

Reserve Special Topic:
**Ozone Depleting Substances
Project Protocols**



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Webinar will begin shortly
For audio, please dial (773) 945-1010
Access code: 183-528-628



Today's Presentation

- Assume that audience is familiar with the Climate Action Reserve and the Forest Project Protocol v3.1
- In-depth discussion of new protocols for the destruction of Ozone Depleting Substances
 - Sources in the United States
 - Sources in Article 5 countries
- **Tim Kidman**
 - Policy Manager at the Climate Action Reserve
 - Lead the development of the ODS protocols



Current Statistics

- Reserve launched: **May 2008**
- Account-holders: **244**
- Total submitted projects: **213**
 - Located in **41** states and **2** countries
- CRTs issued: **3 million**
- Recent pricing: **\$5.75 per CRT**
 - *Chicago Climate Futures Exchange contract March 10 V09*

U.S. Ozone Depleting Substances Project Protocol

Article 5 Ozone Depleting Substances Project Protocol



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March 16, 2010



Background

- Ozone depleting substances (ODS) are/were used in a wide variety of applications
 - In addition to destroying the ozone layer, ODS are potent greenhouse gases, some greater than 10,000 GWP
- Production of ODS has been phased out, but extant stocks represent enormous potential GHG emissions
- The opportunity to mobilize the carbon market to manage and destroy these ODS banks was been recognized by government, private, and international agencies
 - Throughout the development process, the Reserve worked with representatives from all sectors

Workgroup



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3M

Appliance Recycling Centers of America

Caleb Management Services Ltd.

California Air Resources Board

Clean Harbors Environmental Services, Inc.

Conservation Services Group

Coolgas Inc.

DuPont Refrigerants

Environmental Credit Corp

EOS Climate

Greenhouse gas Services

Hudson Technologies Company

ICF International

NSF-ISR

Pew Center on Global Climate Change

Refrigeration Service Engineers Society

RemTec International

Ryerson, Masters & Associates

Sims Metal Management

U.S. Environmental Protection Agency

Verisae Inc

Wesco - Halon Management and Banking

World Bank

Protocol Timeline



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Public Scoping Meeting	<i>May 19, 2009</i>
Workgroup process kick-off	<i>August 3, 2009</i>
Discussion paper to workgroup	<i>August 5, 2009</i>
Draft Domestic protocol to workgroup	<i>September 18, 2009</i>
Draft Imports protocol to workgroup	<i>September 25, 2009</i>
Public draft protocols released	<i>November 20, 2009</i>
Public comment period	Nov. 20 – Dec. 18, 2009
Public workshop	December 7, 2009
Protocol adoption by Reserve Board	February 3, 2010



U.S. and Article 5 Protocols

- Two protocols
 - U.S.: ODS material sourced from and destroyed in the U.S.
 - Article 5: ODS material sourced from Article 5 countries and destroyed in the U.S.
- Protocols are very similar in structure and content, with primary differences in:
 - Eligible ODS categories and sources
 - Performance standard analysis
 - Assumed baseline scenarios for refrigerants
 - Verifying point of origin and custody, import documentation



Project Protocol Components



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Define the GHG reduction project	Section 2
Determine eligibility	Section 3
Establish the GHG Assessment Boundary	Section 4
Calculate GHG reductions – Baseline emissions – Project emissions	Section 5
Monitoring & operations requirements	Section 6
Reporting requirements	Section 7
Verification guidance	Section 8



Project Definition - US & Article 5



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“...Any set of activities undertaken by a *single* project developer resulting in the destruction of *eligible* ODS at a *single* qualifying destruction facility over a *12-month* period”

- All ODS must be destroyed at either
 - A RCRA approved hazardous waste combustor, or
 - A facility that meets the guidelines in the TEAP (2002) Report of the Task Force on Destruction Technologies
- Destroyed ODS must be documented on one or more Certificates of Destruction



Project Categories - U.S.

1. Refrigerant ODS

- Refrigerant from industrial, commercial or residential equipment, systems and appliances or stockpiles

2. ODS foam blowing agent from appliances

- Blowing agent from appliance insulation foam extracted to a concentrated state

3. ODS foam blowing agent from buildings

- Intact foam sourced from building insulation

* One project can incorporate ODS from multiple sources



Eligible ODS - U.S.

Refrigerant (GWP)

- CFC-11 (4,750)
- CFC-12 (10,900)
- CFC-114 (10,000)
- CFC-115 (7,370)

Foam (GWP)

- CFC-11 (4,750)
- CFC-12 (10,900)
- HCFC-22 (1,810)
- HCFC-141b (725)

- ODS extracted from a foam source for use in refrigeration equipment is considered foam ODS
- ODS sourced from federal government installations/stockpiles is not eligible





Project Categories - Article 5

* Only refrigerant ODS are eligible under this protocol

1. Privately-held or government stockpiled virgin or used refrigerant that can be sold legally
2. Government stockpiles of seized ODS that cannot be sold legally
3. ODS refrigerant recovered from equipment at servicing or end-of-life



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Eligible ODS - Article 5

Refrigerant (GWP)

- CFC-11 (4,750)
- CFC-12 (10,900)
- CFC-113 (6,130)
- CFC-114 (10,000)
- CFC-115 (7,370)

- Consistent with CFC that have been phased out of production as of January 1, 2010





Project Crediting

- Project is defined as a discrete series of destruction events, but avoided emissions would have occurred over a longer time-horizon
- CRTs are issued for the quantity of ODS emissions that would have occurred over a ten-year crediting period
- All CRTs are issued upon successful completion of verification



Exclusions

- ODS destroyed outside of U.S. or its territories
- ODS sourced from non-Article 5 countries (other than U.S.)
- ODS blowing agent from outside U.S.
- Destruction of intact appliance foam
- Any ODS that can legally be produced for that use in the country of origin
- ODS not explicitly identified in the protocols

Eligibility Rules



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	U.S. Protocol	Article 5 Protocol
1. Location	<p>ODS origin: U.S. and its territories</p> <p>ODS destruction: U.S. and its territories</p>	<p>ODS origin: Article 5 countries</p> <p>ODS destruction: U.S. and its territories</p>
2. Project Start Date	Within 6 months prior to project submission*	
3. Additionality	Exceed legal requirements	
	Meet performance standard	
4. Regulatory Compliance	Compliance with all applicable laws	





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Start Date - U.S. & Article 5

“...the date on which destruction activities are commenced, as documented on a Certificate of Destruction.”

- Project must be submitted no more than 6 months after project start date, *except...*
- First 12 months following Effective Date of protocol, projects with start dates no more than 24 months prior to Effective Date are eligible



Start Date - U.S. & Article 5



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- Until February 3, 2011:
 - Project with destruction commencing on or after February 3, 2008
- After February 3, 2011:
 - Project with destruction commencing within six months of being submitted to the Reserve
- No destruction before February 3, 2008 is eligible



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Start Date - Article 5

Special Cases

- Import of privately-held, saleable *virgin* refrigerant has time-limited eligibility
 - Must file pre-import notification with EPA within 60 days of Effective Date; and
 - Must submit completed Entry Summary to U.S. Customs by June 30, 2010
- ODS with export date prior to January 1, 2010 must have letter from Ozone Secretariat to confirm early production phase-out





Legal Requirement Test

- Montreal Protocol and U.S. law limit the production and intentional release of ODS, but no existing laws or regulations that obligate destruction for classes of ODS covered in these protocols
- Test shall be applied:
 - U.S. Protocol: at date of ODS destruction
 - Article 5 Protocol: at date of export from country of origin
- Project developers are required to submit a signed Attestation of Voluntary Implementation for each verification

Performance Standard Test - U.S. & Article 5



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- Destruction of phased-out ODS is not common practice in the U.S.
 - Less than 1.5% is destroyed
 - Destruction of the identified ODS sourced from U.S. is eligible
- Destruction of phased-out CFC refrigerant is not common practice in any Article 5 country
 - Destruction of CFC refrigerant sourced from Article 5 countries is eligible



Regulatory Compliance

- Projects must operate in material compliance with all applicable laws, including:
 - Department of Transportation
 - Operation of destruction facilities (RCRA, TEAP)
 - U.S. EPA and Customs import requirements (Article 5 only)
- CRTs cannot be issued for GHG reductions that occurred during periods of material non-compliance
- Project developers are required to:
 - Disclose in writing to the verifier any and all instances of non-compliance of the project with any law (material and non-material)
 - Attest that the project is in material compliance with all applicable laws through the Reserve's Attestation of Regulatory Compliance



Calculations

- Emissions calculated as the difference between those estimated to have occurred in the baseline scenario, and those that occur in the project scenario
- Each protocol contains unique baseline scenarios and project scenarios
 - Calculations driven by protocol and substance specific assumptions

Scenarios – U.S.



Project	Baseline Scenario	Project Scenario
Refrigerants	<ul style="list-style-type: none"> •ODS would have been recovered and sold into the refrigerant recharge market. •Emissions calculated according to ODS specific modeled emission rate 	<ul style="list-style-type: none"> •Substitute refrigerant will be required to meet need •Emissions calculated from modeled substitutes.
Appliance Foam Blowing Agent	<ul style="list-style-type: none"> •Foam would be shredded, and then landfilled. •Emissions calculated according to loss rates of shredding and landfill. 	None
Building Blowing Agent	<ul style="list-style-type: none"> •Foam would be landfilled after building demolition. •Emissions calculated according to landfill loss rates. 	None

- All projects must account for project emissions associated with transportation and destruction of ODS



Scenarios – Article 5



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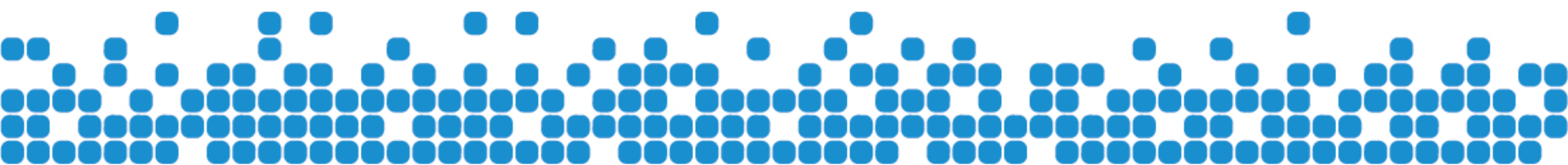
Project	Baseline Scenario	Project Scenario
Privately-held refrigerant stockpiles	<ul style="list-style-type: none">•ODS would have been sold into the refrigerant recharge market.•Emissions calculated according to emission rate of 25%/year (94%/10-year)	<ul style="list-style-type: none">•Substitute refrigerant will be required to meet need•Emissions calculated based on HFC-134a
Government refrigerant stockpiles	<ul style="list-style-type: none">•ODS would continue to be stored•Emissions calculated according to site specific emission rate at storage facility	None
Used refrigerant recovered from end-of-life	<ul style="list-style-type: none">•ODS would have been released to atmosphere•Emissions calculated as 100%	None

- All projects must account for project emissions associated with transportation and destruction of ODS.



Monitoring & Operations Plan

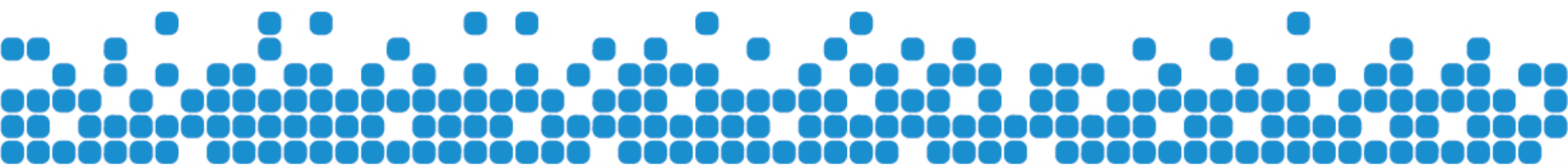
- ODS protocols have fewer “monitoring” parameters than other Reserve protocols
- Many more “operational” or practice-based requirements (e.g., who does what how)
- Projects must have a robust Monitoring and Operations Plan for execution of projects
 - Equally important that projects are implemented as specified in Monitoring and Operations Plan





ODS Tracking System

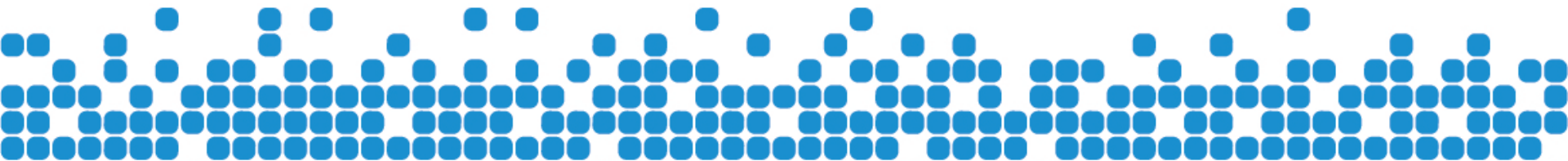
- Reserve has developed publicly accessible, online database to ensure no double-counting of destroyed ODS
 - Project developers enter information from certificate of destruction
 - Project verifiers confirm unique entries
- Tracking system provides added transparency and security that reductions are real and additional





Point of Origin and Custody

- A single project may have dozens of points of origin
- Tracking ensures eligibility of *individual* ODS sources and accuracy of baseline
- Project developers must retain document trail, contracts, bill(s) of lading, etc. to establish
 - Where did the ODS come from, and does that support the chosen baseline and project scenarios?
 - Has ownership of GHG reductions been properly transferred to project developer?



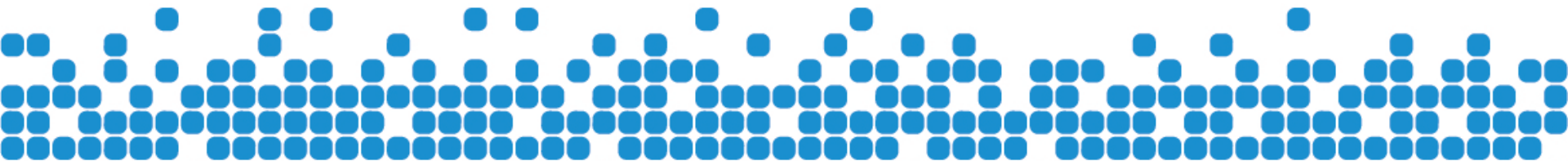
Point of Origin



- All destroyed ODS must be tracked to its point of origin

U.S. ODS Source	Defined Point of Origin
Refrigerant ODS stockpiled for greater than 24 months; or stockpiled prior to the adoption date of this protocol and destroyed within twelve months of the adoption date of this protocol.	Location of stockpile
Refrigerant ODS quantities less than 500 lbs	Location where ODS is first aggregated with other ODS to greater than 500 lbs
Refrigerant ODS quantities greater than 500 lbs	Site of installation where ODS is removed
ODS blowing agent extracted from foam	Facility where ODS blowing agent is extracted
ODS blowing agent in building foam	Location of building from which foam was taken

Article 5 ODS Source	Point of Origin
Virgin stockpiles	Location of stockpile
Used ODS stockpiled greater than 12 months	Location of stockpile
Used ODS quantities less than 500 lbs, and collected in the last 12 months	Location where ODS is first aggregated to greater than 500 lbs ^a
Used ODS quantities greater than 500 lbs, and collected in the last 12 months	Site of installation from which ODS is removed





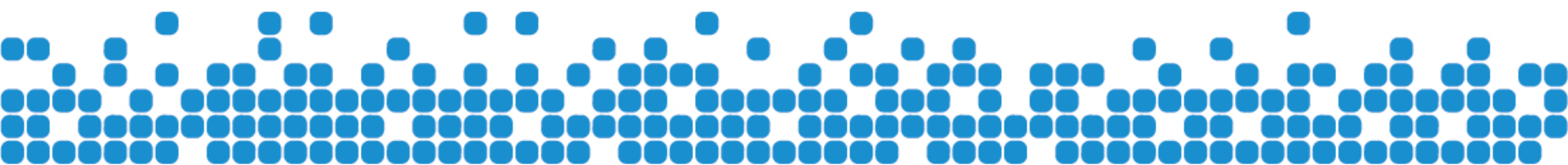
Building Foams – U.S.

- Building foam with ODS blowing agent must be destroyed intact
- Blowing agent concentration established by analyzing foam samples
 - Very specific analytical requirements in protocol
- Weight measured by calibrated scales at destruction facility



Appliance Foams – U.S.

- ODS blowing agent from appliance foams must be extracted to a concentrated form
- Projects must demonstrate:
 - Proper training of personnel
 - Operation of equipment in accordance with Monitoring and Operations Plan
 - System efficiency
- Quantity of ODS blowing agent determined according to same methods as refrigerants





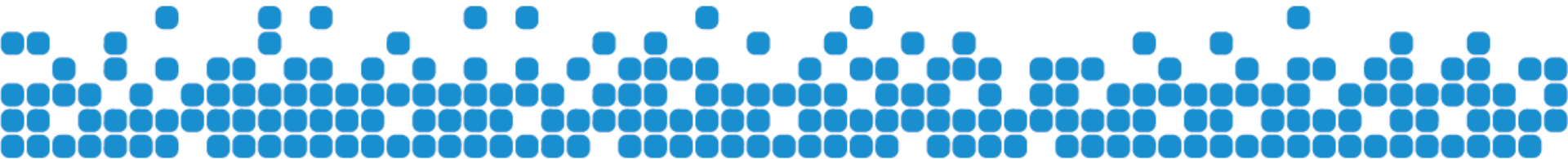
Concentrated ODS

- Applies to Refrigerant and extracted appliance ODS blowing agent
- Mass of ODS weighed at destruction facility
- Concentration of ODS must be determined by an ARI certified lab, according to ARI 700-2006
 - Sample must be taken while ODS is in the possession of company that will destroy the ODS



Mixed ODS

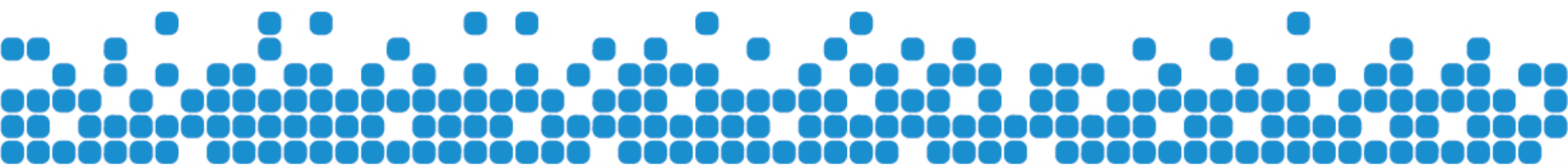
- Applies to any container that is less than 90% composed of a single ODS
- Mixing and sampling may be done outside of destruction facility's control
 - Mixing and sampling must be overseen by a third-party
- Specific requirements for mixing tank in protocol (no obstructions, liquid and vapor ports, etc)
- Must be analyzed at ARI lab per ARI 700-2006





Destruction Facility

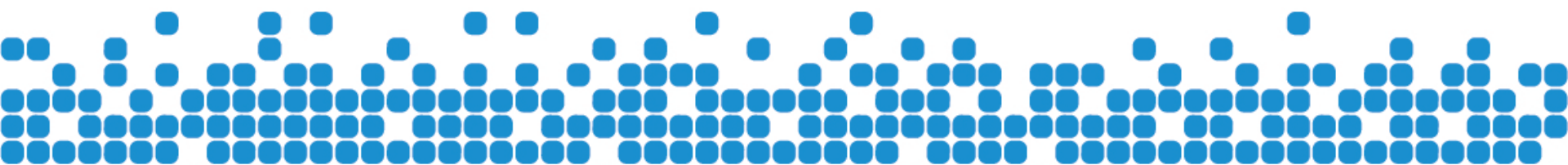
- Destruction facility must be HWC or have third-party certification that it meets TEAP guidelines
 - Guidelines are reproduced in protocol appendix
- Must report ODS feed rate and other parameters
- Destruction facility is responsible for issuing the Certificate of Destruction
 - Must be unique, and contain all necessary information





Reporting

- Project may be split into several reporting periods if project developer requests
 - Each reporting period must receive full verification
- Required for Registration and Verification
 - Project Submittal form (only required for initial registration)
 - Signed Attestation of Title form
 - Signed Attestation of Regulatory Compliance form
 - Signed Attestation of Voluntary Implementation form
 - Verification Report
 - Verification Opinion



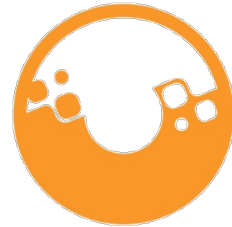


Verification

- Verification is guided by:
 - Climate Action Reserve Program Manual
 - Climate Action Reserve Verification Program Manual
 - Climate Action Reserve U.S./Article 5 Ozone Depleting Substances Project Protocol
- Verifiers may conduct Joint Verification if project developer and destruction facility are the same
 - Requires only one COI, and one Verification Report
 - Independent risk assessment and verification plan must be conducted for each project



QUESTIONS?



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