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RE: Comments on Proposed Changes for ODS destruction protocols

Dear Climate Action Reserve:

Following are our comments on the April 3, 2012 Version 2.0 of the U.S. and the Article 5 ODS Project Protocols.

2.3.1 Expanded list of eligible refrigerant ODS (Section 2.3.1)

CFC-113

We agree with the proposed inclusion of CFC-113. The original CAR protocol for U.S. projects excluded CFC-113 because of questions regarding additionality. The assumption during the CAR protocol development amongst the working group was that there are negligible quantities of CFC-113 refrigerant (R-113) still in use in the U.S., and that the bulk of remaining CFC-113 banks are stockpiled for use in solvent cleaning. The concern was that CFC-113 that is used as a solvent is being destroyed in the U.S. under business as usual. The CAR protocol for Article 5 countries did include CFC-113 as an eligible refrigerant as this chemical is still in use in chillers in developing countries.

It is our experience that in fact, CFC-113 is still in limited use and in circulation in the U.S., not as a solvent, but as refrigerant used in cooling systems. There are opportunities to collect the R-113, but as of now, the only incentive is to recycle it back into older equipment. The U.S. EPA has not yet released data on quantities of CFC-113 destroyed in the U.S. over the past several years. Even having those data however would not allow a breakdown of the sources of the CFC-113, i.e., solvent vs. refrigerant. Based on the fact that there is continuing demand for CFC-113 refrigerant, most if not all of the CFC-113 that is being destroyed would very likely be solvent.

Like CFC-11, CFC-113 is used almost exclusively as a refrigerant in centrifugal chillers (RTOC, 2006; Stratus, 2008). The EPA Vintaging Model uses the same annual leak rate for R-113 as for CFC-11. Thus, to calculate the baseline emissions from recovery and resale of R-113, we agree that the same 10-year cumulative emission rate (89%) that is used for CFC-11 can be used in the Protocol (Table 5-2).

CFC-13

We agree that CFC-13 (CFC13) should also be added to the Protocol as an eligible refrigerant. CFC-13 has been used in low temperature commercial and industrial applications, such as ultra-low temperature laboratory freezers. During development of the 1.0 Protocol, the working group had assumed that remaining use and inventories of R13 were negligible. Based on our recent experience, there is continuing demand for CFC-13 to recharge high value older

equipment. Because of their age and high-pressure requirements, these older units commonly leak, and in many cases, the full refrigerant charge is released.

EPA's SNAP (Significant New Alternatives Policy) program lists the following refrigerants (with their global warming potentials) as acceptable alternatives to CFC-13.

	GWP
R-403B	3,700
R-508	13,396
HFC-23	14,800
R-744 (CO2)	1

There are a number of low-temperature technologies in widespread use today that are using alternatives to the HFC-based refrigerants listed above, and which have not been submitted for listing under the SNAP program. These third-generation replacements, listed below, should be factored into the calculation of substitute emission factors in Table 5-5:

	GWP
R-404A	3,300
R-507	3,300
R-407A	2,100
R-407C	1,600
NH3	0
Ethane	0

The draft 2.0 Protocol proposes an annual leak rate of 9%. This is at the low end of the range estimated by the 1.0 Protocol workgroup who in 2009 compiled data and input from industry and government experts, including the EPA Vintaging Model. That survey reported an average annual leak rate for CFC-13 between 7 and 33%.

5.3 Deduction for Vapor Composition Risk

The language that currently describes the composition of a tank that would be subject to a 5% deduction is unclear for a couple of reasons.

First, it was clarified at the NACW conference ODS meeting that there is a single scenario (defined as #2 below) that defines the composition that would be subject to the 5% discounting. However, the language as written would suggest 2 scenarios:

- Scenario 1 - eligible low pressure ODS + ineligible high pressure (concentration thresholds undefined)

- Scenario 2 – eligible low pressure ODS in at least 1% concentration + eligible high pressure in any concentration + ineligible with higher pressure and concentration than the eligible high pressure ODS

Please reword the language such that it is clear that Scenario 2 is the only project where the discount would be applied.

Second, it is unclear how the project developer is to choose the eligible high-pressure refrigerant concentration if several high pressure eligible refrigerants exist within the container in varying concentrations. Please clarify which concentration of eligible high pressure refrigerant the developer is to refer to when determining the "eligible high pressure ODS" that is to be compared to the higher pressure ineligible chemical.

6.2 Point of Origin Documentation Requirements

EOS is in agreement with the changed definition of the stockpile to refer to February 3rd 2010.

2.3.1 Refrigerant Sources

While we agree that ODS refrigerant acquired from the Defense Logistics Agency (DLA) can be eligible under the Protocol, we disagree with the restriction on other ODS refrigerant sourced from the Federal government. The rationale provided is that DLA aggregates all "excess refrigerant" from federal installations. However, many federal agencies control the refrigerants in the equipment within their facilities and operations, from acquisition to disposal. These agencies do not rely on DLA for disposition of refrigerant when equipment is decommissioned or retrofitted.

In fact, the excerpt from the 2007 Executive Order 13423 cited in the draft revision makes this same point:

"Each agency shall amend its personal property management policies and procedures to preclude the disposal of ODSs removed or reclaimed from its facilities or equipment, including disposal as part of a contract, trade, or donation, without prior coordination with the Department of Defense"

As we argued in 2009 during development of the 1.0 Protocol, we believe ODS refrigerant acquired from the Federal government should be eligible for destruction credits, provided that the following conditions can be verified:

- The refrigerant was not imported into the U.S.
- There was no requirement for its destruction
- The refrigerant was recovered, handled, and transferred in accordance with Section 608 of the Clean Air Act and all other relevant regulations.

6.6.1 Analysis of Mixed ODS

1. As currently proposed for V.2 - If the mixing and sampling are conducted at the destruction facility, then this sample may be used to satisfy the requirements of Section 6.6. If the mixing and sampling do not occur at the destruction facility, then the most conservative composition analysis from the mixing facility sample shall be used for the quantification of emission reductions.

   Please confirm that the sample used to satisfy the requirements of section 6.6 is in fact the most conservative of the **two samples** that must be used to determine CRTs when mixing

and sampling are conducted at the destruction facility. As worded, it would suggest a single sample is all that is required to determine CRTs when mixing and sampling are conducted at the destruction facility.

2. As currently proposed for V.2 - The sampling ports must be located opposite each other (i.e. both ports cannot be not at one the same end of the container or the other).

   Liquid and vapor ports are typically located side-by-side at the bottom of the tank where they are easy to access. A very common tank design is to locate the liquid intake at the bottom center of the tank with a straight pipe direct to the liquid port. The vapor port is then located directly beside the liquid port and a vapor pipe is run either externally to the top of the tank or internally to the top of the tank with an inverted dip tube. In either case, the liquid and vapor port exist on opposite sides of the tank, which would facilitate adequate mixing.

   To clarify, we suggest the following language (in red) to describe an eligible mixing tank:

   - The container has no solid interior obstructions
   - The container was fully evacuated prior to filling
   - The container must have liquid and vapor ports
   - The liquid and vapor ports must be located in the middle third of the container
   - The container and associated equipment can circulate the mixture via a closed loop system from the liquid to the vapor port

3. As currently worded in V.1.0, any pump would be sufficient for mixing. We suggest that a minimum of 15 gallons/minute threshold be adopted for the 8 hour mixing event, which would effectively achieve the same results as required if using the 30 gal/minute pump and a standard 33,000 lb capacity mixing tank.

8.6 Verification Site Visits

During the NACW conference, it was clarified that a site visit to an additional facility of the verifier's choice be required per reporting period and not per project as stated. We feel an additional site visit per project would be appropriate, but that that the language in the current version of the protocol is sufficient in that it allows verifiers to initiate site visits if they deem it necessary in the context of the project risk assessment.