



SUMMARY AND RESPONSE TO PEER REVIEW

A new Ozone Depleting Substances methodology entitled The Destruction of Ozone Depleting Substances from International Sources was developed by the American Carbon Registry (ACR) and Tradewater, LLC.

All new methodologies and methodology modifications, whether developed internally or brought to ACR by external parties, undergo a process of public consultation and scientific peer review prior to approval.

The methodology was posted for public comment in the period July – August 2019. The methodology was reviewed by an independent panel of experts November 2019 – November 2020. Comments and responses of peer reviewers are documented here.

Methodology for The Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from the Destruction of Ozone Depleting Substances and High-GWP Foam from International Sources

Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
General	Methodology	<p>Peer reviewer remains very concerned about providing credits for destruction of imported HCFC-22 refrigerants under this methodology for the following reasons:</p> <ul style="list-style-type: none"> ○ HCFC-22 is not globally phased out of production which has been the requirement for including ODS in previous destruction methodologies to avoid perverse incentives being created. ○ HCFC-22 is allowed to be produced for feedstock uses, which would not be prohibited under national production or import bans – there would be no chemical distinction between illegally produced HCFC-22 and legally produced HCFC-22 as feedstock chemical. ○ The UN Data provides data on entire classes of ODS (e.g., HCFCs) and does not provide data on species such as HCFC-22 so cannot be used by project proponents to quantify 	<ul style="list-style-type: none"> ○ While HCFCs have not been completely phased out of production globally, there are well established production and importation bans and quotas in place around the world. The safeguards described in Appendix E and enumerated in Section 2.2.1 (iii) of the protocol establish a clear path to documented and verifiable eligibility. These safeguards eliminate the chance that the protocol would provide a perverse incentive to manufacture HCFCs for the purpose of generating carbon credits. ○ The protocol has been revised to clarify that HCFCs imported or produced as a feedstock or process agent are not eligible. 	<p>Additional clarification on the restrictions to the eligibility of HCFC-22 sourced outside of the U.S. for destruction is helpful, however, this reviewer continues to have significant concerns with the approach taken on eligible sources of HCFCs-22. These continuing concerns are provided below, which make it difficult to support making HCFC-22 eligible under this methodology for imported destruction. Some of this comes from experience with the difficulties and challenges in verifying ODS imports source information and documentation under US regulations.</p> <p>Under Section 2.2.1 (III) allows eligibility under a choice of options A, B, or C. Criteria A seems insufficiently detailed and rigorous. I strongly suggest</p>

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		<p>imports into a potential source country for a project.</p> <ul style="list-style-type: none"> ○ The conditions for eligibility for imported HCFC-22 seem insufficient to either identify or verify that the material is truly recovered as opposed to illegally or legally, newly produced HCFC-22 from the source country. Without more confidence in these conditions, it would be difficult to support making HCFC-22 eligible under this methodology for imported destruction. <p>Inclusion of HCFC-22 in this methodology when it has not been globally phased out of production and consumption raises concerns given the recent unexpected, increased emissions of another ODS, CFC-11, that was supposed to be globally phased out in 2010.</p> <ul style="list-style-type: none"> ○ Montzka et al., in a letter to <i>Nature</i> in 2018, reported an unexpected, global increase in CFC-11 emissions 	<ul style="list-style-type: none"> ○ A specific reference to the UN Data has been removed from the protocol so that other forms of evidence can be provided, such as country-specific data and reports provided to the project developer by relevant government agencies in the country where the project is being developed. ○ All reference to foams as eligible have been removed from the methodology and we believe this change is helpful in limiting any potential for illegal production of CFC to ever be associated with a project. ○ On the source verification program, Section 6.1 includes rigorous requirements for point of origin source verification 	<p>that it would be clearer if eligibility for imported HCFCs under this methodology were limited to only source countries that had banned import and production (including for feedstock). Allowing for scenarios other than this could introduce significant challenges to documentation and verification, and if not met, could erode confidence in the methodology as a whole.</p> <p>Section III.B.iii and iv seem too permissive. Demand for HCFC-22 should fall year over year as more equipment transitions. Just because a country has a cap in place and/or has historically high imports doesn't mean they will in a future year.</p> <p>Section III.B and III.D could further clarify that HCFCs are not eligible under this</p>



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		<p>of 13,000 ± 5,000 tonnes per year after 2012. The study strongly suggests a concurrent increase in CFC-11 emissions from eastern Asia although the contribution of this region to the global increase was not quantified. The study also suggests that the CFC-11 emissions increase arises from new production that has not been reported to the Ozone Secretariat, which is inconsistent with the agreed phase-out of CFC production by 2010.</p> <ul style="list-style-type: none"> o Rigby et al., in a letter to <i>Nature</i> in 2019, reported increased emissions of CFC-11 from eastern mainland China, with emissions shown to be 7.0 ± 3.0 (±1 standard deviation) gigagrams per year higher in 2014–2017 than in 2008–2012, arising primarily from the northeastern provinces of Shandong and Hebei. These regional emissions were found to account for at least 40–60% of the global increase in CFC-11 emissions, with no evidence for any 		<p>methodology if sources from a country that produces HCFC-22 for feedstock.</p> <p>Section III.C.i seems sufficient to get at material previously imported/produced as it allows for material to come in if it's been recovered from a piece of equipment regardless of phaseout status. However, Section III.C.ii and lii seem less rigorous criteria and challenging for documentation and verification purposes.</p> <p>Author response: HCFC-22 was removed from eligibility.</p> <p>Section 6.1 Monitoring: The list of source information seems comprehensive, with one exception. No verification of records on who recovers the refrigerant seems to be required, which would be</p>

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		<p>significant increase in CFC-11 emissions from any other eastern Asian countries or other regions of the world that were adequately monitored by atmospheric measurements.</p> <ul style="list-style-type: none"> ○ In response to these scientific findings, parties to the Montreal Protocol requested the Technology and Economic Assessment Panel (TEAP) to provide them with relevant information on potential sources of emissions of CFC-11 and related controlled substances. In its 2019 report, “Decision XXX/3 TEAP Task Force Report on Unexpected Emissions of Trichlorofluoromethane (CFC-11): Final Report,” TEAP reached the following findings: <ul style="list-style-type: none"> ▪ Based on modelling of CFC-11 production, usage, emissions and comparison against atmospheric-derived emissions, it is unlikely that past production and historic 		<p>consistent with 2.2.X: “The handling, recovery, and disposal of ODS refrigerants must be performed by qualified technicians. Qualified technicians may only service refrigeration or air conditioning equipment they are certified to service if a refrigerant handling, recovery, and disposal certification program exists in the ODS source country. Technician name and certification type(s) (if applicable) must be retained as part of the documentation retention requirements of this Methodology.”</p> <p>Author response: Verification does require verification on recovery. This is not considered a separate monitoring item for project development.</p> <p>Appendix C - A.2 on page 45 says, “Developed countries have</p>



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		<p>usage can account for the unexpected CFC-11 emissions, including from existing foam banks.</p> <ul style="list-style-type: none"> ▪ It is unlikely that there has been a resumption of newly produced CFC-11 usage in refrigeration and air-conditioning uses, flexible foams, aerosols, solvents, feedstock uses, tobacco expansion and other miscellaneous applications. ▪ It is likely that there has been a resumption of newly produced CFC-11 usage in closed cell foams. ▪ Based on modelling using reported CFC-11 production data, it seems that the expected emissions from the CFC-11 foam banks in Northeast Asia are insufficient to account for the atmospheric-derived emissions from eastern mainland China in Rigby et al. 		<p>been reducing their consumption of HCFCs since 2004 and have completely phased them out as of January 1, 2020.” This isn’t accurate without mentioning the servicing tail. Also, the last paragraph on that page says, “This Methodology guards against this risk by limiting eligible HCFC-22-22 s to countries that have either banned the importation and production of HCFC-22-22s, or set published absolute, and enforceable quotas on the importation and production of HCFC-22-22s, and certain additional conditions are present to ensure that nobody will import or produce additional HCFC-22 solely for the purpose of inclusion in a carbon offset project. See Appendix D for further discussion.” As mentioned</p>



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		<ul style="list-style-type: none"> ▪ The “most likely” modelling scenario predicts 40,000 to 70,000 tonnes per year CFC-11 production would have been required from 2012 onwards to account for <p>Given the above situation with CFC-11 and ongoing production for feedstock use, it may be important to consider more done with verification of the source of imported CFCs for destruction. Without a strong source verification program, material destroyed for credit may have been as the result of new production under the guise of feedstock use. Verification would also be important to avoid crediting destruction of insulation foam using illegally produced CFC-11, which potentially undermines the credibility of ACR’s methodology. An example of a source verification program is in the US import petition requirements in 40 CFR 82.24(c)(4).</p>		<p>above, I strongly suggest that it would be clearer if eligibility for imported HCFCs under this methodology were limited to only source countries that had banned import and production (including for feedstock).</p> <p>Author response: HCFC-22 was removed as an eligible gas in the methodology.</p> <p>Appendix D:</p> <ul style="list-style-type: none"> - Pathway A – While it may be accurate to say that inclusion of material produced (and imported) before adoption of the methodology would indicate it wasn’t produced for destruction under this credit, allowing for bulk material to be destroyed while production and import are still allowed creates an incentive to



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		<p>Additional comments in the document provide some additional questions as well as suggestions for clarity.</p>		<p>produce additional HCFC-22. Even with a quota in place, this may create a perverse incentive when additional virgin material can be bought to replace what’s destroyed.</p> <ul style="list-style-type: none"> - Pathway B.iii and B.iv – See comments above. This may create a perverse incentive to use all available allowances even if not needed. - Pathway C – See comments above – allowing for credits on bulk virgin material in the supply chain may create a perverse incentive if HCFC-22 import and production are not prohibited. - Feedstocks and Process Agents – See comment above. To avoid material being diverted for unallowed use, HCFC-22



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				<p>should clearly not be eligible for credits under this methodology from countries producing or importing HCFC-22 for any use, including feedstocks and process agents. There is much less of a concern documenting material recovered from appliances.</p> <ul style="list-style-type: none"> - Essential Uses: The information should be corrected to note that so far, only laboratory and analytical uses are essential under the Montreal Protocol. <p>Author response: HCFC-22 was removed as an eligible gas in the methodology.</p> <p>Please verify that all reference to foams have been removed as there remain references in current draft.</p>



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				Author response: All references to foam have been removed.
Acronyms	EPA	Reviewer suggest adding the acronym ERT for EPA’s Environmental Response Team	ACR’s tradable credit unit is referred to as an “Emission Reduction Ton” or ERT. To avoid confusion with this longstanding term, ERT was not added in reference to an Environmental Response Team.	Thanks for clarification.
Introduction	1.1 Purpose	Reviewer suggests revisiting the name for this methodology. “As a general comment, it seems that the methodology initially included HFCs but currently does not. Some ODS also have high GWP so perhaps title could be: <i>“The Destruction of Ozone Depleting Substances from Appliances and Insulation Foam from International Sources”</i> ”	The title of the methodology has been revised to: The Destruction of Ozone Depleting Substances from International Sources. This reflects the fact that foam has been removed from the methodology.	Please verify foams references as some remain in the current draft. Author response: All references to foam have been removed.



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1.1 Purpose	The purpose of the Methodology is to quantify greenhouse gas (GHG) emission reductions associated with the destruction of: 1) high global warming potential (GWP) ozone depleting substances (ODS) that would have otherwise been released to the atmosphere;	The reference to the covered ODSs in this methodology is not clear – all ODS? Certain high-GWP ODS used as refrigerants or foam blowing agents? There are references to fire suppression and medical aerosols, but methodology doesn't seem to apply to these.	Foams were removed so only refrigerant ODS remains as eligible. References to fire suppression and medical aerosols were removed as well as these were included in error and are only eligible under ACR's U.S. version of the ODS methodology.	OK
2.1 Eligible Destruction Facilities I.A	An approved HWC subject to the RCRA and with a RCRA permit for the ODS destruction facility stating an ODS destruction efficiency of at least 99.99% (only applicable to destruction facilities located in the United States);	This exceeds current regulatory standards because not all ODS are hazardous waste and current destruction efficiency is 98%. See the 2018 destruction report: https://www.epa.gov/sites/production/files/2018-03/documents/ods-destruction-in-the-us-and-abroad_feb2018.pdf	Reference to a 98% destruction efficiency is unclear. The 99.99% DRE requirement (long standing in ODS protocols and in accordance with past TEAP assessments) is cited in the report in the link provided. See box "Best Practices: Destruction" on page 7.	In US regulations, "completely destroy" and "destruction" are defined by regulation (40 CFR §82.3 – Definitions): Completely destroy means to cause the expiration of a controlled substance at a destruction efficiency of 98 percent or greater, using one of the destruction technologies approved by the Parties. Destruction means the expiration of a controlled substance to the destruction and removal efficiency actually achieved, unless considered



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				<p>completely destroyed as defined in this section. Such destruction might result in a commercially useful end product, but such usefulness would be secondary to the act of destruction. Destruction must be achieved using one of the following controlled processes approved by the Parties to the Protocol:</p> <ul style="list-style-type: none"> (1) Liquid injection incineration; (2) Reactor cracking; (3) Gaseous/fume oxidation; (4) Rotary kiln incineration; (5) Cement kiln; (6) Radio frequency plasma;



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				<p>(7) Municipal waste incinerators (only for the destruction of foams);</p> <p>(8) Nitrogen plasma arc;</p> <p>(9) Portable plasma arc;</p> <p>(10) Argon plasma arc;</p> <p>(11) Chemical reaction with hydrogen and carbon dioxide;</p> <p>(12) Inductively coupled radio frequency plasma;</p> <p>(13) Microwave plasma;</p> <p>(14) Porous thermal reactor;</p> <p>(15) Gas phase catalytic de-halogenation;</p> <p>(16) Superheated steam reactor; or</p>



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				(17) Thermal reaction with methane. Author response: No change has been made to the methodology for purposes of conservatism.
2.1 Eligible Destruction Facilities II	A destruction facility must meet all applicable monitoring and operational requirements under relevant environmental laws, as well as all applicable regulatory requirements that apply directly to ODS , high-GWP foam blowing agent, and high-GWP insulation foam destruction activities during the time the ODS, high-GWP foam blowing agent or high-GWP foam destruction occurs	Reviewer asks for clarification for the boldened part. Does this mean recordkeeping and reporting requirements at 82.13 and 82.24? Or RCRA regulations, or monitoring and reporting of emissions for TRI?	This is in reference to any particular regulation that impacts ODS destruction (whether that is an administrative requirement or a technical requirement). A destruction facility must maintain regulatory compliance during a reporting period.	OK
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP	ODS, high-GWP foam blowing agents, and high-GWP insulation foam destroyed under this Methodology must be from one or more of the eligible sources listed in subchapters 2.2.1 or 2.2.2 of this Methodology.	Sections 2.2.1 or 2.2.2 seem to restrict the methodology only to refrigerants and foam blowing agents or foam containing foam blowing agents. If that is the intent, then perhaps references to fire suppression and aerosols should	Agreed. References to fire suppression/medical aerosols (as well as foam) have all been removed.	OK



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Insulation Foam, I		be removed elsewhere in the document.		
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP Insulation Foam, element VIII.E	If applicable, serial, tracking or ID number of all containers for which high-GWP insulation foam destruction occurred;	Reviewer is not sure that insulation foam would be in containers – the extracted foam blowing agent may be.	Foam has been removed from eligibility.	OK
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP Insulation Foam VIII.G	For ODS, extracted high-GWP foam blowing agent, and high-GWP insulation foam in containers , mass and type of material destroyed from each container;	Reviewer is not sure that insulation foam would be in containers – the extracted foam blowing agent may be.	Foam has been removed from eligibility.	OK
2.2.1 ODS Refrigerant Sources, II	Only destruction of the following ODS refrigerants is eligible to generate ACR Emission Reduction Tonnes (ERTs) under this Methodology...	Reviewer asks regarding the inclusion of blends, such as R-502 (blend of 48.8% HCFC-22 and 51.2% CFC-115 by weight)? Would commercial blends consisting solely of A-G also be considered?	Commercial blends are eligible as, when analyzed, the individual species are identified by the lab performing analysis. In this example, if R-502 was sampled, it would be analyzed	OK



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			as 48.8% HCFC-22 and 51.2% CFC-115.	
2.2.1 ODS Refrigerant Sources III	Whole paragraph	Please refer to the overview comments in the General Section above	Please refer to the response to the overview comments in the General Section above.	
2.2.1 ODS Refrigerant Sources III	In those countries, the project proponent must demonstrate that the HCFC-22 collected could not materially increase the amount of HCFC-22 imported or produced in that country because of a rule or regulation; or that the United Nations data or other documentation shows that importation or production of HCFC-22 did not materially increase in that country.	This “data” is defined in more detail below. Recommend moving that detail here in its first appearance in the document.	A revised process for determination of HCFC-22 was developed and now includes the potential for country level (and other) data sources in addition to UN data.	OK – we would further note that UN data should not be relied upon as a way to verify if someone has phased out an ODS. The UN would only release calculated levels of production and consumption, which subtract material produced for feedstock and material that is destroyed in-country. This data is not released by chemical either. Author response: HCFC-22 was removed from eligibility.
2.2.1 ODS Refrigerant Sources III	The eligibility conditions set forth in this section are intended to ensure that any HCFC-22 destroyed under this methodology will not cause the production or importation of	Must comply with regulatory requirements (e.g., imports) for class II ODS (HCFCs) in 40 CFR 82.15	As covered in Section 3.7 of the protocol, projects must meet the regulatory compliance requirements set forth in the ACR Standard, which include	OK



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	<p>additional HCFC-22 beyond business as usual. It therefore permits the destruction of HCFC-22 collected in countries that ban the importation and, if applicable, production quotas. In those countries, the project proponent must demonstrate that the HCFC-22 collected could not materially increase the amount of HCFC-22 imported or produced in that country because of a rule or regulation; or that the United Nations data or other documentation shows that importation or production of HCFC-22 did not materially increase in that country. Therefore, HCFC-22 is eligible under this Methodology when sourced from countries where there are bans or quotas on the importation and/or production of HCFCs as follows:</p>		<p>“Adherence to all laws, regulations, and other legally binding mandates directly related to Project Activities”. This would include the cited regulation for projects which involve import to the United States.</p>	
2.2.1 ODS Refrigerant Sources, III.A.ii	Regarding quota on the importation of HCFC-22 and elements a – d list	There are exceptions to this quota, including feedstocks	Please refer to the response to the overview comments in the General Section above.	

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2.2.1 ODS Refrigerant Sources, III.B.i.c	The project proponent can demonstrate that the HCFC-22 was produced and, if applicable, imported into the country prior to the date of adoption of version 1.0 of this methodology.	How is this going to be demonstrated? Cylinder manufacture date? Equipment date?	The protocol does not specifically identify how a project proponent will demonstrate that material was manufactured or imported prior to the date of adoption – nor does it believe this would be appropriate, since proof will be different in different countries and under different circumstances. However, it is not hard to imagine examples, such as: (a) records of the date refrigerant in a particular cylinder was recovered from a chiller; (b) import papers reflecting the date of import of stockpiled material; or (c) inventory records for a shop reflecting the date refrigerant was purchased from a wholesaler.	OK but some continuing concerns with how these records will be verified and determined to demonstrate meeting this criteria. Who will be reviewing this source documentation? What due diligence, such as by reviewing documents and following up with sources directly, will be conducted to verify the source of the ODS? Author response: HCFC-22 eligibility has been removed.
2.2.1 ODS Refrigerant Sources,	1. Using data reported to the United Nations Environment Programme Ozone Secretariat (“U.N. Data”), the project proponent quantifies	This data on HCFC-22 is not available only on total HCFCs; UN Data Center does not provide this level of information	See response to the overview comments in the General Section above.	



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III, B, i, d, 1 & 2	<p>the average total combined mass of HCFC-22 produced by and imported into the source country during the two calendar years preceding the year of adoption of version 1.0 of this methodology (“Production and Import Baseline”), and</p> <p>2. Using U.N. Data for the most recent year available, it is demonstrated by the project proponent that the total mass of produced and imported HCFC-22 in the source country has not increased by greater than 5% over the Production and Import Baseline. For purposes of clarity, the most recent available U.N. Data shall be the U.N. Data available on the earliest date HCFC-22 included in a particular project is obtained by the project proponent.</p>			
2.2.1 ODS Refrigerant Sources, III.C.i.ii & iii	For purposes of this section, the term “in the stream of commerce” means the material was, prior to acquisition by the project proponent:	Need to clarify that the “material” refers to recovered HCFC from the decommissioned system because of prohibitions in the US under 40 CFR	Again, this regulation applies only in the United States.	OK



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	<ul style="list-style-type: none"> i. In operating equipment or equipment that was being decommissioned or re-tired from service; ii. For sale in a retail store that is in the business of selling refrigerant, and is not also a manufacturer of refrigerant, importer of refrigerant, or wholesale distributor of refrigerant; or iii. Owned by an individual or company, other than a manufacturer, importer or wholesale distributor of refrigerant, or a carbon offset developer, who possessed the material for use in a refrigerant trade or refrigerant-related business. 	82.15(g) for interstate commerce for controlled substances. If the HCFC-22 is not being removed from the decommissioned system, the system cannot be imported and distributed in commerce per 40 CFR 82.305	As covered in Section 3.7 of the protocol, projects must meet the regulatory compliance requirements set forth in the ACR Standard, which include “Adherence to all laws, regulations, and other legally binding mandates directly related to Project Activities”. This would include the cited regulation for projects which involve import to the United States.	
2.2.2 HIGH-GWP Insulation Foam Sources	Subchapter title	Reviewers asks whether instead of HIGH-GWP , author should use “ ODS ”?	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
2.2.2 HIGH-GWP Insulation	Eligible high-GWP insulation foam must originate from appliance foam, building foam, or other foam. Only destruction of the following high-GWP	Both of the blowing agents listed are ODS. Is there any reason why these are labeled “High-GWP insulation/foam	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK



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Foam Sources, I	insulation foam blowing agents is eligible to generate ACR ERTs under this Methodology...	blowing agents” and not ODS, when the same substances are labeled as ODS when they are refrigerants? Why aren’t HCFCs included?		
2.2.2 HIGH-GWP Insulation Foam Sources, II	To be eligible, the high-GWP blowing agent must be destroyed in one of three ways:	Reviewer suggests replacing “high-GWP” for “ODS” in this section and other follow-on sections	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
Eligibility	ODS and high-GWP insulation foam (intact foam or extracted blowing agents) offset projects must adhere to the eligibility requirements below as well as general ACR pro-gram requirements included in the ACR Standard.	Reviewer suggests that this should be just “ODS” refrigerants and blowing agents in”?	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
3.2 Location, I	All ODS and high-GWP insulation foam must be obtained from eligible sources located outside the US and its territories	Reviewer suggests that to be clear, “high-GWP” should be “ODS refrigerants and ODS-blown” insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
3.2 Location II	Destruction of ODS refrigerants , high-GWP foam blowing agents, and high-GWP insulation foam must occur at an eligible destruction facility per the requirements found in Section 2.1.	Recommend using “ODS refrigerants” throughout the methodology rather than “ODS” alone.	As foam projects have been removed, the term “ODS” only refers to refrigerants as they are the only eligible ODS source category included in the methodology.	OK



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3.3.1 Legal Requirement Test, II	The following legal requirement test applies to all ODS and high-GWP insulation foam projects...	To be clear and consistent, as in above, this should be “ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
4. Methodology, Figure 2	Figure 2: Illustration of the Offset Project Boundary for High-GWP Insulation Foam Projects	To be clear, reviewer suggests that this should be “ODS-blown insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
4. Methodology, Table 2, SSR 8	High-GWP Insulation Foam Recovery and Collection	Reviewer suggest this part to be “ODS-blown Insulation Foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
4. Methodology, Table 2, SSR 8	Emissions of ODS/HFC from demolition, deconstruction, or other damage to foam sources	Methodology is only on ODS and not HFCs, so reviewer suggest references to “HFC” be deleted from the table	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
4. Methodology, Table 2, SSR 10	Emissions of ODS/HFC released from foam disposed of in landfills	Is this quantified in methodology (ODS only - see comment above)?	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
Quantifying Baseline Emissions, equation 3	Equation 3: Baseline Emissions from Refrigerant ODS	Reviewer suggest using “ODS Refrigerant” here and in table	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
5. Quantifying Baseline Emissions,	Baseline emissions from high-GWP foam blowing agents (BE_{foam}) (blowing agent extracted from foam or intact	Should this be “ODS” here and below?	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK



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equation 3.VIII	foam) must be quantified using Equation 4.			
5.Quantifying Baseline Emissions, equation 4	Equation 4: Baseline Emissions from High-GWP Insulation Foam	Should this be “ODS-blown Insulation Foam” here and in table?	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
5.Quantifying Baseline Emissions, equation 5	<u>Units</u> for $BA\%_{intf,1} - \%$ (0-1)	Reviewer asks for clarification, 0-1%? Or 0-100% of blowing agent?	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
5.Quantifying Baseline Emissions, equation 8, VIII	Project emission from the transportation and destruction of ODS and high-GWP insulation foam/blowing agent shall be quantified using default emission factors in Equation 13 .	Should it be 9 instead of 13?	Yes, but all equations have not been revised as foams have been removed.	OK
5.Quantifying Baseline Emissions, equation 9	EF - Default emission factor for transportation and destruction of ODS or High-GWP Blowing Agent foam (7.5 for refrigerant, medical aerosol, fire suppressant or extracted blowing agent projects, 75 for intact high-GWP foam projects)	Medical aerosols and fire suppressants are not covered in this methodology, so reviewer suggests deleting	Thank you. These were holdovers and have been removed.	OK
5.3 Accounting for	I. The total mass of each container of disqualified ODS (from refrigerant, medical aerosol, or fire	Per previous comment, these uses are not part of this methodology	Removed	OK



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Disqualified ODS Material and High-GWP Foam After Destruction , I	suppressant ODS or high-GWP blowing agent) or high-GWP insulation foam shall be considered as the original container when the ODS or high-GWP foam was acquired.			
6.1 General Monitoring Requirements, IX	For HCFC-22 ODS eligible for inclusion under Sections 2.2.1 III A ii.d. and 2.2.1 III B i.d., the project proponent must provide documentation sufficient to substantiate that the material was “in the stream of commerce” as defined in Section 2.2.1 C.	Please refer to overview comments	Thank you. Please see response in the overview.	OK
<u>6.4 Monitoring Parameters Quantification Methodology, Table 3, equation 3</u>	$ER_{refr,i}$ Data Unit 0-1.0	This is identified as % in Eq. 3	Revised to indicate percentage.	OK
6.4 Monitoring Parameters	$ER_{i,j}$ Data Unit % (0-1)	Is it 0-100%?	Removed as this was relevant to foams.	OK



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Quantification Methodology, Table 3, equation 4				
6.4 Monitoring Parameters Quantification Methodology, Table 3, equation 8	Lfr Data Unit % (0-1)	This doesn't seem consistent with a default value of 10%	Foams have been removed so this is not applicable.	OK
Definitions	Disqualified ODS, high-GWP foam blowing agents, or high-GWP insulation foam	Per previous comment, throughout document suggest clarifying that methodology covers ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam.	Revised only to include ODS.	OK
Definitions	Eligible ODS, high-GWP foam blowing agents, or high-GWP insulation foam	Per previous comment, throughout document suggest clarifying that methodology covers ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam.	Revised only to include ODS.	OK
Definitions	Mixed ODS or high-GWP foam blowing agent - Less than or equal to 90%	This is not clear. Is this referring to mixtures of ODS refrigerants or ODS foam blowing agents where no single	This was revised to only reference ODS refrigerants. Additionally, this requirement	OK



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	composition of a single ODS or high-GWP foam blowing agent species.	ODS is greater than 90% of the composition?	applies where lab sample analyses demonstrate that no single ODS species makes up greater than 90% of the analysis. In these situations, mixing requirements apply.	
Emission rate	The rate at which refrigerant, fire suppressant, medical aerosol , or foam blowing agent is released to the atmosphere.	Reviewer suggest deleting as methodology does not cover these	Revised to only include refrigerants.	OK
Definitions <i>ODS or high-GWP foam blowing agent species</i>	Any individual type of ODS or high-GWP foam blowing agent (e.g., CFC-11, CFC-113, HCFC-22, etc.).	Recommend specifying refrigerant here	This simply states “ODS” as foam projects are no longer included.	OK
Appendix D: International OODs Destruction and HCFC-22 Eligibility, A.2	The only question regarding additionality is whether allowing for the destruction of HCFC-22 during the phase down period – as opposed to waiting for the global ban on production – would trigger the production of additional HCFC-22 during the phase down period that would otherwise not have been	HCFC-22 is required to be phased out of production and consumption under the Montreal Protocol	Changed the language from “phase down period” to “phase out period”.	OK



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	produced, or to increase importation of ODS due to a lack of supply stemming from destruction			
Appendix E: Preventing Perverse Incentives	The Montreal Protocol has proven wildly effective at phasing out the production of ODS. It does not, however, address end of life solutions for ODS that have already been produced and distributed throughout the world. ODS manufactured and sold prior to applicable production bans, including HCFC-22 that is being produced during the current phase out period, will only be collected and destroyed at end of life, instead of released into the atmosphere, if new legislation is adopted – or if thoughtful and rigorous carbon offset methodologies are developed. This methodology is designed to support these efforts and accelerate the phase out of HCFCs by facilitating their destruction effective immediately	This should refer to surplus or stocks no longer needed to maintain existing equipment until end of their useful life. Stranded equipment and potential loss of capital investment could create demand for continued production.	We likely have a policy disagreement with the premise that we should work to avoid the economic consequences of the HCFC phase down. But regardless, we do not see how this protocol could ever account for this potential situation or provide guidance to a country on how to manage its surplus or stocks to avoid it.	OK



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General	Methodology	<p>As peer reviewers, we have conducted a thorough review of the methodology together, paying close attention to the sections that were highlighted. Overall, we felt the methodology makes sense. We offered a few recommendations to further clarify eligibility conditions and the products and/or materials that are intended to be eligible under the methodology, as well as a few minor grammatical changes. Please let us know if you have any questions or would like to discuss.</p> <p>Thank you for the opportunity to review.</p>	<p>Thank you very much for the thorough review.</p>	<p>Peer reviewer (PR) conducted a thorough review of the responses to round 1 of the peer review, as well as the revised methodology and the Appendix D flow chart. Overall, we believe that the responses, updates implemented to the methodology, and the flow chart make sense.</p> <p>One thing that PR wanted to point out is a potential one-time exemption from the special circumstances described in Section C.i of Appendix D about Feedstock and Process Agents (<i>“Based on the above, HCFCs intended for use as feedstock or process agents cannot be eligible under the protocol.”</i>), as follows:</p> <ol style="list-style-type: none"> 1. If feedstock or process agent is produced (or more likely imported) and not consumed because the original intended



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				<p>application has been replaced by an alternative agent or a new technology, then, at some point those unused materials should become eligible for destruction.</p> <p>2. Once a country has phased out that feedstock or process agent use and also has no further use (e.g., refrigerant servicing), there may be materials left over in stock (generally, this would be one year’s worth of imports that were not consumed – all or in part).</p> <p>3. In other words, there could be a scenario under which excess agent becomes stranded once a country has completed its HCFC phase out, does not have any servicing demand, and has restrictions against exporting virgin material.</p> <p>4. Any such excess agent should become eligible for</p>



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				destruction, assuming proper documentation can be provided. 5. This is not likely to be a major concern, but something the methodology authors may wish to consider.
General	Methodology	<p>Peer reviewer remains very concerned about providing credits for destruction of imported HCFC-22 refrigerants under this methodology for the following reasons:</p> <ul style="list-style-type: none"> ○ HCFC-22 is not globally phased out of production which has been the requirement for including ODS in previous destruction methodologies to avoid perverse incentives being created. ○ HCFC-22 is allowed to be produced for feedstock uses, which would not be prohibited under national production or import bans – there would be no chemical distinction between illegally produced HCFC-22 	<ul style="list-style-type: none"> ○ While HCFCs have not been completely phased out of production globally, there are well established production and importation bans and quotas in place around the world. The safeguards described in Appendix E and enumerated in Section 2.2.1 (iii) of the protocol establish a clear path to documented and verifiable eligibility. These safeguards eliminate the chance that the protocol would provide a perverse incentive to manufacture 	



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
		<p>and legally produced HCFC-22 as feedstock chemical.</p> <ul style="list-style-type: none"> ○ The UN Data provides data on entire classes of ODS (e.g., HCFCs) and does not provide data on species such as HCFC-22 so cannot be used by project proponents to quantify imports into a potential source country for a project. ○ The conditions for eligibility for imported HCFC-22 seem insufficient to either identify or verify that the material is truly recovered as opposed to illegally or legally, newly produced HCFC-22 from the source country. Without more confidence in these conditions, it would be difficult to support making HCFC-22 eligible under this methodology for imported destruction. <p>Inclusion of HCFC-22 in this methodology when it has not been globally phased out of production and consumption raises concerns given the recent unexpected, increased</p>	<p>HCFCs for the purpose of generating carbon credits.</p> <ul style="list-style-type: none"> ○ The protocol has been revised to clarify that HCFCs imported or produced as a feedstock or process agent are not eligible. ○ A specific reference to the UN Data has been removed from the protocol so that other forms of evidence can be provided, such as country-specific data and reports provided to the project developer by relevant government agencies in the country where the project is being developed. ○ All reference to foams as eligible have been removed from the methodology and we believe this change is helpful in limiting any potential for illegal 	



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		<p>emissions of another ODS, CFC-11, that was supposed to be globally phased out in 2010.</p> <ul style="list-style-type: none"> ○ Montzka et al., in a letter to <i>Nature</i> in 2018, reported an unexpected, global increase in CFC-11 emissions of 13,000 ± 5,000 tonnes per year after 2012. The study strongly suggests a concurrent increase in CFC-11 emissions from eastern Asia although the contribution of this region to the global increase was not quantified. The study also suggests that the CFC-11 emissions increase arises from new production that has not been reported to the Ozone Secretariat, which is inconsistent with the agreed phase-out of CFC production by 2010. ○ Rigby et al., in a letter to <i>Nature</i> in 2019, reported increased emissions of CFC-11 from eastern mainland China, with emissions shown to be 7.0 ± 3.0 (±1 standard deviation) gigagrams per year higher in 2014– 	<p>production of CFC to ever be associated with a project.</p> <ul style="list-style-type: none"> ○ On the source verification program, Section 6.1 includes rigorous requirements for point of origin source verification 	



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		<p>2017 than in 2008–2012, arising primarily from the northeastern provinces of Shandong and Hebei. These regional emissions were found to account for at least 40-60% of the global increase in CFC-11 emissions, with no evidence for any significant increase in CFC-11 emissions from any other eastern Asian countries or other regions of the world that were adequately monitored by atmospheric measurements.</p> <ul style="list-style-type: none"> ○ In response to these scientific findings, parties to the Montreal Protocol requested the Technology and Economic Assessment Panel (TEAP) to provide them with relevant information on potential sources of emissions of CFC-11 and related controlled substances. In its 2019 report, “Decision XXX/3 TEAP Task Force Report on Unexpected Emissions of Trichlorofluoromethane (CFC-11): 		

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		<p>Final Report,” TEAP reached the following findings:</p> <ul style="list-style-type: none"> ▪ Based on modelling of CFC-11 production, usage, emissions and comparison against atmospheric-derived emissions, it is unlikely that past production and historic usage can account for the unexpected CFC-11 emissions, including from existing foam banks. ▪ It is unlikely that there has been a resumption of newly produced CFC-11 usage in refrigeration and air-conditioning uses, flexible foams, aerosols, solvents, feedstock uses, tobacco expansion and other miscellaneous applications. ▪ It is likely that there has been a resumption of newly produced CFC-11 usage in closed cell foams. ▪ Based on modelling using reported CFC-11 production 		



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		<p>data, it seems that the expected emissions from the CFC-11 foam banks in Northeast Asia are insufficient to account for the atmospheric-derived emissions from eastern mainland China in Rigby et al.</p> <ul style="list-style-type: none"> ▪ The “most likely” modelling scenario predicts 40,000 to 70,000 tonnes per year CFC-11 production would have been required from 2012 onwards to account for <p>Given the above situation with CFC-11 and ongoing production for feedstock use, it may be important to consider more done with verification of the source of imported CFCs for destruction. Without a strong source verification program, material destroyed for credit may have been as the result of new production under the guise of feedstock use. Verification would also be important to avoid crediting destruction of insulation</p>		



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		<p>foam using illegally produced CFC-11, which potentially undermines the credibility of ACR’s methodology. An example of a source verification program is in the US import petition requirements in 40 CFR 82.24(c)(4).</p> <p>Additional comments in the document provide some additional questions as well as suggestions for clarity.</p>		
Acronyms	EPA	Reviewer suggest adding the acronym ERT for EPA’s Environmental Response Team	ACR’s tradable credit unit is referred to as an “Emission Reduction Ton” or ERT. To avoid confusion with this longstanding term, ERT was not added in reference to an Environmental Response Team.	OK
Introduction	1.1 Purpose	Reviewer suggests revisiting the name for this methodology. “As a general comment, it seems that the methodology initially included HFCs but currently does not. Some ODS also have high GWP so perhaps title could be: <i>“The Destruction of Ozone Depleting Substances from Appliances</i>	<p>The title of the methodology has been revised to: The Destruction of Ozone Depleting Substances from International Sources.</p> <p>This reflects the fact that foam has been removed from the methodology.</p>	OK



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		<i>and Insulation Foam from International Sources”</i>		
1.1 Purpose	The purpose of the Methodology is to quantify greenhouse gas (GHG) emission reductions associated with the destruction of: 1) high global warming potential (GWP) ozone depleting substances (ODS)	<p>“High-GWP” is never defined in the methodology, i.e., what is considered to be a high GWP (e.g., relative to what value)?</p> <p>Recommend specifying refrigerants here given scope of the methodology.</p>	<p>All reference to foam and “high GWP” has been removed from the methodology. The decision was made to remove foam projects due to concern around illegal CFC-11 production as a potential foam feedstock in SE Asia.</p> <p>The methodology is now, by default, only applicable to ODS refrigerants as specified in Section 2.2.1</p>	OK.
1.1 Purpose	The purpose of the Methodology is to quantify greenhouse gas (GHG) emission reductions associated with the destruction of: 1) high global warming potential (GWP) ozone depleting substances (ODS) that would have otherwise been released to the atmosphere;	The reference to the covered ODSs in this methodology is not clear – all ODS? Certain high-GWP ODS used as refrigerants or foam blowing agents? There are references to fire suppression and medical aerosols, but methodology doesn’t seem to apply to these.	Foams were removed so only refrigerant ODS remains as eligible. References to fire suppression and medical aerosols were removed as well as these were included in error and are only eligible under ACR’s U.S. version of the ODS methodology.	Ok



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2 Eligible Activities: Quantification Methodology Intro	This Methodology defines a set of activities designed to reduce GHG emissions by the destruction of eligible ODS, high-GWP foam blowing agents, or high-GWP insulation foam at a single qualifying destruction facility.	Recommend specifying refrigerants here	Per above, the methodology is now, by default, only applicable to ODS refrigerants as specified in Section 2.2.1	OK, agreed.
2.1 Eligible Destruction Facilities	The end fate of the ODS, high-GWP foam blowing agent, or high-GWP insulation foam must be destruction at either	Should say “destroyed”	Revised	OK
2.1 Eligible Destruction Facilities I.A	An approved HWC subject to the RCRA and with a RCRA permit for the ODS destruction facility stating an ODS destruction efficiency of at least 99.99% (only applicable to destruction facilities located in the United States);	This exceeds current regulatory standards because not all ODS are hazardous waste and current destruction efficiency is 98%. See the 2018 destruction report: https://www.epa.gov/sites/production/files/2018-03/documents/ods-destruction-in-the-us-and-abroad_feb2018.pdf	Reference to a 98% destruction efficiency is unclear. The 99.99% DRE requirement (long standing in ODS protocols and in accordance with past TEAP assessments) is cited in the report in the link provided. See box “Best Practices: Destruction” on page 7.	OK



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2.1 Eligible Destruction Facilities I.B	A transformation or destruction facility that meets or exceeds the Montreal Protocol’s TEAP standards provided in the <i>Report of the Task Force on Destruction Technologies</i> , including DRE of 99.99% and emission levels consistent with the guidelines set forth in the TEAP report.	Recommend adding to References section	Reference added to references section.	OK
2.1 Eligible Destruction Facilities II	A destruction facility must meet all applicable monitoring and operational requirements under relevant environmental laws, as well as all applicable regulatory requirements that apply directly to ODS , high-GWP foam blowing agent, and high-GWP insulation foam destruction activities during the time the ODS, high-GWP foam blowing agent or high-GWP foam destruction occurs	Reviewer asks for clarification for the boldened part. Does this mean recordkeeping and reporting requirements at 82.13 and 82.24? Or RCRA regulations, or monitoring and reporting of emissions for TRI?	This is in reference to any particular regulation that impacts ODS destruction (whether that is an administrative requirement or a technical requirement). A destruction facility must maintain regulatory compliance during a reporting period.	
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP	ODS, high-GWP foam blowing agents, and high-GWP insulation foam destroyed under this Methodology must be from one or more of the eligible sources listed in subchapters 2.2.1 or 2.2.2 of this Methodology.	Referred to as subchapters and Sections interchangeably. Recommend consistency.	Revised to subchapters	Methodology is still using “section,” “chapter,” “subsection,” and “subchapter” interchangeably throughout. Recommend being consistent with how the sections are referred to throughout (i.e.,



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Insulation Foam I				either “section” and “subsection” or “chapter” and “subchapter”).
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP Insulation Foam, I	ODS, high-GWP foam blowing agents, and high-GWP insulation foam destroyed under this Methodology must be from one or more of the eligible sources listed in subchapters 2.2.1 or 2.2.2 of this Methodology.	Sections 2.2.1 or 2.2.2 seem to restrict the methodology only to refrigerants and foam blowing agents or foam containing foam blowing agents. If that is the intent, then perhaps references to fire suppression and aerosols should be removed elsewhere in the document.	Agreed. References to fire suppression/medical aerosols (as well as foam) have all been removed.	
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP Insulation Foam III	ODS produced exclusively for use as solvents or other applications not listed in Sections 2.2.1 or 2.2.2, are not eligible.	It is not clear until Section 2.2.1 that it is only ODS refrigerants included in this methodology.	Correct. Subchapter 2.2.1 referenced in this section to point readers to applicable ODS.	OK, agreed.
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP	Certificate of destruction ID number;	Recommend capitalizing for consistency with other instances of this term	Revised	OK



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Insulation Foam VIII.C				
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP Insulation Foam, element VIII.E	If applicable, serial, tracking or ID number of all containers for which high-GWP insulation foam destruction occurred;	Reviewer is not sure that insulation foam would be in containers – the extracted foam blowing agent may be.	Foam has been removed from eligibility.	
2.2 Eligible ODS, High-GWP Foam Blowing Agents and High-GWP Insulation Foam VIII.G	For ODS, extracted high-GWP foam blowing agent, and high-GWP insulation foam in containers , mass and type of material destroyed from each container;	Reviewer is not sure that insulation foam would be in containers – the extracted foam blowing agent may be.	Foam has been removed from eligibility.	
2.2.1 ODS Refrigerant Sources, II	Only destruction of the following ODS refrigerants is eligible to generate ACR Emission Reduction Tonnes (ERTs) under this Methodology...	Reviewer asks regarding the inclusion of blends, such as R-502 (blend of 48.8% HCFC-22 and 51.2% CFC-115 by weight)? Would commercial blends consisting solely of A-G also be considered?	Commercial blends are eligible as, when analyzed, the individual species are identified by the lab performing analysis. In this example, if R-502 was sampled, it would be analyzed	



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			as 48.8% HCFC-22 and 51.2% CFC-115.	
2.2.1 ODS Refrigerant Sources III	The eligibility conditions set forth in this section are intended to ensure that any HCFC-22 destroyed under this methodology will not cause the production or importation of additional HCFC-22 beyond business as usual.	Instructions are quite complicated and subject to misinterpretation or confusion. Recommend mentioning the intent of this section upfront in an introduction paragraph and then including some type of graphical form of the information (e.g., flow chart).	Appendix D was added to clearly explain the revised methods to determine HCFC-22 eligibility. Additionally, we have provided a flow chart for peer review which will be added to Appendix D once it is finalized.	PR reviewed the flow chart and believed that it is helpful and makes sense.
2.2.1 ODS Refrigerant Sources III	It therefore permits the destruction of HCFC-22 collected in countries that ban the importation and, if applicable, production quotas	Unless this process is managed well, potentially too much HCFC-22 could be exported for destruction and not available to meet basic domestic needs for servicing and maintaining existing equipment. There should be some information inserted to ensure expectations on how to manage the bank of HCFC-22 are clear so deficits are avoided.	A revised process for determination of HCFC-22 was developed and safeguards are now in place to prevent this type of scenario.	OK, agreed. Flow chart addresses this.
2.2.1 ODS Refrigerant Sources III	Whole paragraph	Please refer to the overview comments in the General Section above	Please refer to the response to the overview comments in the General Section above.	
2.2.1 ODS Refrigerant Sources III	In those countries, the project proponent must demonstrate that the HCFC-22 collected could not materially increase the amount of HCFC-22	This “data” is defined in more detail below. Recommend moving that detail here in its first appearance in the document.	A revised process for determination of HCFC-22 was developed and now includes the potential for country level	OK



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	imported or produced in that country because of a rule or regulation; or that the United Nations data or other documentation shows that importation or production of HCFC-22 did not materially increase in that country.		(and other) data sources in addition to UN data.	
2.2.1 ODS Refrigerant Sources III	The eligibility conditions set forth in this section are intended to ensure that any HCFC-22 destroyed under this methodology will not cause the production or importation of additional HCFC-22 beyond business as usual. It therefore permits the destruction of HCFC-22 collected in countries that ban the importation and, if applicable, production quotas. In those countries, the project proponent must demonstrate that the HCFC-22 collected could not materially increase the amount of HCFC-22 imported or produced in that country because of a rule or regulation; or that the United Nations data or other documentation shows that importation or production of HCFC-22	Must comply with regulatory requirements (e.g., imports) for class II ODS (HCFCs) in 40 CFR 82.15	As covered in Section 3.7 of the protocol, projects must meet the regulatory compliance requirements set forth in the ACR Standard, which include “Adherence to all laws, regulations, and other legally binding mandates directly related to Project Activities”. This would include the cited regulation for projects which involve import to the United States.	Ok



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	did not materially increase in that country. Therefore, HCFC-22 is eligible under this Methodology when sourced from countries where there are bans or quotas on the importation and/or production of HCFCs as follows:			
2.2.1 ODS Refrigerant Sources, III.A.ii	Regarding quota on the importation of HCFC-22 and elements a – d list	There are exceptions to this quota, including feedstocks	Please refer to the response to the overview comments in the General Section above.	
2.2.1 ODS Refrigerant Sources, III.B.i.c	The project proponent can demonstrate that the HCFC-22 was produced and, if applicable, imported into the country prior to the date of adoption of version 1.0 of this methodology.	How is this going to be demonstrated? Cylinder manufacture date? Equipment date?	The protocol does not specifically identify how a project proponent will demonstrate that material was manufactured or imported prior to the date of adoption – nor does it believe this would be appropriate, since proof will be different in different countries and under different circumstances. However, it is not hard to imagine examples, such as: (a) records of the date refrigerant in a particular cylinder was recovered from a chiller; (b) import papers	



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			reflecting the date of import of stockpiled material; or (c) inventory records for a shop reflecting the date refrigerant was purchased from a wholesaler.	
2.2.1 ODS Refrigerant Sources, III, B, i, d, 1 & 2	<ol style="list-style-type: none"> Using data reported to the United Nations Environment Programme Ozone Secretariat (“U.N. Data”), the project proponent quantifies the average total combined mass of HCFC-22 produced by and imported into the source country during the two calendar years preceding the year of adoption of version 1.0 of this methodology (“Production and Import Baseline”), and Using U.N. Data for the most recent year available, it is demonstrated by the project proponent that the total mass of produced and imported HCFC-22 in the source country has not increased by greater than 5% over the Production and Import Baseline. For 	This data on HCFC-22 is not available only on total HCFCs; UN Data Center does not provide this level of information	See response to the overview comments in the General Section above.	



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	<p>purposes of clarity, the most recent available U.N. Data shall be the U.N. Data available on the earliest date HCFC-22 included in a particular project is obtained by the project proponent.</p>			
<p>2.2.1 ODS Refrigerant Sources, III.C.i.ii & iii</p>	<p>For purposes of this section, the term “in the stream of commerce” means the material was, prior to acquisition by the project proponent:</p> <ul style="list-style-type: none"> i. In operating equipment or equipment that was being decommissioned or re-tired from service; ii. For sale in a retail store that is in the business of selling refrigerant, and is not also a manufacturer of refrigerant, importer of refrigerant, or wholesale distributor of refrigerant; or iii. Owned by an individual or company, other than a manufacturer, importer or wholesale distributor of refrigerant, or a carbon offset developer, who possessed the material 	<p>Need to clarify that the “material” refers to recovered HCFC from the decommissioned system because of prohibitions in the US under 40 CFR 82.15(g) for interstate commerce for controlled substances. If the HCFC-22 is not being removed from the decommissioned system, the system cannot be imported and distributed in commerce per 40 CFR 82.305</p>	<p>Again, this regulation applies only in the United States.</p> <p>As covered in Section 3.7 of the protocol, projects must meet the regulatory compliance requirements set forth in the ACR Standard, which include “Adherence to all laws, regulations, and other legally binding mandates directly related to Project Activities”. This would include the cited regulation for projects which involve import to the United States.</p>	



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	for use in a refrigerant trade or refrigerant-related business.			
2.2.2 HIGH-GWP Insulation Foam Sources	Subchapter title	Reviewers asks whether instead of HIGH-GWP , author should use “ ODS ”?	Foams have been removed so only ODS is applicable and referenced in the methodology.	
2.2.2 High-GWP Insulation Foam Sources I	Eligible high-GWP insulation foam must originate from appliance foam, building foam, or other foam. Only destruction of the following high-GWP insulation foam blowing agents is eligible to generate ACR ERTs under this Methodology:	Why aren’t other ODS blowing agents eligible under this methodology (e.g., HCFC-141b, HCFC-142b, HCFC-22)?	Foam project eligibility has been removed from the methodology, per the above.	OK
2.2.2 HIGH-GWP Insulation Foam Sources, I	Eligible high-GWP insulation foam must originate from appliance foam, building foam, or other foam. Only destruction of the following high-GWP insulation foam blowing agents is eligible to generate ACR ERTs under this Methodology...	Both of the blowing agents listed are ODS. Is there any reason why these are labeled “High-GWP insulation/foam blowing agents” and not ODS, when the same substances are labeled as ODS when they are refrigerants? Why aren’t HCFCs included?	Foams have been removed so only ODS is applicable and referenced in the methodology.	
2.2.2 High-GWP Insulation	CFC-12	CFC-12 is traditionally used as a refrigerant and not as a blowing agent.	Foam project eligibility has been removed from the methodology, per the above so	OK



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Foam Sources I.B			this section is no longer included in the methodology.	
2.2.2 High-GWP Insulation Foam Sources II	To be eligible, the high-GWP blowing agent must be destroyed in one of three ways:	<p>It is confusing that CFC-11 and CFC-12 are referred to as both “ODS refrigerants” and “high-GWP blowing agents.” The methodology uses the terms “ODS” and “high-GWP” as if they were different when they are referring to the same substances. While it is true that ODS refrigerants and blowing agents have high GWPs, they are defined as ODS given their ODP and the fact that ODS are reported separately under the Montreal Protocol and not as GHG gases under the Kyoto Protocol. The term “high-GWP” on its own typically refers to a non-ODS (e.g., HFC). Thus, referring to the eligible materials as “high-GWP blowing agents” may infer that HFCs are eligible blowing agents under the methodology.</p> <p>Recommend referring to these substances consistently throughout as either ODS only and not high-GWP,</p>	Foam project eligibility has been removed from the methodology, per the above so this section is no longer included in the methodology.	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
		e.g., “ODS blowing agents” and “ODS refrigerants,” or as both ODS <i>and</i> high-GWP. Either way, suggest using consistent terms throughout to mitigate any confusion around what substances are eligible under the methodology.		
2.2.2 HIGH-GWP Insulation Foam Sources, II	To be eligible, the high-GWP blowing agent must be destroyed in one of three ways:	Reviewer suggests replacing “high-GWP” for “ODS” in this section and other follow-on sections	Foams have been removed so only ODS is applicable and referenced in the methodology.	
2.2.2 High-GWP Insulation Foam Sources II.C	If high-GWP insulation foam is destroyed, the intact foam (i.e., foam that is not shredded or compacted prior to destruction) must be separated from the application from which it originated (i.e. those applications cited in subchapter 2.2.2 I) and must be stored, transported, and destroyed in sealed containers (see section 6.6 I).	This section doesn’t seem to be in the methodology.	Foam project eligibility has been removed from the methodology, per the above so this section is no longer included in the methodology.	OK
Eligibility	ODS and high-GWP insulation foam (intact foam or extracted blowing agents) offset projects must adhere to the eligibility requirements below as	Reviewer suggests that this should be just “ODS” refrigerants and blowing agents in”?	Foams have been removed so only ODS is applicable and referenced in the methodology.	



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
	well as general ACR pro-program requirements included in the ACR Standard.			
3.1 General Eligibility Requirements I.A	Collect and destroy ODS, high-GWP foam blowing agents, or high-GWP insulation foam that would otherwise be emitted to the atmosphere;	<p>How do projects prove that the HCFC-22 couldn't have been reclaimed for use?</p> <p>This isn't necessarily true for refrigerants given venting prohibitions. ODS refrigerants may not be vented but instead there may be no use for them (e.g., refrigerant stockpiled).</p> <p>Are virgin materials (i.e., ODS refrigerants or blowing agents that were produced and never used in equipment/products) covered under a separate methodology? If yes, recommend making that clear here.</p> <p>If those materials are acceptable under this methodology, recommend splitting this into three categories: 1) ODS refrigerants or blowing agents that are virgin material and never used, 2) ODS material that has been</p>	<p>This language was revised to state the following: "Collect and destroy ODS that meet the eligibility requirements set forth in Section 2.2.1."</p> <p>Regarding virgin materials, section 2.2.1. contains discussion of all eligible ODS refrigerants inclusive of "unused ODS".</p>	OK, agree with these revisions.



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
		taken out of service and in a cylinder, 3) blowing agents that are recovered or foam itself.		
3.2 Location, I	All ODS and high-GWP insulation foam must be obtained from eligible sources located outside the US and its territories	Reviewer suggests that to be clear, “high-GWP” should be “ODS refrigerants and ODS-blown” insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	
3.1 General Eligibility Requirements I.B	Destroy the recovered ODS, high-GWP foam blowing agents, or high-GWP insulation foam through an eligible end-use management option pursuant to subchapter 2.1 of this Methodology	Recommend explicitly specifying destruction here	Removed the language “through an eligible end use management option”. This now references subchapters 2.1 requirements for destruction.	OK, agreed.
3.2 Location, II	Destruction of ODS refrigerants, high-GWP foam blowing agents, and high-GWP insulation foam must occur at an eligible destruction facility per the requirements found in Section 2.1.	To be clear and consistent, as in above, this should be “ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK
3.2 Location II	Destruction of ODS refrigerants, high-GWP foam blowing agents, and high-GWP insulation foam must occur at an eligible destruction facility per the requirements found in Section 2.1.	Recommend using “ODS refrigerants” throughout the methodology rather than “ODS” alone.	As foam projects have been removed, the term “ODS” only refers to refrigerants as they are the only eligible ODS source category included in the methodology.	OK.



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
3.3.1 Legal Requirement Test, II	The following legal requirement test applies to all ODS and high-GWP insulation foam projects...	To be clear and consistent, as in above, this should be “ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	OK.
3.4 Start Date III	Offset project activities (i.e. collection of ODS or high-GWP insulation foam, transportation of ODS or high-GWP insulation foam, etc.) will occur prior to offset project commencement.	Are there any limitations/scope of what would be defined as an offset project activity?	The activities in the space are understood to include components such as collection, transportation, analysis, regulatory reviews, etc. These are all elements that contribute to a successful, registered project activity. There are some limitations in scope such as what is referred to in subchapter 3.7 III.	OK, thank you for clarifying.
3.4 Start Date III	Offset project activities (i.e. collection of ODS or high-GWP insulation foam, transportation of ODS or high-GWP insulation foam, etc.) will occur prior to offset project commencement.	Recommend replacing with “(e.g., collection or transportation of ODS or high-GWP insulation foam)”	Revised	OK
4 Offset Project Boundary: Quantification	Figure 1 illustrates the GHG assessment boundary for refrigerant ODS projects.	Recommend changing to “ODS Refrigerant” here and throughout this section for consistency with sections above	As foam projects have been removed, the term “ODS” only refers to refrigerants as they are the only eligible ODS source category included in the methodology.	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
Methodology II				
Table 1: List of Identified SSRs for Refrigerant ODS Projects, section 6	Emissions of ODS from use, leaks and servicing through continued operation of equipment	What time period is this covering? Throughout the equipment lifetime?	No, the emission rates in the methodology quantify emission rates over a 10-year timeframe which correlates to the crediting period associated with ODS destruction projects.	OK, thank you for clarifying.
4.Methodology, Figure 2	Figure 2: Illustration of the Offset Project Boundary for High-GWP Insulation Foam Projects	To be clear, reviewer suggests that this should be “ODS-blown insulation foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	
4.Methodology, Table 2, SSR 8	High-GWP Insulation Foam Recovery and Collection	Reviewer suggest this part to be “ODS-blown Insulation Foam”	Foams have been removed so only ODS is applicable and referenced in the methodology.	
4.Methodology, Table 2, SSR 8	Emissions of ODS/HFC from demolition, deconstruction, or other damage to foam sources	Methodology is only on ODS and not HFCs, so reviewer suggest references to “HFC” be deleted from the table	Foams have been removed so only ODS is applicable and referenced in the methodology.	
4.Methodology, Table 2, SSR 10	Emissions of ODS/HFC released from foam disposed of in landfills	Is this quantified in methodology (ODS only - see comment above)?	Foams have been removed so only ODS is applicable and referenced in the methodology.	



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
Quantifying Baseline Emissions, equation 3	Equation 3: Baseline Emissions from Refrigerant ODS	Reviewer suggest using “ODS Refrigerant” here and in table	Foams have been removed so only ODS is applicable and referenced in the methodology.	
5. Quantifying Baseline Emissions, equation 3.VIII	Baseline emissions from high-GWP foam blowing agents (BE_{foam}) (blowing agent extracted from foam or intact foam) must be quantified using Equation 4.	Should this be “ODS” here and below?	Foams have been removed so only ODS is applicable and referenced in the methodology.	
5. Quantifying Baseline Emissions, equation 4	Equation 4: Baseline Emissions from High-GWP Insulation Foam	Should this be “ODS-blown Insulation Foam” here and in table?	Foams have been removed so only ODS is applicable and referenced in the methodology.	
5. Quantifying Baseline Emissions, equation 5	<u>Units</u> for $BA\%_{intf,1}$ - % (0-1)	Reviewer asks for clarification, 0-1%? Or 0-100% of blowing agent?	Foams have been removed so only ODS is applicable and referenced in the methodology.	
5. Quantifying Baseline Emissions, equation 8, VIII	Project emission from the transportation and destruction of ODS and high-GWP insulation foam/blowing agent shall be quantified using default emission factors in Equation 13 .	Should it be 9 instead of 13?	Yes, but all equations have not been revised as foams have been removed.	
5. Quantifying Baseline	EF - Default emission factor for transportation and destruction of ODS or High-GWP Blowing Agent foam (7.5	Medical aerosols and fire suppressants are not covered in this methodology, so reviewer suggests deleting	Thank you. These were holdovers and have been removed.	



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Emissions, equation 9	for refrigerant, medical aerosol, fire suppressant or extracted blowing agent projects, 75 for intact high-GWP foam projects)			
5.2 Quantifying Project Emissions, Equation 8, VIII.A	The default emission factor for ODS transportation and destruction is 7.5 MT CO ₂ e per MT ODS for refrigerant, medical aerosol, fire suppressant or blowing agent extracted from high-GWP foam.	Remove?	Removed	OK
5.2 Quantifying Project Emissions, Equation 9, EF description	Default emission factor for transportation and destruction of ODS or High-GWP Blowing Agent foam (7.5 for refrigerant, medical aerosol, fire suppressant or extracted blowing agent projects, 75 for intact high-GWP foam projects)	Remove?	Removed	OK
5.3 Accounting for Disqualified ODS Material and High-GWP Foam	II. The total mass of each container of disqualified ODS (from refrigerant, medical aerosol, or fire suppressant ODS or high-GWP blowing agent) or high-GWP insulation foam shall be considered as the original container when the ODS or high-GWP foam was acquired.	Per previous comment, these uses are not part of this methodology	Removed	



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
After Destruction , I				
5.3 Accounting for Disqualified ODS Material and High-GWP Foam After Destruction I	The total mass of each container of disqualified ODS (from refrigerant, medical aerosol, or fire suppressant ODS or high-GWP blowing agent) or high-GWP insulation foam shall be considered as the original container when the ODS or high-GWP foam was acquired.	Remove?	Removed	OK
6.1 General Monitoring Requirements V.A.i	Total quantity of foam from each foam type (i.e. differentiated by building and specific allowable other foams) that is the source of the high-GWP blowing agent in the project	Recommend providing a quantitative example	Foam projects have been removed so this clause is no longer relevant.	OK
6.1 General Monitoring Requirements IX	For HCFC-22 ODS eligible for inclusion under Sections 2.2.1 III A ii.d. and 2.2.1 III B i.d., the project proponent must provide documentation sufficient to substantiate that the material was “in the stream of commerce” as defined in Section 2.2.1 C.	Recommend explicitly stating how the documentation will be considered as “sufficient.”	Examples of the type of acceptable documentation has been added to this section.	OK, language added sufficiently addresses this comment.



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
6.1 General Monitoring Requirements, IX	For HCFC-22 ODS eligible for inclusion under Sections 2.2.1 III A ii.d. and 2.2.1 III B i.d., the project proponent must provide documentation sufficient to substantiate that the material was “in the stream of commerce” as defined in Section 2.2.1 C.	Please refer to overview comments	Thank you. Please see response in the overview.	
6.2 Instrument QA/QC I	For a destruction facility that is not part of an enclosed equipment de-manufacturing system , the scales used to determine the mass of ODS, high-GWP foam blowing agent, or high-GWP insulation foam used in calculating emission reductions must be:	What about the "enclosed" systems? they should also be checked to ensure no fugitive emissions. Granted they may only get credit for what is recovered, but if they are very leaky and not well maintained, why allow it?	Foam projects have been removed so this clause is no longer relevant.	OK
6.2 Instrument QA/QC I. A	Inspected at least quarterly; and	Are there records documenting the inspection schedule / completed inspections?	Yes. All destruction facilities must maintain these records as required by section 6.3.	OK, thank you for clarifying.
<u>6.4 Monitoring Parameters Quantification Methodology, Table 3, equation 3</u>	$ER_{refr,i}$ Data Unit 0-1.0	This is identified as % in Eq. 3	Revised to indicate percentage.	OK

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6.4 Monitoring Parameters Quantificati on Methodolo gy, Table 3, equation 4	ER _{i,j} Data Unit % (0-1)	Is it 0-100%?	Removed as this was relevant to foams.	OK
6.4 Monitoring Parameters Quantificati on Methodolo gy, Table 3, equation 8	Lfr Data Unit % (0-1)	This doesn't seem consistent with a default value of 10%	Foams have been removed so this is not applicable.	OK
Definitions <i>Eligible ODS, high- GWP foam blowing agents, or high-GWP insulation foam</i>	Those ODS, high-GWP foam blowing agents, or high-GWP insulation foam included in subchapter 2.2.1. or 2.2.2 in this Methodology.	Flagging copy edit	Revised	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
Definitions	Disqualified ODS, high-GWP foam blowing agents, or high-GWP insulation foam	Per previous comment, throughout document suggest clarifying that methodology covers ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam.	Revised only to include ODS.	OK
Definitions	Eligible ODS, high-GWP foam blowing agents, or high-GWP insulation foam	Per previous comment, throughout document suggest clarifying that methodology covers ODS refrigerants, ODS foam blowing agents, and ODS-blown insulation foam.	Revised only to include ODS.	OK
Definitions	Mixed ODS or high-GWP foam blowing agent - Less than or equal to 90% composition of a single ODS or high-GWP foam blowing agent species.	This is not clear. Is this referring to mixtures of ODS refrigerants or ODS foam blowing agents where no single ODS is greater than 90% of the composition?	This was revised to only reference ODS refrigerants. Additionally, this requirement applies where lab sample analyses demonstrate that no single ODS species makes up greater than 90% of the analysis. In these situations, mixing requirements apply.	OK
Definitions <i>Emission rate</i>	The rate at which refrigerant, fire suppressant, medical aerosol , or foam blowing agent is released to the atmosphere.	Remove?	Revised	OK
Emission rate	The rate at which refrigerant, fire suppressant, medical aerosol , or foam	Reviewer suggest deleting as methodology does not cover these	Revised to only include refrigerants.	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
	blowing agent is released to the atmosphere.			
Definitions <i>High-GWP Foam Blowing Agent</i>	ODS entrained in insulation foam that was used in manufacture of the foam to provide insulation, structural and other performance properties. The eligible ODS included in this methodology have high GWPs.	Peer reviewers recommend adding a new definition for reclaimed material. For example: Recovered/Reclaimed Foam Blowing Agent : Foam blowing agent can be recovered from foam, reclaimed to meet virgin refrigerant specifications (e.g., AHRI Standard 700), and then sold and used as a refrigerant.	Foam projects have been removed so this definition is no longer relevant.	OK
Definitions <i>High-GWP Foam Blowing Agent</i>	ODS entrained in insulation foam that was used in manufacture of the foam to provide insulation, structural and other performance properties. The eligible ODS included in this methodology have high GWPs.	We should make clear it can only be reclaimed and sold for non-emissive uses. CFC-11 in chillers, HCFC-22 in ref and ac uses	Foam projects have been removed so this definition is no longer relevant.	OK
Definitions <i>High-GWP Foam Blowing Agent</i>	ODS entrained in insulation foam that was used in manufacture of the foam to provide insulation, structural and other performance properties. The eligible ODS included in this methodology have high GWPs .	“High-GWP” is never defined in the methodology, i.e., what is considered to be a high GWP (e.g., relative to what value)?	Foam projects have been removed so this definition is no longer relevant.	OK
Definitions <i>ODS or high-GWP</i>	Any individual type of ODS or high-GWP foam blowing agent (e.g., CFC-11, CFC-113, HCFC-22, etc.).	Recommend specifying refrigerant here	This simply states “ODS” as foam projects are no longer included.	



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<i>foam blowing agent species</i>				
Definitions <i>ODS or high-GWP foam blowing agent species</i>	Any individual type of ODS or high-GWP foam blowing agent (e.g., CFC-11, CFC-113, HCFC-22, etc.).	“etc.” not needed when using e.g.	Revised	OK
Table 2: Parameters for ODS Refrigerants	Substitute Emissions (MT CO ₂ e/MT ODS) (Sei)	Recommend referencing the U.S. ODS destruction methodology as the source if decide to go with those values, particularly because the calculations are shown there.	A footnote was added to tables 4 and 5 stating that, for purposes of conservatism, emission rates are set equal to those found in ACR’s U.S. destruction methodology.	OK
Table 3: Parameters for ODS Refrigerants HCFC-22	10-year cumulative emission rate (72%)/ substitute emissions (389)	U.S. emission rates are expected to be lower than those in other countries, particularly developing countries, given servicing technician programs, EPA regulations, etc. Emission controls in developing countries would not be as robust as in the U.S. so developing country emission rates are expected to be higher. There is not sufficient data	A footnote was added to table 3 stating that, for purposes of conservatism, emission rates are set equal to those found in ACR’s U.S. destruction methodology.	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
		to support an analysis of what the emission rate would be in developing countries but there wouldn't be as much recovery as in the U.S. Additional quantitative analysis would be required to generate estimates.		
Table 4: Parameters for High- GWP Foam Blowing Agents	Table title	Discuss the CFC-12 point. not clear to me that there would be any. May create misunderstanding.	Table has been removed as foam projects are no longer included.	OK
Table 5: Parameters for High- GWP Foam Blowing Agents CFC-12	Building High-GWP Blowing Agent 10-Year Emission Rate & "Other Foam" High GWP Blowing Agent 10-Year Emission Rate	U.S. emission rates are expected to be lower than those in other countries, particularly developing countries, given servicing technician programs, EPA regulations, etc. Emission controls in developing countries would not be as robust as in the U.S. so developing country emission rates are expected to be higher. There is not sufficient data to support an analysis of what the emission rate would be in developing countries but there wouldn't be as much recovery as in the U.S. Additional	Table has been removed as foam projects are no longer included.	OK



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		quantitative analysis would be required to generate estimates.		
Appendix D: International ODS Destruction and HCFC-22 Eligibility, A.2	The only question regarding additionality is whether allowing for the destruction of HCFC-22 during the phase down period – as opposed to waiting for the global ban on production – would trigger the production of additional HCFC-22 during the phase down period that would otherwise not have been produced, or to increase importation of ODS due to a lack of supply stemming from destruction	HCFC-22 is required to be phased out of production and consumption under the Montreal Protocol	Changed the language from “phase down period” to “phase out period”.	OK
Appendix D: International ODS Destruction and HCFC-22 Eligibility	Moving forward, the majority of recoverable ODS refrigerant and high GWP insulation foam is likely to originate in countries other than the United States. In fact, in its recent report on ODS destruction, ICF concludes that the majority of recoverable ODS refrigerant will originate from Montreal Protocol Article 5 countries ¹	This report (along with content from previous reports) is being updated so recommend updating this section when that report becomes available. Some parts that are being referenced here will need to be updated, particularly the references to Australia. See comment below. A new report will be out soon. Certain paragraphs should be updated when	Noted.	OK

¹ ICF International. (2018). ODS Destruction in the United States and Abroad.



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	Reference (ICF International. (2018). ODS Destruction in the United States and Abroad.)	that report comes out. AUS for example has different approach now. Also, Japan, etc. HCFC-22 destruction (nor CFCs) is in the MP		
Appendix D: International ODS Destruction and HCFC-22 Eligibility A.1	While the Montreal Protocol established a global ban on the production and manufacture of CFC refrigerants (except for some limited production for essential or critical uses otherwise approved by the Parties), it did not provide for the destruction or elimination of existing supplies of ODS refrigerants. ODS, for instance, may still be used in chillers, air conditioners, and other refrigeration systems and are still prevalent and randomly distributed throughout the world – both in operating equipment manufactured before deadlines to cease production, and on the shelves of repair contractors and others who own or operate older refrigeration or cooling equipment.	A new report will be out soon. Certain paragraphs should be updated when that report comes out. AUS for example has different approach now. Also, Japan, etc. HCFC-22 destruction (nor CFCs) is in the MP.	Noted.	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
Appendix D: International ODS Destruction and HCFC-22 Eligibility A.1	Australia has a product stewardship scheme operated as a rebate program by the non-profit, Refrigerant Reclaim Australia (RRA) under a government mandate for the collection and destruction of unwanted ODS refrigerant. The program is open to all refrigeration and air conditioning sectors (e.g., commercial, industrial, automotive, household appliances however, the rebate offered by RRA inherently incentivizes the recovery of refrigerant from larger systems and there is a notable void in the responsible management of small quantities of ODS refrigerant recovered from household appliances and vehicle end-of-life (ICF, 2008, p67).	Recommend updating. RRA operated on a voluntary basis from 1993-2004 until the <i>Ozone Protection and Synthetic Greenhouse Gas Management Act</i> took effect and required companies to exercise product stewardship over imported products. Refrigerant Reclaim Australia (RRA). 2012. Destruction of Waste ozone Depleting Substances and Synthetic Greenhouse Gases Program. 2012. Available online at: https://refrigerantreclaim.com.au/wp-content/uploads/2013/02/RRA-Destruction-Consultation-Paper-Response.pdf	There may be a misunderstanding of the reviewer’s intent here. Appendix D does not indicate this is voluntary, but rather explains, in the language cited, that RRA operates “under a government mandate.”	OK, thank you for clarifying.
Appendix D: International ODS Destruction and HCFC-22 Eligibility	The Canadian product stewardship scheme is operated by the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) as a voluntary industry-led program.	Is this referring to Refrigerant Management Canada (RMC)?	Yes	OK, thank you for clarifying.



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A.1				
Appendix D: International ODS Destruction and HCFC-22 Eligibility A.1	There are essential distinctions between the project activities described in this methodology and the ODS refrigerant destruction programs established in Australia, Canada, Japan, and New Zealand. For one, none of these existing programs readily facilitate the collection of small quantity ODS refrigerants, such as that recovered from household appliances or vehicles , or widely dispersed in disposable cylinders and cans. Nor do the programs prevent the continued use and reuse of ODS refrigerant as an alternative to destruction.	Bullet above indicates that Japan’s program recovers ODS from household appliances and vehicles	The language has been modified to address this inconsistency.	OK, agree with modified language.
Appendix D: Additionality of HCFC-22 Destruction	The only question regarding additionality is whether allowing for the destruction of HCFC-22 during the phase down period – as opposed to waiting for the global ban on production – would trigger the production of additional HCFC-22 during the phase down period that would otherwise not have been produced, or to increase importation	Recommended providing more details on the phasedown timeline here or elsewhere as appropriate.	Appendix D has been added to discuss HCFC eligibility. (See Eligibility Flowchart)	OK



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	of ODS due to a lack of supply stemming from destruction			
Appendix E	Preventing Perverse Incentives	Please see overview comments	Please see response to overview comments	
Appendix E: Preventing Perverse Incentives	The Montreal Protocol has proven wildly effective at phasing out the production of ODS. It does not, however, address end of life solutions for ODS that have already been produced and distributed throughout the world. ODS manufactured and sold prior to applicable production bans, including HCFC-22 that is being produced during the current phase out period, will only be collected and destroyed at end of life, instead of released into the atmosphere, if new legislation is adopted – or if thoughtful and rigorous carbon offset methodologies are developed. This methodology is designed to support these efforts and accelerate the phase out of HCFCs by facilitating their destruction effective immediately	This should refer to surplus or stocks no longer needed to maintain existing equipment until end of their useful life. Stranded equipment and potential loss of capital investment could create demand for continued production.	We likely have a policy disagreement with the premise that we should work to avoid the economic consequences of the HCFC phase down. But regardless, we do not see how this protocol could ever account for this potential situation or provide guidance to a country on how to manage its surplus or stocks to avoid it.	

Chapter	In regard to	Peer Reviewer Comments-Round 1	Respond from Author – Round 1	Peer Reviewers Comments-Round 2
Appendix E: Preventing Perverse Incentives	There are additional rules or regulations in place, beyond the quotas , that ensure a country importing and/or producing less refrigerant than allowed under a quota cannot increase the levels of importation and/or production in a subsequent year, preventing a carbon offset project from leading to an increase in production or importation.	Recommend clarifying that a country can become eligible once it has its quotas/regulations in place.	A footnote has been added to address this comment.	OK, footnote added is sufficient.
Appendix E: Preventing Perverse Incentives	There are additional rules or regulations in place, beyond the quotas, that ensure a country importing and/or producing less refrigerant than allowed under a quota cannot increase the levels of importation and/or production in a subsequent year, preventing a carbon offset project from leading to an increase in production or importation. ²	Recommend editing footnote to be gender neutral.	Revised	OK

² Costa Rica is an illustration of the latter scenario in that, an importer who imports less than the full amount of his quota in Year 1 (e.g. 80%) has his quota capped in Year 2 at the actual amount he imported in Year 1 (e.g. 80% of the Year 1 quota). See Reglamento para implementar un mecanismo de cuotas de importación para la eliminación gradual el uso de limitados en el grupo del Anexo C del protocolo de Montreal. [Nº 37614-MINAET](#).

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	<p>Reference: Costa Rica is an illustration of the latter scenario in that, an importer who imports less than the full amount of his quota in Year 1 (e.g. 80%) has his quota capped in Year 2 at the actual amount he imported in Year 1 (e.g. 80% of the Year 1 quota). See <i>Reglamento para implementar un mecanismo de cuotas de importación para la eliminación gradual el uso de limitados en el grupo del Anexo C del protocolo de Montreal. N° 37614-MINAET.</i></p>			
Appendix F: References	References in general	Some titles are italicized and have a smaller font size. Recommend applying consistent formatting to all references. A number of references listed in this section are not mentioned in this document. Recommend conducting a review of these instances.	The list of references has been corrected and amended per reviewer comments with certain additional deletions not cited below.	OK
Appendix F: References	Intergovernmental Panel on Climate Change (IPCC) and Montreal Protocol on Substances that Deplete the Ozone Layer United Nations Environment Programme Technology and Economic	I believe this report was published in 2005	Revised	OK



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	Assessment Panel. (2006). Special Report: Safeguarding the Ozone Layer and the Global Climate System.	https://www.ipcc.ch/report/safeguarding-the-ozone-layer-and-the-global-climate-system/		
Appendix F: References	Tope. (2015). <i>Montreal Protocol Technology and Economics Assessment Panel, Workshop on HFC Management, Technical Issues</i> , April 21, 2015.	Assuming this is referring to Helen Tope, recommend adding Helen’s first name and the title of the presentation. This seems to only be referencing the workshop.	Reference removed as it was only relevant to medical aerosols.	OK
Appendix F: References	United States Environmental Protection Agency. (2015b). Federal Register. Volume 80, Number 138, 42870. Air Programs – Protection of Stratospheric Ozone. United States Environmental Protection Agency. (2016). Significant New Alternatives Policy (SNAP) Program, Rule 21, New listing of safer substitutes and prohibition on the use of certain high-GWP alternatives (September 26, 2016).	These references are not mentioned in this methodology. Recommend removing.	Removed	OK
Appendix F: References	Verdonik, D.P. and Robin, M.L. (2004). <i>Proceedings of the Earth Technology Forum: Analysis of Emission Data, Estimates, and Modelling of Fire Protection Agents</i> , Washington, D.C.	Remove? Not referenced in methodology.	Removed	OK



Chapter	In regard to	Peer Reviewer Comments- Round 1	Respond from Author – Round 1	Peer Reviewers Comments- Round 2
Appendix F: References	World Meteorological Organization (WMO), Global Ozone Research and Monitoring Project. (2011). Ozone Depletion Potentials from the Scientific Assessment of Ozone Depletion: 2010. Report No. 52.	2018 report is now available: https://public.wmo.int/en/media/news/scientific-assessment-confirms-start-of-recovery-of-ozone-layer	Reference updated	OK
Appendix F: References	Yesiller, N., Hanson, J.L., Bogner, J.E. (2016). <i>Emissions of Potent Greenhouse Gases from Appliance and Building Waste in Landfills</i> . Draft Final Report, California Air Resources Board and the California Environmental Protection Agency.	Not referenced in methodology	This reference was relevant to foam emission rates in the U.S. context. It has been removed.	OK