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Ms. Pamela Gupta, Manager
Greenhouse Gas Reduction Strategy Section
Research Division
California Air Resources Board
1001 I Street
Sacramento, CA 96814

Re: Comments on Workshop to discuss a proposal for reducing high-global warming potential (GWP) refrigerant emissions from stationary refrigeration and air-conditioning equipment and adopt into state regulations, with appropriate modifications, the U.S. Environmental Protection Agency's (U.S. EPA) Significant New Alternatives Policy (SNAP) Rule provisions as they relate to prohibitions on certain HFCs

Dear Ms. Gupta,

I am the Vice President of Legal & Regulatory for Hudson Technologies Company ("Hudson"), and am respectfully submitting the following comments the California Air Resources Board's ("CARB") workshop to discuss a proposal for reducing high-global warming potential (GWP) refrigerant emissions from stationary refrigeration and air-conditioning equipment and adopt into state regulations, with appropriate modifications, the U.S. Environmental Protection Agency's (U.S. EPA) Significant New Alternatives Policy (SNAP) Rule provisions as they relate to prohibitions on certain HFCs. Hudson is the nation's largest refrigerant reclamation company. While our main reclamation facility is in Champaign, Illinois, we also have facilities in Escondido, California and Ontario, California.

For more than 25 years, we have purchased used refrigerants and cleaned the gas so it can be reused to service the aftermarket. This process limits the amount of virgin gas that must be produced, creates economic incentives to ensure refrigerant is handled properly and leaks are minimized, and dramatically reduces emissions to the atmosphere.

As CARB considers adopting EPA's SNAP ruling changing the listing status of certain substances, we encourage CARB to apply a prohibition for use in retrofits to all previously SNAP approved ozone depleting substance (ODS) alternatives and limit their "acceptable" listing to use in newly manufactured equipment. Continued production of hydrofluorocarbon ("HFC") refrigerants, the primary alternatives to ODS, for new equipment in new installations allows for an orderly transition to lower GWP refrigerants over time. However, the aftermarket should be viewed differently. The aftermarket should be served through the use of recovery and reclamation, with only supplemental supply coming from virgin production, particularly when the alternative refrigerants have a higher global warming potential than the refrigerants they are replacing.

We specifically encourage CARB to delist substances approved under SNAP for use as alternatives in less efficient “vintage” equipment. Many of these SNAP approved alternatives have a higher global warming potential than the refrigerant they have been approved to replace. In addition, using an HFC-based alternative in older equipment is less efficient and often requires even greater energy to achieve the same level of performance compared to the refrigerant designed for the system and may compromise the integrity of the system.

The unnecessary production of HFC-based alternatives for use in these older systems compounds the adverse environmental impact from the venting of refrigerants. The production and availability of alternatives to support the aftermarket reduces the need to recover and reclaim the refrigerant in these systems, and leads to poor refrigerant management practices and unnecessary venting of both the HFC alternative and the refrigerant it replaces. Moreover, poor service practices in the retrofit process can result in cross-contamination of the refrigerant, making it less likely the refrigerant in the system can or will be properly reclaimed, and therefore more likely the refrigerant will be vented. CARB’s goal should be to minimize the need for production of additional virgin gas and to ensure the gas in the installed base is properly managed, reclaimed and reused.

CARB’s number one goal should be to reduce the amount of refrigerant that is vented to the atmosphere. Towards, that end, we applaud CARB’s proposed strategy to target emissions of fluorinated gases (F-gases), by, among other things, prohibiting on the sale or distribution of refrigerants with a GWP of 2500 or greater by 2020 and with a GWP of 1500 or greater by 2024, and prohibitions on the use of high-GWP equipment in new commercial, industrial and residential equipment. However, we are concerned with CARB’s statements made during the October 27, 2017 stakeholder meeting that CARB is non-committal as to whether it will exempt reclaimed refrigerant from that sales ban, which is contrary to CARB’s prior position on this issue.

We cannot emphasize enough the importance of exempting reclaimed refrigerant as an essential part of CARB’s strategy to reduce HFC emissions. In fact, we believe that CARB’s strategy should start with a heavy emphasis on the value of refrigerant reclamation as a means to reduce emissions and we strongly recommend that CARB not just exempt it from future sales bans, but that it look to take affirmative steps to promote reclamation. Every pound of refrigerant that is added to an existing system is replacing a pound that was lost to the atmosphere. A strategy that promotes the recovery, reclamation and re-use of refrigerants directly achieves CARB’s goal of reducing HFC emissions by eliminating, or at least reducing, the need to service existing systems with newly manufactured product. By promoting reclamation, we can break the cycle of production for emission, and service the aftermarket without producing additional virgin refrigerant.

We specifically recommend the California Air Resources Board consider:

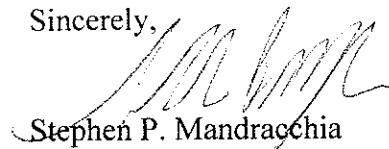
- (1) Leveraging California's procurement policy to incentivize the use of reclaimed refrigerants to services existing state-owned or managed systems.** The environmental benefits of using reclaimed refrigerant to service state-owned or managed systems would be significant. The emissions avoided by every 10,000 pounds of reclaimed HFCs purchased by the State of California would be equivalent to taking nearly 1,000 cars off the road or powering more than 600 homes for a year. The Environmental Protection Agency already maintains a list of EPA certified refrigerant reclamation companies, reclaimed refrigerant is certified to meet the same purity specifications as virgin gas, and reclaimed refrigerant is identically priced as virgin gas. Consequently, there would be no additional cost associated with adopting such policy. In addition to the direct benefits, a state procurement requirement would give the private sector a greater incentive to responsibly manage refrigerants. As companies recognize that their used refrigerant has an economic value, they will be more likely to minimize leaks and treat the refrigerant as an asset instead of a liability.
- (2) Adopting a recycled-content requirement for bulk refrigerant sold in California.** In addition to leveraging the state procurement process to support use of reclaimed refrigerant, we encourage CARB to consider requiring a certain percentage (10-20 percent) of all bulk refrigerant sold in California to be reclaimed gas. The threshold could also be increased over time as system owners transition to more environmentally friendly refrigerants. Adopting this requirement will help expedite the eventual phase-out of HFCs. In addition, creating a greater economic value for used HFCs will stimulate better refrigerant management practices. System owners will also be able to leverage their existing refrigerant asset to reduce the cost of transitioning to a more environmentally friendly system.
- (3) Adopt the American Carbon Registry's protocol for reclaimed refrigerants.** The American Carbon Registry recently adopted "An Emission Reduction Measurement and Monitoring Methodology for Use of Reclaimed Refrigerants and Advanced Refrigeration Systems" to award carbon credits for the use of reclaimed refrigerants. We recommend CARB formally adopt the protocol and promote its use to help incentivize the reuse and reclamation of the refrigerants already in the installed base.
- (4) Recognize reclaimed refrigerants as low or zero GWP alternatives.** We applaud CARB for recognizing that reclaimed refrigerants should be exempt from any sales ban of high GWP refrigerants, but we encourage CARB to also explicitly recognize reclaimed refrigerants as low or zero GWP alternatives. By reusing the refrigerant already in the installed base, CARB can reduce the need for additional virgin refrigerant to service the aftermarket. In addition, promoting reclamation will incentivize better refrigerant management practices (*e.g.*, reducing leak rates) as end users see the refrigerant as an asset instead of a liability.

- (5) **Ultimately, phasing out virgin HFC production will require a more robust reclamation industry.** One of the primary challenges with reclamation is reducing the burden on contractors. While intentional venting is illegal, it is clearly happening, particularly in the residential sector. CARB should look for ways to make it easier, and help incentivize proper refrigerant recovery practices that promote the reclamation and re-use of refrigerant. For example, CARB could establish a grant program for reclaimers to develop reclamation centers where the contractors could drop off the dirty gas and be paid on the spot.
- (6) **Statewide promotional effort to educate consumers about refrigerants and the benefits of reclaimed.** The State should consider setting aside funds to promote the recovery, recycling and reclamation of refrigerants. A public campaign could also be launched to educate consumers and end users about the climate benefits of using reclaimed refrigerants as well as the legal requirement to recover refrigerant during system repairs.

The reclamation industry should be viewed as a significant resource to CARB as it strives to achieve its greenhouse gas reduction goals. There are currently more than 60 EPA certified reclamation companies throughout the country that are providing vital reclamation services that reduce the need to produce refrigerant and reduce the total emissions of refrigerant gases on essentially a pound for pound basis. Most of these reclaimers are small businesses that, to be successful, need for the mindset of the country, and of each state government to change from the current culture of production to venting, to a culture of recovery, reclaim and reuse in the service of the aftermarket.

We are grateful for the opportunity to provide our input to these matters. We would welcome the opportunity to discuss these ideas in greater detail with you or the appropriate staff on your team.

Sincerely,



Stephen P. Mandracchia
Vice President Legal & Regulatory

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