendix B of this report.

2.6 Techniques and Processes Used to Test the GHG Information and GHG Assertion

SCS used the following techniques and processes to test the GHG information and assertion:

- **Physical evidence:** direct observation of equipment or processes to demonstrate that the Project Proponent is collecting relevant data;
- **Documentary evidence:** paper or electronic records, which may include procedures, logs, invoices, and analytical results;
- **Testimonial evidence:** interviews with key personnel (e.g., technical, operations, managerial).

3 Validation and Verification Findings

This section follows the requirements for the validation report as set out in Chapter 7 of the ACR Validation and Verification Standard.

3.1 Project Applicability

3.1.1 Project Proponent

The Project Proponent is Hudson Technologies Company (Hudson). The GHG Plan indicates Hudson owns the ERTs from this project and is the entity that has registered the project on ACR, which SCS confirmed by reviewing the ACR website.

3.1.2 Project Activity

The Project is an industrial process emissions project, as defined by ACR, within the refrigerant sector as defined by the methodology: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants, Version 1.1, Sept. 2018. The Project complies fully with the criteria, as set out in Section 1.0 Background and Applicability of the methodology.

Use of Certified Reclaimed HFC Refrigerants in Eligible Sectors and Segments:

Hudson, an EPA certified refrigerant reclaimer, is in the business of recovering, and reclaiming previously used HFC to virgin-grade refrigerant purity, either to “recharge” existing systems that require servicing, or to charge newly manufactured equipment. The reclaimed HFC displaces new production of virgin refrigerant that would otherwise be manufactured to meet current demand.

3.2 Applicability Conditions

The ACR methodology provides a series of requirements for applicability in Section 1.2, in addition to the latest ACR program eligibility requirements as found in the ACR Standard. SCS confirmed that the GHG Project Plan indicates how each applicability condition is met including supplemental requirements stipulated by ACR.

Project Location: The project is located in North America: During the document review and site visit, SCS confirmed that the Project activities are entirely located within North America, and specifically the Hudson Technologies facility in Champaign, IL.

Eligible Sector or Segment: The project is within a sector and segment which has a low adoption rate for the relevant project activity. During the document review and site visit, SCS confirmed that the project activity conforms to the domestic, commercial and industrial sectors of the refrigerant industry, and the Stationary Air conditioning sector.

Eligible Refrigerants: The refrigerant must meet the definition of certified reclaimed HFC refrigerant found in this Methodology: During the document review and site visit, SCS confirmed that as an EPA certified reclaimer and approved AHRI certified refrigerant testing laboratory, Hudson recovered and reclaimed HFC-134a, R-404A, R-4047C, R-410A and R-422D refrigerants to AHRI 700-2015 Standard for Specifications for Fluorocarbon Refrigerants.

The Project reporting period: SCS confirmed the Project consisted of one reporting period and the reporting period is from January 2, 2019 to January 31, 2019.

Quantification of Emission Reductions: SCS reviewed various purchase orders and sales invoices along with the emission reduction calculations to confirm that Emission reductions were quantified for a period not to exceed 12 months based on the total amount of certified reclaimed HFC produced and the subsequent sale, title transfer or return to a refrigerant distributor, refrigerant wholesaler, or an 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.

Crediting Period: The crediting period for the activities were set for 10 years as required by the Methodology.

3.3 Project Boundary

3.3.1 Project Boundary and Procedures for Establishment

The Plan contains a description of the physical boundary, which is located at the Hudson Technologies facility at 3402 North Mattis Avenue in Champaign, IL 61822. This is the physical and geographic site where the recovered HFC refrigerant is reclaimed in the project scenario for use in equipment operations to replace refrigerant leaks or to charge newly manufactured refrigeration or air conditioning equipment. The audit team confirmed that this boundary was well documented throughout both the document review and site visit activities.

The sources of GHG emissions within the project boundary is specifically recovered and reclaimed HFCs. There are no sinks or reservoirs within the project boundaries. This is the case for both the baseline and Project scenarios. SCS confirmed that only HFC-134a, R-410a, R404a, R-407a, R407c, R422d was included in the Project's evaluation of data and calculations, which is consistent with the applicable methodology.

SSR		Source Description	Gas	Included (I) or Excluded (E)	Justification
4	Equipment Operations	Fossil fuel emissions from the operation of the refrigeration or A/C equipment or system	CO2	E	N/A
			CH4	E	N/A
			N2O	E	N/A
		HFC leaks from the operation of the refrigeration or A/C equipment or system or product	HFCs	I	Included in baseline emissions calculation

5	Service Equipment	Fossil fuel emissions from servicing refrigeration or A/C equipment or system to replace leaked refrigerant	CO2	E	Outside of project boundaries.
			CH4	E	Outside of project boundaries.
			N2O	E	Outside of project boundaries.
		HFC emissions from servicing refrigeration or A/C equipment or system to replace leaked refrigerant	HFCs	I	Included in baseline emissions

3.4 Project-Specific Conformance to ACR Eligibility Criteria

The audit team reviewed the demonstration of conformance to each of the relevant eligibility criteria listed in the ACR Standard. The audit team confirmed the full conformance of the project with the relevant eligibility criteria. A more detailed assessment of the audit team's findings is provided below.

Actions Undertaken to Confirm Conformance to Eligibility Criteria		
Criterion	ACR Requirement	Validation and Verification Activities
Start Date, All Projects	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.	Confirmation that the GHG Plan report was issued less than 2 years after 01/02/2019, the start date of the project according to the GHG Plan.

Start Date Definition, Non-AFOLU Projects	ACR defines the 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 was confirmed as January 2, 2019. SCS reviewed the Project's GHG inventory calculations, purchase records and purchase orders of the recovered and reclaimed HFC to confirm the start date as 01/02/2019.
Minimum Project Term	The Minimum Project Term for specific project types is defined in the relevant ACR sector requirements and/or methodology. Project types with no risk of reversal after crediting have no required Minimum Project Term.	According to the methodology there is no risk of reversal, therefore no minimum project term. Nonetheless, SCS confirmed the Project Proponent provided a timeline with a project term of 10 years, with annual monitoring, reporting and verification in the GHG Plan.
Crediting Period	The Crediting Period for non-AFOLU projects shall be 10 years.	Review of the GHG Plan confirmed that the crediting period is 10 years, as required given the project type. SCS confirmed the crediting period of ten years was indicated in Section H2 for the Project Timeline within the GHG Plan. The reporting period for this verification is 02 January 2019 to 31 December 2019 within the 10 year credit period.
Real	GHG reductions and/or removals shall result from an emission mitigation activity that has been conducted in accordance with an approved ACR Methodology and is verifiable. ACR will not credit a projected stream of offsets on an ex-ante basis.	Review of the emission mitigation activity, that GHG reductions take place at the displacement of virgin HFC production, which occurs prior to the issuance, as described in the GHG Plan, conforms to the requirements of the methodology and will be verifiable if implemented as described.
Emission or Removal Origin (Direct Emissions)	The Project Proponent shall own, have control over, 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, it shall document that effective control exists over the GHG sources and/or sinks from which the reductions/ removals originate.	Hudson Technologies has control of and retains title to the HFC refrigerant and all environmental rights and benefits from purchase through reclamation until sale of the reclaimed gas for use in the US refrigerant market.

Emission or Removal Origin (Indirect Emissions)	<p>For projects reducing or removing non-energy indirect emissions, the following requirement applies:</p> <p>The Project Proponent shall document that no other entity may claim GHG emission reductions or removals from the Project Activity (i.e., that no other entity may make an ownership claim to the emission reductions or removals for which credits are sought).</p>	Not applicable; the project is not reducing or removing non-energy indirect emissions.
Offset Title (All Projects)	The Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration. Title to offsets shall be clear, unique, and uncontested.	<p>Hudson owns the facility and equipment where HFCs are reclaimed and emission reductions are generated. Review of the GHG Plan confirmed Hudson Technologies holds and retains title to the HFC refrigerant and all environmental rights and benefits from purchase through reclamation until sale of the reclaimed gas for use in the US refrigerant market.</p> <p>Hudson Technologies demonstrated the title to material purchased via Purchase Order receipts. The title to all offsets is clear, unique, and uncontested. Hudson was confirmed as the Project Proponent and was responsible for calculating the Project emission reductions, developing the GHG Plan and listing the Project with ACR.</p>
Additional	<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:</p> <ol style="list-style-type: none"> 1. Exceed regulatory/legal requirements; 2. Go beyond common practice; and 3. Overcome at least one of three implementation barriers: institutional, financial, or technical. 	Confirmation that the project passes the regulatory surplus test and the methodology specific performance test. (see Section 3.5 below for more details).
Regulatory Compliance	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.	Confirmation that the project meets all relevant regulatory requirements (see Section 3.5 below for more details).

	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. 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 non-compliance with laws, regulations, or other legally binding mandates directly related to Project Activities.	
Permanence (All Projects)	All projects must adhere to ongoing monitoring, reversal reporting, and compensation requirements as detailed in relevant methodologies and legally binding agreements (e.g., the ACR Reversal Risk Mitigation Agreement).	Not applicable; there is no risk of reversal or leakage for this project type. The GHG Plan asserts that emission reductions from the use of reclaimed HFC's are permanent by definition. Once HFC is reclaimed and sold back into the refrigerant market, the emissions are reduced as compared to the baseline scenario, and the emissions reduction cannot be reversed. Thus, SCS concludes the permanence of the offsets generated by this project is assured.
Net of Leakage	ACR requires Project Proponents to address, account for, and mitigate certain types of leakage, according to the relevant sector requirements and methodology conditions. Project Proponents must deduct leakage that reduces the GHG emissions reduction and/or removal benefit of a project in excess of any applicable threshold specified in the methodology.	Not applicable; there is no risk of reversal or leakage for this project type.
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.	The GHG Plan has been independently validated by SCS, an accredited, ACR-approved validation/verification body
Independently Verified	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals.	The Project has been independently verified by SCS, an accredited, ACR-approved validation/verification body.

Environmental And Community Assessments	<p>ACR requires that all projects develop and disclose an impact assessment to ensure compliance with environmental and community safeguards best practices. Environmental and community impacts should be net positive, and projects must “do no harm” in terms of violating local, national, or international laws or regulations.</p> <p>Project Proponents must identify in the GHG Project Plan community and environmental impacts of their project(s). Projects shall also disclose and describe positive contributions as aligned with applicable sustainable development goals. Projects must describe the safeguard measures in place to avoid, mitigate, or compensate for potential negative impacts, and how such measures will be monitored, managed, and enforced.</p> <p>Project Proponents shall disclose in their Annual Attestations any negative environmental or community impacts or claims thereof and the appropriate mitigation measure.</p>	<p>SCS confirmed that the GHG Plan included an assessment of the potential community and environmental impacts due to the Project. There are no negative impacts identified and therefore no mitigation plan is necessary. The audit team agrees with the assertion by the Project Proponent that any community or environmental impacts associated with this Project would be net positive due to the focused project boundary and reduction of emissions.</p>
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3.5 Demonstration of Additionality

The audit team reviewed the demonstration of additionality, as set out in the GHG Plan, and confirmed that the additionality requirements set out in the ACR Standard and Methodology have been met. A more detailed assessment of the audit team’s findings is provided below.

3.5.1 Regulatory Surplus Test

According to the methodology, "Currently, there are no restrictions in the United States or elsewhere in North America on the quantities of HFCs that can be produced, imported, or used. There are no requirements on the quantities of reclaimed HFC refrigerants that must be used for any application. Users are free to use virgin HFC, stockpiled HFC, or recycled or reclaimed HFC refrigerant in any amount of their choosing."

The Project Proponent continually seeks to identify any existing federal, state or local regulations that mandate or effectively require GHG emission reductions from the use of HFC’s. Hudson routinely reviews relevant ODS phase out information in 40 CFR part 82. As a result, HFC’s are largely unregulated, there is no limitation on the production, destruction, or reclamation; and any existing regulations only apply to alternatives and requires recovery, but not the destruction or reclamation of HFC’s.

There are regulatory requirements pertaining to certification of the equipment used to recover ODS refrigerants and the service technicians that handle ODS refrigerants, as well as certification requirements for refrigerant reclaimers. All regulatory requirements that apply to ODS refrigerants must be complied with as part of projects involving HFC refrigerants under this Methodology. Hudson Technologies noted in the GHG plan that it follows all laws regarding the handling of refrigerants, all of our refrigerant technicians that handle refrigerant are required to hold an EPA 608 license, and all of their equipment that is used to process refrigerants follows all local, state and federal requirements. SCS confirmed the above by review of Hudson operator 608 licenses, laboratory certifications, and by the equipment notifications provided to EPA.

Based on its review, SCS determined that the Project Proponent provided clear evidence in the GHG Project Plan that the GHG reduction activity is not required by any applicable and enforced federal, state, or local laws, regulations, ordinances, consent decrees, or other legal arrangements besides as noted above.

3.5.2 Performance Standard Test

A market adoption analysis laid out in Appendix A of 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 listed in Table 1 have a low market adoption rate for using certified reclaimed HFCs. Therefore, project activities within these sectors and segments automatically qualify for offset credit creation under this Methodology.

3.5.3 Common Practice Test

As the Methodology employs as Performance Standard test, Common Practice is not required to be reviewed as part of the Methodology.

3.5.4 Implementation Barriers Test

As the Methodology employs as Performance Standard test, Implementation Barriers Test is not required to be reviewed as part of the Methodology.

3.5.5 Regulatory Compliance

SCS confirmed the Project provided an attestation of regulatory compliance in the submitted Monitoring Report for the reporting period. SCS conducted an interview with Project personnel regarding the compliance status of the Project and confirmed Hudson had not received any Notices of Violation for the reporting period. SCS reviewed the EPA Enforcement and Compliance History Online for any issues during the Project and found no issues or violations noted in the EPA database. SCS also reviewed the U.S. Occupational Safety & Health Administration (OSHA) Integrated Management Information System (IMIS) database and found no records of inspections or incidents for Hudson. SCS confirmed by checking the EPA Certified Refrigerant Reclaimer website that Hudson maintained its status as an EPA Certified

Refrigerant Reclaimer. The EPA Certified Refrigerant Reclaimer website was current through the reporting period. Lastly, SCS reviewed annual EPA submittals regarding the amount of Reclaimed HFCs for the 2019 reporting period. Based on this review, SCS that Hudson Technologies facility was compliant with the refrigerant handling and facility reporting requirements that govern their operations.

3.6 Processes for Emission Reductions/Removal Enhancements Quantification

3.6.1 Quantification of the Baseline Scenario

The methodology defines the baseline scenario as the amount of emissions that would take place without the use of certified reclaimed HFCs. The Baseline 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 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 equations used to calculate the baseline emissions are the following:

$$BE_{HFC_{rp}} = \sum_n^y [(VR_{HFC,j,rp} \times ER10_{HFC,j} \times GWP_{HFC,j})] \times (1 - RR_{BL}) \div 1000$$

Where:

$BE_{HFC_{rp}}$ = Baseline emissions during the reporting period (tonnes CO₂e)

$VR_{HFC,j,rp}$ = Total quantity of virgin HFC refrigerant j 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 Sec. 3.1. and Sec. 5

$ER10_{HFC,j}$ = The 10-year loss rate of HFC refrigerant j from equipment (%; see Table 3 in Methodology)

$GWP_{HFC,j}$ = The global warming potential of HFC refrigerant j (see Table 4 in Methodology)

RR_{BL} = Baseline Refrigerant Reclamation Rate (% per year)

All of the data used for the baseline calculations above was made available to the audit team, and SCS confirmed the numbers by review of hard copies of the HFC production reports and HFC consumption data. The audit team reproduced the Project Proponent's calculations and verified their accuracy based on the underlying data.

SCS concludes that the GHG Project Plan sufficiently assessed the baseline scenario and that the scenario is relevant, complete, consistent, accurate, transparent, and conservative.

3.6.2 Quantification of Project Emissions

As discussed above in the ACR Methodology, by using previously used, reclaimed HFC refrigerants, project participants are displacing new production of virgin HFC. In this Methodology, any project related emissions from using reclaimed refrigerant, for example, from transport of certified reclaimed HFCs, are considered negligible and outside the project boundary. As a result, project activity emissions can be disregarded.

3.6.3 Quantification of Emissions Reductions

Emission reductions are calculated as follows:

$$ER_{rp} = BE_{HFCrp}$$

Where:

ER_{rp} = Project emission reductions during reporting period (tonnes CO₂e)

BE_{HFCrp} = Baseline emissions of HFC refrigerant during reporting period (tonnes CO₂e)

SCS concludes that the GHG Project Plan sufficiently assessed the emission reductions and calculated them accurately and correctly.

3.6.4 Data Collection and Parameters to be Monitored

The GHG Plan section D notes the required monitoring parameters required to be tracked by the Project. In addition, the Monitoring Report provides evidence of the monitoring plan in detail. The monitoring parameters and the quantification approach employed by the Project Proponent in the baseline and project scenarios conform to the parameters and quantification methods required by the Methodology in Section 5.2.1.

SCS determined that the Project Proponent sufficiently monitored the required chain-of-custody and laboratory analysis parameters as specified in the methodology. In addition, SCS found the management system for the Project was effective as it is Hudson Technologies' core business operations. Interviews with project personnel demonstrated that Hudson Technologies employs a robust internal system for tracking HFC production and HFC transactions. Hudson employs an electronic tracking system for all refrigerants entering the facility. The system tracks refrigerants as they go through the various processes of purchase, receiving, storage, testing, reclamation and sale. Refrigerant shipments are tracked via purchase orders and through Bill of lading by Hudson and third party providers. Weigh scales are quarterly calibrated. All data is reviewed through regular accounting inventory control practices and measures by the facility, the corporate office and third party accounting firms. The management system is mostly automated and appears to be effective.

Hudson monitored each parameter throughout the reporting period, and the resulting data was subsequently provided to the audit team. The data parameters that were monitored for this Project by the Project Proponents are listed below:

Data or Parameter Monitored	<i>VRHFC_{j,rp}</i>
Unit of Measurement	kg
Description	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
Source of Data	Reclaimer weighs the individual containers of reclaimed HFC refrigerant using calibrated weight scales
Measurement Frequency	Determined once for each project (which consists only of one reporting period)

SCS confirmed the values of the data monitored for each HFC for the project are as follows:

Refrigerant Type	Annual Consumption (kgs)
HFC-134a	26,158
R-410a	53,907
R-404a	23,508
R-407c	14,966
R-422d	2,416

3.7 Analysis of the Quantification Methodologies and Applicable Data Sets and Sources

The audit team assessed the Project Proponent's emission reduction calculation inputs and procedures to convert the raw inventory data into emission reduction estimates. This review included a detailed look at the Project's data aggregation and processing procedures, recordkeeping and data storage, and the quality control and assurance procedures. Additionally, the audit team conducted in person interviews with relevant personnel involved in these activities.

The audit team confirmed the total amount of HFC (kgs) recovered and reclaimed by the project proponent during the monitoring period. Hudson Technologies provided a detailed summary report for each HFC and back up documentation that included the date HFC acquired, the quantity and purity of HFC reclaimed and sales records. These documents supported the quantity of HFC purchased, reclaimed, and sold for use in refrigeration or air conditioning equipment during the reporting period.

Lastly, the audit team verified that the Project Proponent used the appropriate emissions factors and GWP's to calculate total emission reductions, which is adherent to the ACR Methodology. The team recalculated the final emission reductions and confirmed that they are without material discrepancy.

3.8 Basis of Data and Information Supporting the GHG Assertion

The following table indicates whether the data and information supporting the GHG assertion were based on assumptions and industry defaults, future projections, and/or actual historical records.

Assumptions and Industry Defaults	<input type="checkbox"/>
Future Projections	<input type="checkbox"/>
Actual Historical Records	<input checked="" type="checkbox"/>

3.9 Leakage Assessment

There is no leakage for the Project type.

3.10 Methodology Deviations

There were no methodology deviations reviewed for this reporting period.

4 Validation Conclusion

SCS confirms that the GHG Plan for Hudson Technologies HFC Reclamation Project 2020-1 conforms to the validation criteria for projects as set out in the ACR Standard Version 6.0, and the Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and



Removals from Certified Reclaimed HFC Refrigerants, Version 1.1, Sept. 2018. No qualifications or limitations exist with respect to the validation opinion reached by the audit team.

5 Verification Conclusion

The audit team affirms with a reasonable level of assurance that the Hudson Technologies HFC Reclamation Project 2020-1 has been designed and implemented in accordance with the verification criteria, as set out in the documents referenced in Section 1.2 above.

On the basis of the information made available SCS and the analyses completed during the verification, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the emission reductions represented by the project proponent during the monitoring period of 2 January 2019 – 31 December 2019 are free from material misstatement.

Annual Emission Reduction in Metric Tons (tCO ₂ e)			
Reporting Period	Baseline Emissions (tCO ₂ e)	Project Emissions (tCO ₂ e)	Net GHG Emission Reductions (tCO ₂ e)
02 January 2019 – 31 December 2019	189,916	0	189,916

Lead Auditor Approval	 Tina Sentner, 18 November 2020
Internal Reviewer Approval	 Scott Eaton, 18 November 2020

Appendix A: List of Findings

Please see Section 2.5 above for a description of the findings issuance process and the categories of findings issued. It should be noted that all language under “Project Personnel Response” is a verbatim transcription of responses provided to the findings by project personnel.

NIR 1 Dated 3 Aug 2020

Standard Reference: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: "HT HFC Reclamation Project 2020-1 GHG Project Plan V1
Section B1
D1

Finding: Please update the following sections of the GHG Plan:

1. B1- Please added the version and date of the Methodology used.
2. The parameter subscripts for the baseline emissions in section D1 and E1 are un-readable. Please correct throughout.

Project Personnel Response: GHG Plan Updated

Auditor Response:

Received version 2 of the GHG Plan with the following updated:

1. Section B1 updated with correct protocol version 1.1.
2. Section D1 and E1 parameters now readable.

Issue closed.

Bearing on Material Misstatement or Conformance (C):

NCR 2 Dated 3 Aug 2020

Standard Reference: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: HT HFC Reclamation Project 2020-1 GHG Project Plan V1
Section B4

Finding: Section B4- Identification of GHG sources.

1. GHG sources for SSR 4 state CO₂ leaks and NH₃ leaks which are not consistent with the methodology. Please update the GHG Plan to remove these sources.
2. SSR 5 incorrectly excludes HFC emissions from servicing refrigeration or A/C equipment or system to replace d leaked refrigerant. Please revise to include the emissions from HFCs for consistency with the Methodology or explain why this source is excluded.

Project Personnel Response: GHG Plan Updated

Auditor Response: 1. Reviewed version 2 of the GHG plan and monitoring report. SSR 4 is still not consistent with the methodology. Please revise as required to reflect the protocol.

2. SSR 5 has been updated appropriately. Issue closed.

Project Personnel Response 2: Updated SSR4

Auditor Response 2: The GHG Plan version 3.1 was observed updated to correct the Sources for the project to match the protocol. Issue closed.

Bearing on Material Misstatement or Conformance (C):

NCR 3 Dated 3 Aug 2020

Standard Reference: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: HT HFC Reclamation Project 2020-1 GHG Project Plan V1
Section C1

Finding: The regulatory surplus does not provide details in the GHG Plan as to how the Project complies with the Regulatory surplus test. Please explain in this section how the project will comply with the following:

1. to assess ongoing or upcoming regulatory requirements for HFCs in the US; and
2. Comply with regulatory requirements that apply to ODS refrigerants as required by the methodology- In particular: there are regulatory requirements pertaining to certification of the equipment used to recover ODS refrigerants and the service technicians that handle ODS refrigerants, as well as certification requirements for refrigerant reclaimers. Please provide evidence of those certifications.

Project Personnel Response: Information added to plan.

Auditor Response: 1. Information added to explain how Hudson tracks ongoing regulatory requirements.

2. Information added that Hudson will hold EPA 608 Licenses and that equipment and EPA reclaim requirements are met. Provided evidence of 608 certification and EPA notification of equipment as a reclaimer. Issue closed.

Bearing on Material Misstatement or Conformance (C):

NCR 4 Dated 3 Aug 2020

Standard Reference: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Template for GHG Plans

Document Reference: "HT HFC Reclamation Project 2020-1 GHG Project Plan V1

Section C2-C4

Finding: Section C of the GHG Plan Is incomplete. Please update the GHG plan for the following:

C2- Common Practice- as this the project is using the regulatory surplus + performance standard approach to additionality, please mark this section as NA.

C3- Implementation Barriers Test- as this the project is using the regulatory surplus + performance standard approach to additionality, please mark this section as NA.

C4- Performance Standard Test- The template states: Demonstrate how the project activity exceeds an approved performance standard by showing that the GHG emissions generated per unit output by the project are below the level (or GHG removals are above the level) defined as business-as-usual for the product, service, sector or industry in which the project takes place. (If the project is using the three-prong approach to additionality, skip this step.)

Project Personnel Response: GHG Plan Updated

Auditor Response: C2- updated to NA correctly.

C3- Updated to NA correctly.

C4- As the project is using the Practice- Based Performance Standard test to meet additionality, please update this section to account for how the project meets this objective. In the previous version of the GHG Plan (v1), this justification was listed under C2. Please update C4 with the justification.

Project Personnel Response 2: Project Plan Updated to reflect language in the methodology

Auditor Response 2: Project proponent has not provided the revised Plan. Please provide version 3 of the corrected GHG plan mentioned.

Project Personnel Response 3: Provided 10/21/2020

Auditor Response 3: Received GHG updated plan- showing how the performance standard test was completed. Issue closed.

Bearing on Material Misstatement or Conformance (C):

NCR 5 Dated 3 Aug 2020

Standard Reference: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: "HT HFC Reclamation Project 2020-1 GHG Project Plan V1; Section H1-H2

Finding: The PP Noted the project begins on the date the initial volume of refrigerant is received and reclaimed, however the methodology states: "A reporting period begins on the date that the initial volume of certified reclaimed HFC is sold, title transferred, or returned to a refrigerant distributor, refrigerant wholesaler, or and 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.

1. Please clarify how the start date in the GHG plan to meets this requirement.
2. Please provide evidence of the project start date for the project.

Project Personnel Response: Project plan and ER calculation worksheet has been updated to reflect only the gas that was processed (reclaimed) and sold in calendar year 2019

Auditor Response: The project start date has been changed to January 2nd, the reporting period time frame when reclaimed HFC is first sold for use in refrigeration or air conditioning equipment.

Please provide evidence of the Project start- i.e. The PO for the first material processed in the Project report period.

Project Personnel Response 2: The 1st "completed" jobs (gas was reclaimed) in 2019 were recorded on Jan 2, 2019.

Auditor Response 2: Project provided PO Packet #051809_G.W. Berkheimer Co. Inc for R-422d that was completed on 1/2/2019- the start of the Project. Issue closed.

Bearing on Material Misstatement or Conformance (C):

NCR 6 Dated 3 Aug 2020

Standard Reference: "Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: HT HFC Reclamation Project 2020-1 ER Calculations Worksheet

Finding: The following issues were observed with the emission reduction calculations.

1. The GWP for R-407c is incorrect. Please revise
2. The summary tables in section E1 for each HFC calculation do not match the calculation worksheet provided.
3. The Total Emission reduction value in the calculation worksheet does not match the GHG plan or Monitoring report.

Project Personnel Response: All corrected

Auditor Response: 1. GWP 407c has been corrected to 1774. **Issue closed.**

2. The summary tables in section E1 of the GHG Plan still contain errors- please update values.
3. Emission reductions all match to ER calculations version 3 however please add the unit of (mtCO₂e) to the emission reduction totals in the Monitoring report.
4. Please update section A.7 with the revised emission ex ante projection.

Project Personnel Response 2:

Auditor Response 2: No revised GHG version 3 received with requested changes.

Auditor Response 3:

2. Section E1 corrected with the updated values that match the ER calculations. **Issue closed.**
3. Monitoring Report updated to add units. **Issue closed.**
4. Received version 3.1 -Section A.7- updated the ex-ante for R- 422d. **Issue Closed.**

Bearing on Material Misstatement or Conformance (C):

NCR 7 Dated 3 Aug 2020

Standard Reference: "Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: "HT HFC Reclamation Project 2020-1 GHG Project Plan V1; Section H1-H2 Monitoring report v1- section II

Finding: The methodology only allows 12 months for the reporting period. The report period noted in the GHG plan and the Monitoring report exceeds 12 months. Please update both the GHG Plan and the monitoring report to only include 12 months for the reporting period. (i.e. January 1, 2019 to December 31, 2019).

Project Personnel Response: The Monitoring report and the GHG plan have been updated to reflect project dates of Jan 2, 2019 - December 31, 2019

Auditor Response: Confirmed the GHG Plan and Monitoring report were updated to reflect the current reporting period of Jan 2, 2019 to December 31, 2019. **Issue closed.**

Bearing on Material Misstatement or Conformance (C):

NIR 8 Dated 3 Aug 2020

Standard Reference: "Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018
Section 5.2

Document Reference: None yet provided

Finding: Please explain how Hudson documents the following as noted in the Methodology section 5.2:

1. Tracking of the containers that are used for collection and transport to the reclaimer of the recovered HFC refrigerant (e.g. unique identification with serial number or barcode).
2. Documentation on the type of HFC that is recovered from equipment or product and that is subsequently reclaimed.
3. Documentation on the quantity of HFC refrigerant produced in the reclamation process, accounting for contaminants that are removed in the reclamation process.
4. Documentation that the same quantity of reclaimed HFC refrigerant (i.e. equal to the volume of HFC that was reclaimed during the reporting period) is transferred, sold, or returned to a refrigerant wholesaler, distributor, or end-user (either through direct sale, title transfer or return to an end user or through installation conducted via service technician).
5. Documentation demonstrating that the reclaimer is an EPA-Certified reclaimer and reclaimed the refrigerant using equipment listed with the EPA, including:
 - ☐ The most recent equipment list provided to the EPA by the EPA Certified reclaimer; and
 - ☐ The physical address where the reclamation was conducted.
6. Documentation showing that used HFC refrigerant processed by the EPA-Certified reclaimer is tested by an AHRI certified refrigerant testing laboratory to meet the AHRI 700-2015 Standard for Specification for Fluorocarbon Refrigerants.

Project Personnel Response:

- 1) Provided for sample of PO's,
- 2) Provided for sample PO (BOL),
- 3) Hudson provided documentation that is turned in to EPA at end of 2019 showing what was reclaimed, and by standard operating procedure; Hudson reclaims every lbs of refrigerant that we buy

Auditor Response: 1. Thank you for the sample however we will need a larger sample to verify. The following Purchase Orders are requested to back up the reclamation process: See file PO Request for Hudson_2020-09-08. Provide the Refrigerant handling sheets, BOLs, and tracking of containers for the listed Purchase Orders stated above.

2. See above

3. Received a summary report of each HFC PO used in the project documenting the amount of contaminants. Also received an EPA Reclaimer report accounting for the total reclaimed material.

4. Received the end of year Sales report showing the amount of HFC sold for the year. The total volume exceeded the total reclaimed as noted in the above EPA reports. Please provide the sales invoices for Feb and June sales.

5. Received the EPA Certified Reclaimer equipment list from Dec 2014. Per J. Stack, the equipment has not changed. **Issue closed.**

6. Please Provide a sample of tank analysis records for each HFC bulk tank in the process to confirm testing of reclaimed material.

Project Personnel Response 2: Provided

Auditor Response 2: 1. Hudson provided the requested PO's packets for Chain of custody of the HFC material. Included were the Purchase order, BOL, and Refrigerant Handling sheet (RHS) documents. This documentation satisfies the requirement for tracking and transport with unique identification with serial number or barcode of the individual containers. Issue closed.

2. Hudson provided a an excel printout from their refrigerant handling system and subsequent PO packet information as noted above that included the type of HFC reclaimed. In this project, includes HFC 134a, 404a, 407c, 404d, and 410a. Issue closed.

3. In addition, received the RHS documents for the requested sample with amounts of HFC reclaimed and any waste for both the individual PO Packets and for the Bulk tank testing. Issue closed.

4. Received sample of Feb and June sales invoices for each HFC. Verifier compared to the HFS Sales and invoices worksheet and there were no discrepancies noted. Issue closed.

5. Issue closed.

6. Bulk tank analysis records provided showing testing conducted to meet the AHRI 700-2015 Standard for Specification for Hydrofluorocarbon Refrigerants. Issue closed.

Bearing on Material Misstatement or Conformance (C):

NIR 9 Dated 26 Aug 2020

Standard Reference: "Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed Refrigerants ver. 1.1 Sept 2018

Document Reference: Not yet provided

Finding: Please provide the following documents as requested during the remote site visit:

1. Calibration Records for the receiving scale for 2019
2. Calibration records for the load cell/bulk tanks for the various HFC in the Project (134a, 404a, 407a, 407c, 410a, 422d) for 2019
3. Maintenance logs for reclaim equipment with pictures of equipment. -
4. EPA 608 certifications of Hudson technicians, including yours as well-
5. Crystal's reconciliation of the various HFC's for the year (two pieces – one from her, and one from corporate)
6. Corporate end of year sales reports
7. Environmental contact- Steve Mandracchia?

As discussed, once you have the revised final calculations spreadsheet as noted in finding #5

Project Personnel Response: Item

1. See file: Hudson IL01 Scale Calibrations 2019 for calibration records
2. See file: Hudson IL01 Scale Calibrations 2019 for calibration records
- 3 and 4- sent on August 28, 2020
5. See file: Copy of Final Physical IL01 12 19.xls (1)
6. See file: Illinois Gas Log 2019_Rev-20200120
- 7.

Auditor Response:

- 1 and 2. Received scaled calibrations for the floor scales and various tank scales used for the HFC Project. Scales calibrated quarterly.
3. Received evidence of Maintenance on 08/26/2020
4. Received EPA 608 certifications on 08/26/2020
- 5-6. Received Year end data from plant and corporate.
7. No information? Please indicate who is the regulatory compliance officer and provide contact details.

Project Personnel Response 2: see regulatory contact information.

Auditor Response 2: 7. Regulatory contact provided- Issue closed.

Bearing on Material Misstatement or Conformance (NA):