

Mexico Ozone Depleting Substances Project Protocol

Public Comment Workshop



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February 26, 2015



Agenda

1. Introductions
2. Overview of the Protocol Development Process
3. Overview of the Protocol, highlighting differences from US and A5 Protocols
4. Questions?

Today's slides are available in English and Spanish here:
<http://www.climateactionreserve.org/how/protocols/mexico-ozone-depleting-substances-project-protocol/>

Workgroup members



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Name (alphabetical)	Organization
Alan Rodolfo Bastida Morales	SEMARNAT
Danae Diaz Pesce	TÜV Rheinland Mexico
Rodolfo Garza Alanis	Quimobasicos
Antony Lozano	Ecosave (Ecofrigo Refrigerant Reclamation Facility)
Agustin Quintana	Silver Breeze (National Refrigerant Reclaim Facilities)
Agustín Sánchez Guevara	SEMARNAT
Jose Antonio Urteaga Dufour	FIDE
Felipe Adrian Vazquez-Galvez	Universidad Autonoma de Ciudad Juarez



Technical Contractors

- Coordinated by **Ruby Canyon Engineering**, with support from a team of sub-contractors in Mexico
- Team combines specialized GHG experts on ODS offset protocols and projects, ODS destruction in the U.S., and Mexico environmental regulations
- Ruby Canyon Engineering has over six years of experience verifying offset projects across North America and internationally, including working with ODS destruction projects in the U.S.
- Primary Team Members
 - Zach Eyler – Ruby Canyon Engineering
 - Michael Cote – Ruby Canyon Engineering
 - Peter Browning – Ruby Canyon Engineering
 - Ana Maria Contreras
 - Gloria Garcia
 - Julio Yáñez

Protocol development overview

FOCUS on ADAPTATION



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- **GOAL:** Develop a carbon offset protocol that incentivizes destruction of ODS sourced from Mexico at destruction facilities in Mexico
- **APPROACH:** Adapt the Reserve's ODS destruction protocols for use in Mexico. Maintain consistency across ODS protocols whenever possible, attempting to minimize the number of requirements, definitions, and/or processes that need to be adapted/changed significantly for use in Mexico.

Protocol Development Timeline



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Milestone/Task	Timeline
Commence Protocol Development	September 2014
1 st Workgroup Meeting	November 2014
Workgroup Draft of Protocol Distributed	December 2014
2 nd Workgroup Meeting (in person in Mexico)	January 2015
Public Comment Period	February 17 – March 17, 2015
Public Workshop	February 26, 2015
Reserve staff responds to and incorporates public comments; finalizes protocol	March 2015
Protocol presented to the Reserve's Board of Directors for Consideration & Adoption	April 28, 2015



Protocol development overview

- Because this protocol is an adaptation of the existing Article 5 ODS Protocol, there is a limited scope of protocol requirements and standards which were “on the table” for discussion (ie. issues which needed adaptation)
- Meetings of the workgroup and communications related to protocol development took place in Spanish, wherever possible, with both Spanish and English translations available.
- The protocol draft is available in English-only, but the final protocol will be translated and posted in Spanish, as well.
- Today’s meeting is taking place in English, so as to engage our US-based stakeholders, with Spanish translation of the slides available.



Protocol organization

1. Introduction
2. Project Definition
3. Eligibility
4. GHG Assessment Boundary
5. Quantification
6. Monitoring
7. Reporting
8. Verification
9. Glossary
- Appendices

The Article 5 Project Protocol served as a starting point for this protocol, with a similar organization to all Reserve protocols.



Protocol organization

1. Introduction
- 2. Project Definition**
- 3. Eligibility**
4. GHG Assessment Boundary
- 5. Quantification**
- 6. Monitoring**
7. Reporting
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9. Glossary
- Appendices**

Adaptation of the protocol focused on the highlighted sections, which will be the focus of today's discussion.



Section 2: Project Definition

- After providing some background on ODS in Mexico, section defines eligible refrigerants & eligible destruction facilities
- Refrigerants eligible for destruction will be the same as those eligible in Reserve's Article 5 Protocol
- Specifically:
 - CFC-11 CFC-113
 - CFC-12 CFC-114

**Sourced from Mexico*
- Notably, as CFC-115 was never produced nor imported to Mexico for use in appliances, CFC-115 is not eligible under this protocol.



Section 3: Eligibility

- Location (3.1) – Mexico
- Crediting period (3.3) – one or more destruction events over a 12-month period, beginning on the project start date.
 - ODS projects are issued CRTs for the quantity of ODS that would have been released over a ten-year period following a destruction event.
 - At the time the project is verified, CRTs will be issued for all ODS emissions avoided by the project over the 10-year crediting period.



Section 3.2: Start Date

- Consistent with definition of point of origin and project start date in US and A5 protocols
 - Non-mixed, non-aggregated ODS projects: the day project ODS departs the final storage or aggregation facility for transportation to the destruction facility.
 - Non-mixed ODS projects where eligible ODS is aggregated at the destruction facility: the day destruction commences
 - Mixed ODS projects: the day mixing procedures begin.
- As long as destruction is completed within the first 12 months of the effective date of this protocol, privately held and saleable virgin ODS refrigerants are eligible

Section 3.4.1: Legal Requirement Test



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- All projects are subject to a Legal Requirement Test to ensure that the GHG reductions achieved by a project would not otherwise have occurred due to federal, state, or local regulations, or other legally binding mandates.
- The Reserve performed extensive analysis on the regulatory framework in Mexico to confirm that there are no legal requirements to destroy ODS in Mexico.
- To satisfy the Legal Requirement Test:
 - project developers must submit a signed Attestation of Voluntary Implementation form
 - the project's Monitoring and Operations must include procedures to ascertain and demonstrate that the project at all times passes the Legal Requirement Test.

Performance Standard (Section 3.4.2, Appendix B)



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- In 2009, the Reserve evaluated whether destruction of ODS was common practice in Article 5 countries, including Mexico, using a 2009 UNEP Report on destruction data form Article 5 countries.
- At the time, the Reserve determined that destruction of CFC refrigerant from Mexico and other Article 5 countries **is not** common practice.
- In 2015, using updated analyses of ODS management and destruction of ODS sourced from Mexico, the Reserve confirmed that destruction of Mexican CFCs continues to exceed standard practice.
- Further, in an analysis of destruction facilities in Mexico, the Reserve determined that destruction of ODS at facilities in Mexico also exceeds standard practice.

Section 3.5: Regulatory Compliance



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- Projects must be in material compliance with all applicable laws (e.g. air, water quality, and safety) at all times during each reporting period
- The regulatory compliance requirement extends to:
 - Operations of destruction facilities where ODS is destroyed,
 - Facilities where mixed ODS projects are mixed and sampled,
 - Transportation of the ODS to the destruction facility, and
 - Export/import of project ODS samples for laboratory analysis
- A violation should be considered to be “caused” by project activities if it can be reasonably argued that the violation would not have occurred in the absence of the project activities. If there is any question of causality, the project developer shall disclose the violation to the verifier.

Regulatory Compliance

(Section 3.5, Appendix E)



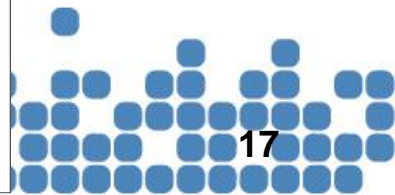
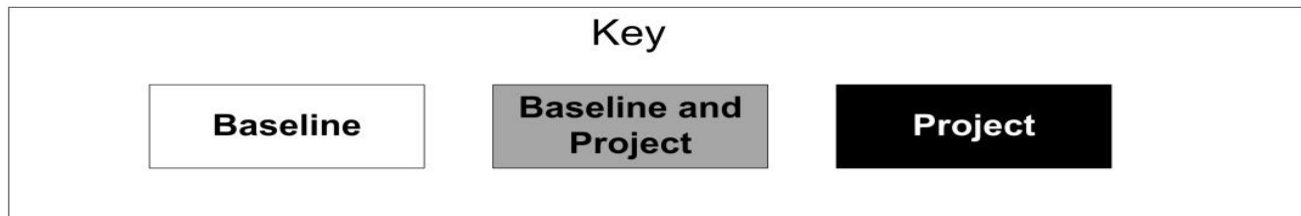
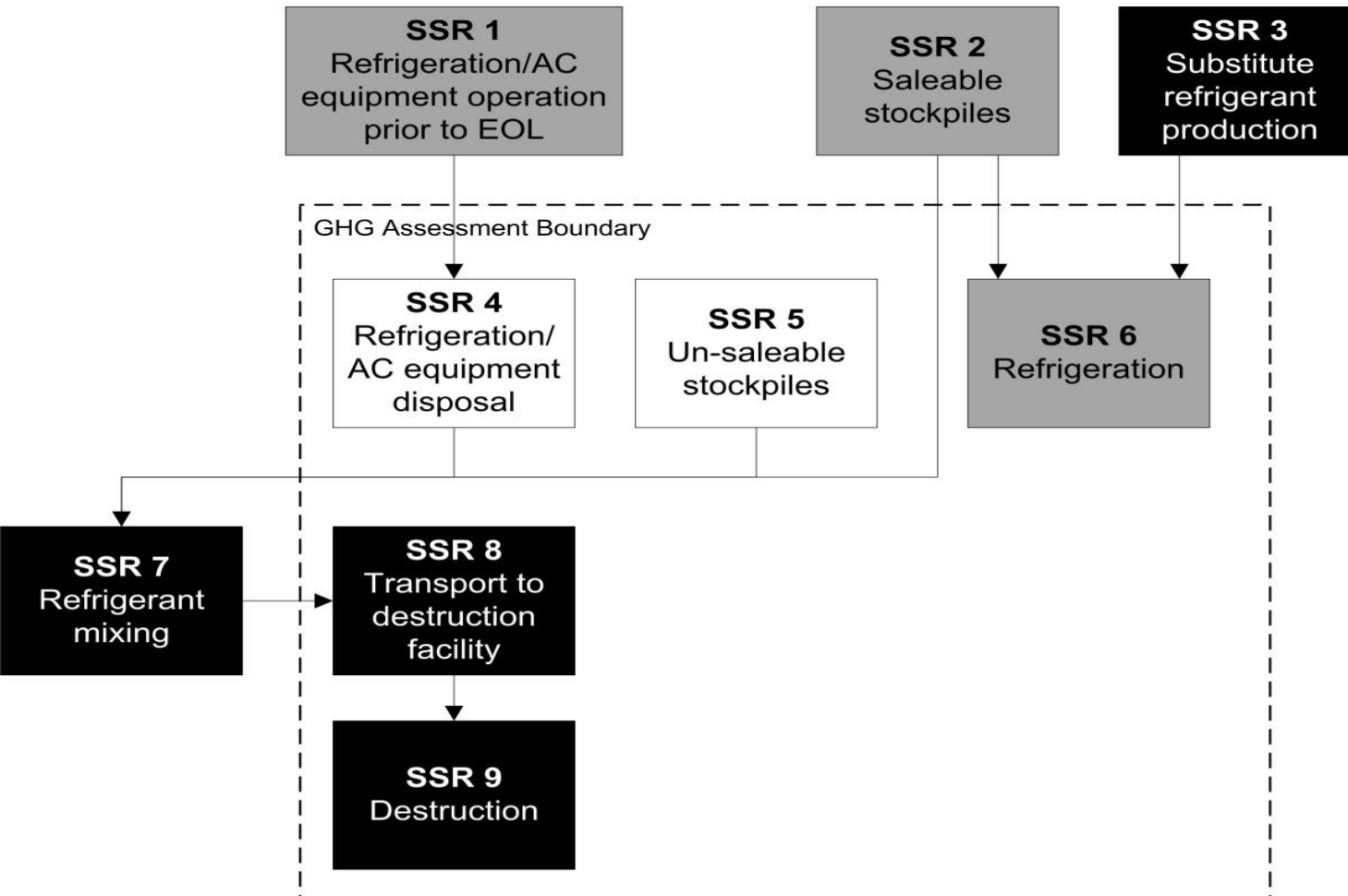
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Regulation	Area Covered
General Law for the Prevention and Management of Wastes (LGPGIR)	Overarching law that regulates the generation, recovery and integrated management of hazardous waste, municipal solid waste and special waste management, including ODS.
NOM-098-SEMARNAT-2002	Permission for incineration of hazardous waste. Permit must specifically include CFCs to allow for CFC destruction.
NOM-040-SEMARNAT-2002	Permission for cement manufacturing facilities, which potentially allows for CFCs to be used as fuels, if permit explicitly allows it.
NOM-010-SCFI-1994	Standards for measuring instruments.
NOM-052-SEMARNAT-2005	Hazardous waste listings.
NOM-002-SCT-2011	Hazardous waste transport.
NOM-003-SCT-2008	Hazardous waste labeling.
NOM-161-SEMARNAT-2011	Special management plans
SEMARNAT-07-017	Registration (listing) of hazardous waste
SEMARNAT-07-033-A,B,C,D,F,H,I	Authorizations for handling hazardous waste (including incineration)
SEMARNAT-07-029	Authorization for export/import hazardous waste

Section 4: GHG Assessment Boundary



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Section 5: Quantification Methodology



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$$ER = BE - PE$$

- **Baseline Emissions (BE):**
 - Emissions from stockpiled refrigerants and end-of-life refrigerants that would have occurred over the ten-year crediting period
- **Project Emissions (PE):**
 - Emissions from substitute refrigerants, plus
 - Emissions from the transportation of ODS, plus
 - Emissions from the destruction of ODS

Section 5: Quantification Methodology



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- Most of this section stayed the same
- However some changes and updates were necessary to make more appropriate for Mexico:
 - Baseline assumptions for ODS management under business-as-usual
 - Update analysis underlying emission factors used for substitute refrigerants
 - Assumptions related to project emissions from transportation and destruction. Requirement to use standard deduction.
 - All measurements were converted to kilograms and Celsius.

Section 5: Baseline Assumptions on ODS Management



Refrigerant Origin	Baseline Scenario	Applicable Annual Emission Rate	10-year Cumulative Emissions (%) (ER_{refr})
Privately held stockpiles of used ODS refrigerant that can legally be sold to the market	Continued storage	10%	65%
Privately held stockpiles of virgin ODS refrigerant that can legally be sold to the market	Continued storage	10%	65%
Government stockpiles of ODS refrigerant that can legally be sold into the refrigerant market	Continued storage	10%	65%
Government stockpiles of ODS refrigerants that cannot legally be sold into the refrigerant market	Continued storage	Site specific emission rate as documented (Equation 5.2)	$1-(1-ER_{stock})^{10}$
Used ODS refrigerant recovered from end-of-life equipment	End-of-life release to the atmosphere	100%	100%

Quantification: Substitute Refrigerants



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- The protocol conservatively assumes that all substitute refrigerants are HFC-134a.
 - In the Article 5 Project Protocol, this decision was based on a 2009 review of the literature for all Article 5 countries, which concluded that HFC-134a and HC-600a were the dominant substitute refrigerants being used in place of ODS in Article 5 countries. HFC-134a has a higher GWP than HC-600a, so this is conservative.
 - A 2014 comprehensive inventory report of Mexico shows that HFC-134a, HCFC-22, and HFC-410a were all common substitutes from 2006 to 2012.
 - However, this same report also states that according to current trends and the Mexican HCFC Phase-Out Plan, HFC-134a will be the dominant new refrigerant being used in place of ODS in Mexico and Article 5 countries moving forward.

Quantification: Project Emissions from Transportation & Destruction



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- For this protocol, as a means to streamline project development, project reporting and documentation requirements, and verification activities, no project-specific quantification option is included.
- For all projects, project developers must apply a 7.5 tonne CO₂e/tonne ODS emission factor.
- This default emission factor represents a very conservative estimate of these emission sources derived using worst-case emission factors and empirical data.

Section 6.2: Documentation of Point of Origin



- Project developers are responsible for collecting data on the point of origin for each quantity of ODS

ODS	Point of Origin
Government stockpiles of virgin ODS	Location of stockpile
Used ODS stockpiled prior to February 3, 2010	Location of stockpile
Privately held virgin ODS stockpiles	Location of stockpile
Used ODS in quantities less than 227 kg	Location where ODS is first aggregated to greater than 227 kg
Used ODS in quantities greater than 227 kg	Site of installation from which ODS is removed
Used ODS of any quantity recovered from end-of-life equipment	Location where ODS is recovered from end-of-life equipment

- Documentation of the point of origin of ODS shall include the following:
 - Facility name and physical address
 - For quantities greater than 227 kg, identification of the system by serial number, if available, or description, location, and function, if serial number is unavailable
 - Serial or ID number of containers used for storage and transport



Section 6.3: Documentation of Chain of Custody

- Custody and Ownership of ODS must be established
 - Records shall include contact information of persons buying/selling ODS
 - Record options include
 - purchase orders
 - purchase agreements
 - packing lists
 - bills of lading
 - lab test results
 - transfer container information
 - receiving inspections
 - freight bills
 - transactional payment information
 - manifests (*new*)
 - other information that supports previous ownership of ODS and transfer of ownership



Section 6.4.1: Analysis of ODS Quantity (Scales)

- Requirements are designed to be of equal rigor ODS analysis under the US and Article 5 ODS Project Protocols, but with reference to Mexican regulations
- The scale used must have its calibration verified by PROFECO or by a third party authorized by EMA to perform calibration verifications no more than 3 months prior to or after a project destruction event.
 - Verification must be performed according to NOM-010-SCFI-1994 using test weights certified to NOM-038-SCFI-2000.
 - A scale is considered calibrated if it is within the maintenance tolerance of the relevant NOM-010-SCFI-1994 accuracy class.
- The full weight of tanks must be measured no more than 48 hours prior to commencement of destruction and the empty weight must be measured no more than 48 hours after the conclusion of destruction, as must be noted on the Certificate of Destruction



Section 6.4.2: Analysis of Composition of ODS (Laboratories & Samples)

- Requirements are designed to be of equal rigor ODS analysis under the US and Article 5 ODS Project Protocols, but with reference to Mexican regulations, if possible.
- Samples of ODS must be analyzed at laboratories certified by and following the Air-Conditioning, Heating and Refrigeration Institute (AHRI) 700-2006 standard.
- As no Mexican labs are currently AHRI certified, samples will likely be sent to AHRI-certified labs in the US
 - Mexican labs/technicians (those taking the samples) may be affiliated with the AHRI-certified labs in the US. However, labs and technicians may not be affiliated with the project developer.
 - Domestic laboratory options were evaluated, but Reserve concluded that EMA does not have technical capability to certify to this or a comparable standard, at this time.
- If the AHRI-laboratory is located in the US, the transport and delivery of project samples must comply with Mexican and US import/export laws and maintain additional documentation of that process for verification purposes.
 - Title VI, Clean Air Act (US); Article 26, subarticle IV of LGPGIR (MX); Import / export exemption for *de minimis* quantities of ODS for laboratory and analytical use (US, MX)
- ODS samples will be taken by trained technicians who have completed SEMARNAT's course "Services Refrigeration and Air Conditioning Good Practices" and who is listed on the ODS Information Monitoring System (SISSAO).



Section 6.5: Destruction Facility Requirements

- Destruction of ODS must occur at a facility in Mexico that has a valid permit to destroy hazardous waste, which explicitly allows for the destruction of ODS, under Mexico's LGPGIR, as well as secure any other air or water permits required by local, state, or federal law to destroy ODS
 - Most notably, the facility must have a permit under NOM-098-SEMARNAT-2002 or NOM-040-SEMARNAT-2002 explicitly allowing for CFC destruction
- The facility must also have meet all of the guidelines provided in Appendix C and in the TEAP Report of the Task Force on Destruction Technologies
 - Facilities must document operation consistent with the TEAP requirements, including maintaining a “destruction and removal efficiency” (DRE) of at least 99.99.
- Facilities must provide third-party certified results indicating that the facility meets all protocol requirements. Following initial performance testing, facilities must be third-part certified every three years.
 - This third-party certification shall be performed by an independent laboratory certified by EMA

Section 7 & 8: Reporting & Verification



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- No significant changes made to these sections
- Minor updates throughout consistent with adaptation
- Maintains consistency with A5 and US ODS Protocols by phasing in the reduced site visit requirement (1x per year) for a single verification body visiting a single facility
 - 1x per year per facility for a given verification body (VB) is allowed only after that VB has visited a single facility 2x in a 12-month period
- Appendix E (list of relevant Mexican regulations) is also included to assist verification bodies with verification of regulatory compliance



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Questions??





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Questions & Next Steps

Contact Information:

<p>Teresa Lang Policy Manager & Protocol Lead tlang@climateactionreserve.org (213) 891-6932 Skype: teresa.langreserve</p>	<p>Heather Raven Policy Coordinator heather@climateactionreserve.org (213) 542-0282</p>
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Please submit comments no later than COB Tuesday, March 17, 2015, using the form available at the link below:

<http://www.climateactionreserve.org/how/protocols/mexico-ozone-depleting-substances-project-protocol/>