March 24, 2016

The Honorable Mary D. Nichols, Chair

California Air Resources Board (ARB)

1001 I St

PO Box 2815

Sacramento, California 95812

Via web submission

**RE: Comments by Honeywell International Inc. on the March 14, 2016 Aliso Canyon Methane Leak Climate Impacts Mitigation Program - Draft**

Dear Chair Nichols,

Honeywell International Inc. (“Honeywell”) submits these comments in response to the

March 14, 2016draft **“**Aliso Canyon Methane Leak Climate Impacts Mitigation Program.” We appreciate the opportunity to provide additional input into the process to create a plan to offset the climate impacts of Aliso Canyon methane leak.

1. **BACKGROUND**

Honeywell is a global leader in providing energy efficient technologies and innovations that can help the world solve its energy and environmental challenges. We are a recognized leading innovator in the development of environmentally preferable fluorocarbons for use as refrigerants, foam blowing agents, solvents, propellants, and other uses. Since the 1990s, we have helped businesses replace ozone-depleting substances in these applications with alternatives that are non-ozone depleting and in certain cases more energy efficient.

Honeywell is a strong supporter of ARB’s process to develop a strategy to address short-lived climate pollutants, which include hydrofluorocarbons (HFCs). On October 30, 2015 we provided extensive comments on ARB’s draft “Short-Lived Climate Pollutant Reduction Strategy”.

We also strongly support President Obama’s Climate Action Plan which called on the U.S. EPA’s reduce the use of substances with a high global warming potential (GWP) and use its Significant New Alternatives Policy (SNAP) program to eliminate HFC use in certain sectors and transition the industry to low-GWP alternatives. However, while these efforts are effective, ARB’s incentive program can drive the HFC reduction more rapidly.

In addition, other recent regulatory programs, such as Canada’s proposed HFC regulations, and the European Union’s F-gas Regulation, have helped lead companies to adopt new hydrofluoroolefins (HFO) and HFO blend compounds that yield substantial environmental benefits. ARB’s leadership on incentive programs for low-GWP refrigerant systems can lead to more rapid adoption of these technologies and accelerate the environmental benefits, contributing significantly to ARB’s efforts to mitigate the 100,000 metric ton methane leak at Alison Canyon.

1. **COMMENTS**

ARB should consider a refrigerant retrofit program as a cost-effective and environmentally significant way to meet the goals of the Aliso Canyon climate mitigation plan. There are many large commercial refrigeration and air conditioning systems in California that contain large quantities of high-GWP HFC refrigerants, often several thousand pounds in a typical large supermarket. The most common refrigerants for this application, R-404A and R-507, have global warming potentials that are nearly 4000 times higher that CO2. Many of these systems have high leak rates that allow the high-GWP refrigerants to escape to the environment. We believe that providing support to California businesses to install or upgrade to a low-GWP refrigerant system can provide significant reductions of F-gas emissions in a cost-effective manner. These new or retrofitted systems are generally more efficient than older systems that use high-GWP refrigerants, which will also reduce energy use and electricity bills. Low-GWP and reduced-GWP refrigerant solutions are commercially available today and could be adopted much more widely with additional incentive programs.

1. *Centralized Refrigeration Systems – Commercial and Industrial Refrigeration Central Systems*

For commercial and industrial refrigeration applications, there are multiple lower-GWP, near drop-in replacements for existing widely used higher-GWP HFC blends such as R-404A and R-507.  Given that alternatives are available today, additional incentives could accelerate the rate of retrofit or replacement of centralized refrigeration systems in California, resulting in significant environmental benefits. In addition to eliminating emissions of high-GWP substances, lower-GWP refrigerant systems offer up to 10% higher energy efficiency over currently-used high GWP refrigerants, resulting in reduced electricity usage and therefore further emissions reductions and cost savings. The combined climate impact of a typical large supermarket can be approximately 1,000 MT of CO2 equivalent per year which could result in total savings of approximately 1,000,000 MT of CO2 equivalent if widespread adoption of lower GWP refrigerants occurred.

While it is true that costly equipment changes are not necessary in order to retrofit equipment to the available lower-GWP alternatives, an average supermarket may spend up to $30,000 in contractor service fees and other costs to implement a retrofit. Providing an incentive to lessen the cost of the retrofit would help supermarket store owners make the transition.

1. *Commercial Air Conditioning – Chillers*

In the commercial air conditioning sector, there are multiple low-GWP refrigerants with GWPs of 1 or less being adopted for chillers. These chillers are commercially available today from many manufacturers. Replacing older models of chillers that currently use high-GWP and ozone-depleting chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants with low-GWP alternatives yields a two-fold benefit for the environment. Such replacements directly reduce emissions of high-GWP refrigerants and also decrease greenhouse gas emissions because the latest chillers can reduce energy consumption by about 50%, compared to the efficiency of many of the chillers in use today, which were installed decades ago. For example replacing an older 1,000 Ton CFC chiller with a new high efficiency chiller can save up to approximately 900MT of CO2 equivalent from energy savings and reduced impact of refrigerant emissions. There are also additional reduced-GWP alternatives (GWP of less than 650) that are near drop-in replacements compared to currently used substances such as HFC-134a (GWP of 1430), these products can be used to retrofit existing chillers to reduce the impact of refrigerant leaks from these chillers.

1. *Incentives for Low-GWP Foam Insulation*

In addition to supporting the replacement of high-GWP refrigerants, we also recommend that the mitigation plan include incentives for low-GWP alternatives to HFCs in foam (extruded polystyrene (XPS) and polyurethane (PU)) insulation applications, such as in appliances and building construction. Non-HFC solutions with high energy efficiency have been available in the U.S. for three years and are being adopted globally. These foams enable California to reach higher energy efficiency targets in construction and refrigeration. Providing incentives would accelerate the adoption of low-GWP alternatives in California, supporting the state’s energy efficiency goals and making significant contributions to the methane mitigation effort.

1. **CONCLUSION**

Thank you for this opportunity to share our comments on ARB’s development of the Aliso Canyon Methane Leak Climate Impacts Mitigation Program. Low-GWP alternatives for refrigerant and foam applications provide a substantial opportunity for cost-effective emissions reductions. We hope that ARB embraces this opportunity by including incentives to quicken adoption of these alternatives in the Program. If you have any further questions, please do not hesitate to contact Amy Chiang at amy.chiang@honeywell.com or Dave Stirpe at david.stirpe@honeywell.com.