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ClimeCo
Environmental Market Solutions

November 10, 2015

CA Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Revising the Treatment of ODS Sourced from Foam

CA Air Resources Board:

ClimeCo Corporation is grateful for your efforts to develop and administer an effective offsets program as part of the implementation of the Cap and Trade program. ClimeCo is submitting this letter in order to suggest a simple change to the Compliance Offset Protocol Ozone Depleting Substance Destruction that we believe would provide the protocol with greater scope, accuracy, and environmental effectiveness.

Our Recommendation: Revise the protocol's treatment of ODS gases recovered from foam in appliances and buildings, and treat the recovered ODS gases as equivalent to refrigerant gases.

Currently foam sourced-ODS is credited at a substantially lower rate than refrigerant-sourced ODS. This treatment creates a perverse incentive to sell the foam-sourced ODS into the refrigeration market. The protocol assumes a baseline in which foams were landfilled without recovery of the blowing agents. In 2005 this assumption may have been accurate, but new technologies have now enabled US firms to recover the blowing agent. This is now the industry best practice, and is encouraged by the US EPA. The ODS blowing agents recovered from foam are indistinguishable from ODS refrigerants, and therefore should not be treated differently and disadvantaged in crediting rate.

Background: ODS Destruction projects are governed by a protocol. The protocol lays out a case for what was happening in the absence of a carbon offset credit market (the "baseline"), and what activities should be incentivized by the protocol. In this case, the protocol is ARB's Compliance ODS Destruction protocol. ARB's protocol was extensively derived/copied from the Climate Action Reserve protocol for ODS Destruction which was formally adopted by the Climate Action Reserve Board on February 3rd, 2010. So it is important to note that the basis for ARB's protocol is more than 5 years old, and the original protocol based its assumptions

regarding foam "baseline" activities on a 2005 TEAP Report of the Task Force on Foam End-of-Life Issues- so the technical baseline assumptions are more than 10 years old.

These technical assumptions reflected data showing that only 1.5% of appliances were shredded with blowing agent recovery or destruction. Given that data, it was completely appropriate for CAR to assume the baseline situation in which foam was landfilled. However, a lot changes in 10 years, and it has now become possible and desirable for firms to recover blowing agents.

Once recovered and reclaimed, ODS blowing agents are indistinguishable from other ODS refrigerants. The recovered blowing agents can be, and are, sold into the refrigerant marketplace. While they are eligible to be destroyed for carbon offset credits, they are not being destroyed because of the substantial discount that is applied. Under the current protocol assumption, the foams would have been landfilled. This landfilling assumption results in the discounting of the environmental value of destroying foam-sourced ODS versus other ODS. In fact, it creates such a substantial discount as to make the destruction of foam-sourced R-11 unviable, and to our knowledge no CAR or ARB projects to date have involved the destruction of foam-sourced ODS.

Below is an excerpt from the CAR ODS protocol which explains the derivation of the baseline assumptions. As you can see, it relied completely on the 2005 TEAP data, and assumed that recovery of blowing agent from foams was not practical, feasible, or common:

B.2 End-of-Life Treatment of Foam

The Reserve also reviewed separately the common practice in the end-of-life treatment of foams containing ODS blowing agents. Whereas U.S. EPA regulations prohibit the intentional release of ODS refrigerants to the atmosphere, there is no preclusion against disposal practices that result in release of ODS blowing agents.

According to the 2005 TEAP *Report of the Task Force on Foam End-of-Life Issues*, there is little or no experience with the recovery of foams from buildings or of the ODS contained within the foams. This is mainly because few buildings containing foam with ODS blowing agent have been demolished, deconstructed, or renovated yet. The average overall lifecycle of buildings in North America and other developed countries ranges from 30 to 50 years. Meanwhile, the common use of foam in insulation only really began in the mid 1970s after the energy crisis led to increased use of insulation. With an average turnover rate of building stock in North America of less than 1%/year, buildings with foam insulation are only just beginning to enter the waste stream. As a result, the management of ODS from building foam has not yet become a focus of regulators. Other factors that have prevented the recovery and destruction of building foam include challenges involved with separating foam from the building structure, the common practice of landfilling construction waste without any pretreatment (only 20-30% of building materials are recycled or sold in the United States), the very small proportion of ODS foam compared to overall construction waste, and a lack of regulations in the United States governing recovery of building foam insulation and the ODS contained therein.

The destruction of ODS from foam in appliances and equipment is also very limited in the U.S. The 2005 TEAP *Report of the Task Force on Foam End-of-Life Issues* describes the results of

an AHAM survey which provides the following breakdown of common appliance disposal practices in the United States:

- 90% appliances shredded without blowing agent recovery and landfilled
- 7.5% appliances crushed whole and landfilled
- 1.5% appliances shredded with blowing agent recovery or destruction
- 1% appliances abandoned

As noted in the survey results, only 1.5% of appliances are being shredded with the containing foam blowing agent either being recovered for reuse in the refrigeration market or destroyed. This foam shredding and recovery is being driven mainly by state, local and utility energy efficiency initiatives with some program administrators adding a second requirement that the blowing agent must be recovered as well. Most of these programs are voluntary and meet their objectives by incentivizing early appliance retirement and recycling through rebates or discounts on new units. As noted in the TEAP report, the process for recovering ODS from appliance foam is costly and is currently not self-sustaining unless outside sponsorship is provided. Although U.S. EPA and others track information on the amount of foam that is being shredded and the blowing agent that is being recovered, there is no data available on the share of blowing agent that is being reused versus destroyed. According to industry analysts, most of the recovered blowing agent is being resold into the refrigeration market because of the economic incentive to do so. Destruction will only occur in cases where the utility or other entity participating in the appliance program specifically requests that this must take place. As a result, the destruction of ODS blowing agent is likely significantly less than the 1.5% share of appliances where the disposal includes management of the blowing agent.

Suggested Changes: Specifically, we recommend the following changes to the CA ARB Compliance Offset Protocol Ozone Depleting Substance Destruction:

2.2. Eligible ODS

(a)

ODS destroyed under this protocol must be from one or more of the eligible sources listed below:

(1) Refrigerants from industrial, commercial or residential equipment, systems, and appliances or stockpiles; and

(2) ODS blowing agents extracted and concentrated from appliance foams and building insulation~~; or~~

~~(3) Intact foam sourced from building insulation.~~

~~(b) ODS refrigerants and ODS blowing agents extracted and concentrated from appliance foams may not be combined within the same container.~~

Removal of Figures 4.2 and 4.3

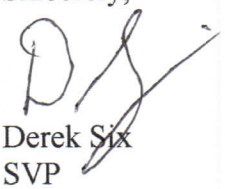
Removal of Equations 5.4 and 5.7

Removal of Appendices A and C

Other conforming changes to remove foam-specific references, equations, and diagrams

We appreciate the opportunity to comment on the protocol, and look forward to discussing this proposal with you. We also want to extend a warm welcome to any ARB officers or staff who would be interested in touring one of the facilities where the recovery of ODS from foam occurs. Our partners at ARCA Advanced Processing would be glad to offer a tour of their state-of-the-art facility anytime.

Sincerely,



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