March 2, 2012

Mr. Timothy Marsh
Connecticut Department of Energy and
Environment
79 Elm Street
Hartford, Connecticut 06106

Re: ICPA Comments on de la Torre Klausmeier Consulting Draft Report dated December 8, 2011

Dear Mr. Marsh,

We appreciate the opportunity to provide comments to the Connecticut Department of Energy and Environmental Protection (CT DEEP) regarding possible Stage I enhancements presented in the draft report dated December 8, 2011 by de la Torre Kausmeier Consulting (dKC) entitled *Analysis of Future Options for Connecticut's Gasoline Dispensing Facility Vapor Control Program*. The Independent Connecticut Petroleum Association (ICPA) represents independent gasoline service station owners in the State of Connecticut and any future requirements will directly impact our members. The current decision before the CT DEEP with respect to Stage I enhancements has significant financial implications for our membership.

SUMMARY

Based upon our review of the dKC report and the stakeholder meeting held on February 2, 2012, it is our understanding that CT DEEP is considering the implementation of both continuous monitoring for vapor leaks and pressure management for underground storage tank (UST) system emission control at gasoline dispensing facilities (GDFs) in Connecticut. Available information indicates, however, that the data reviewed in the dKC report is likely not representative of conditions at GDFs in Connecticut and that the calculated uncontrolled emissions may be grossly overestimated. As a result, the cost effectiveness calculations are underestimated and do not provide an accurate assessment of the financial burden on service station owners in Connecticut. Furthermore, our review of testing data from a subset of member GDFs indicates that removal of Stage II itself eliminates half of the pressure decay testing failures, and that significantly less costly measures can be implemented to address any remaining issues to prevent backsliding and maintain air quality.

RECOMMENDATION

We recommend based upon the available data that the more robust California certified pressure/vacuum (P/V) vent valves, at a cost of $81/ton of hydrocarbons recovered, be required for GDFs to control vapor emissions from breathing losses that may occur from UST systems. With these P/V vent valves in place, and Stage II vapor recovery equipment decommissioned, the use of expensive pressure management systems is not necessary. In addition, monthly inspections that will be required in Connecticut as part of the pending Environmental Protection Agency (EPA) UST regulations, along with periodic testing, will identify any fugitive vapor leaks, thereby eliminating the need for continuous monitoring systems. We base many of our conclusions on the work of American Petroleum Institute (API) Stage I and II vapor recovery expert Mr. Todd Tamura of Tamura Environmental, Inc. (TEI) and request that CT DEEP review the February 2, 2012 letter (a copy of the letter is attached) to understand the discrepancies and issues identified with the data used in the dKC report, and also discuss these issues directly with Mr. Temura as part of your ongoing evaluation of future requirements in Connecticut.

ANALYSIS

Our comments and recommendations are further discussed below:

1) The uncontrolled emission factor assumption of 1.0 lb/1000 gallon in the dKC report is too high and must be re-evaluated. We base this on information already provided to CT DEEP in a letter from the API dated February 2, 2012. The letter documents various studies and provides updated information from the California Air Pollution Control Officers Association (CAPCOA) demonstrating that 0.76 lb/1000 gal is a more accurate emission factor assumption. Most importantly, this emission factor is believed to more accurately represent current gasoline volatilities which have changed significantly over the years to reduce vapor loss during summer months. The API letter points out further that the uncontrolled emission factor used in the dKC report does not take into account the benefit of GDFs with higher throughputs, which offsets pressure increases and reduces vapor growth during a 24-hour period, so it can be assumed that an even lower value can be assigned to these locations. An accurate representation of the uncontrolled emission factor is absolutely critical in determining the cost effectiveness of continuous monitoring and pressure management and we request that CT DEEP revaluate the value utilized in the dKC report.

2) Given that the uncontrolled emission factor assumption in the dKC report is over-estimated by 24% or more (0.76 lb/1000 gallons compared to 1.0 lb/1000 gallons), it then follows that the cost effectiveness calculations for continuous monitoring and pressure management systems are over-estimated. This issue is raised in the API letter. To better understand the costs our member GDFs would incur if pressure management requirements were implemented in Connecticut, a cost estimate was obtained from a reliable industry parts vendor for installation of a carbon canister type system. Including parts, installation and labor, the total cost is $18,400, which is 50% higher than the $12,250 estimate documented in the dKC report. As with the calculations in the dKC report, a 10% maintenance factor is

assumed for the annualized cost of the equipment, but it should be stated that we believe this estimate to be low given our experience with UST system operation.

When the lower uncontrolled emission factor of 0.76 lb/1000 gallon and the higher pressure management system costs are both taken into account, the cost effectiveness of pressure management is reduced by 133%. To illustrate this, a comparison of cost effectiveness calculations presented in the dKC report and our adjusted values (using the same calculation methodology) are presented below in **Table 1**:

Enhanced Stage I : GDF Tank Pressure Control System for GDFs > 1,100,000 gal/yr.	**Uncontrolled Emission Factor**	**Equipment Cost / Total Cost for 569 GDFs (Annualized)**	**Cumulative Reductions from Pressure Management**	**Cost effectiveness Pressure Management ($ / ton)**
dKC report	1.0 lb/1000 gallons	$12,250 / $1.8 million (excludes O&M costs)	361 tons	$3,800 (includes projected fuel savings)
ICPA example with lower emission factor and higher PM cost	0.76 lb/1000 gallons	$18,400 / $2.9 million (excludes O&M cost)	274 tons (adjusted for lower emission factor)	$8,848 (includes projected fuel savings)

The resulting cost effectiveness estimate which takes into account the lower uncontrolled emission factor and higher equipment cost results in a 133% increase in the cost per ton of hydrocarbon controlled compared to that documented in the dKC report. It is important to note that the cost effectiveness estimate of $8,848 is nearly at the $10,000 / ton value used by the EPA to determine whether a technology is cost effective for a large stationary source (e.g., an electric power plant). Independently owned GDFs in Connecticut should not be held to the same standard as large industrial air emission sources, and it's important to point out that the proposed Stage I enhancements would be not be considered cost effective by EPA for even the larger industrial facilities.

3) During the stakeholder meeting held on February 2, 2012, a portion of the discussion focused on the occurrence of vapor leaks from UST systems and frequency of testing failures in the past. The CT DEEP is concerned that these vapor leaks contribute to volatile organic compound (VOC) emissions and the degradation of air quality, and that many of these leaks go unnoticed for extended periods of time. We share the CT DEEP's concern, as testing results from GDFs document that leaks occur soon after UST systems are tested. It is important to note, however, that with the incompatibility of Stage II and onboard refueling

vapor recovery (ORVR) equipment, UST systems as they exist today are over pressurized and therefore there is a greater propensity for leaks to occur. Therefore, the removal of Stage II equipment will eliminate the cause of these leaks.

To further evaluate this hypothesis, ICPA performed a review of UST system pressure decay testing results from a sub-set of member GDFs in Connecticut. Testing results from the past three (3) years were reviewed from a total of 234 GDFs, with results generally categorized by the type of failure and source of the identified leak. The results of the evaluation are summarized in the below **Table 2**:

Pressure Decay Testing Summary			
Total Sites Tested	**234**	**Failure %**	**Comments**
Total Number of Failures	83*	35%	35% of the 234 sites tested resulted in failure of Stage I or Stage II components
Failures due to Stage II Equipment (vac motors, Stage II piping, hanging hardware)	48	20%	20% of the 234 sites tested resulted in failure of Stage II components. These sources of vapor leaks are eliminated with Stage II decommissioning.
Failures due to Stage I Equipment (risers, caps, adapters, spill buckets, drain valves, manway gaskets, vent stacks)	44	18%	18% of the 234 sites tested resulted in failure of Stage I components. Elimination of Stage II, Repairs, monthly inspections, and periodic testing will mitigate vapor leaks from these sources.
*Note: Some locations include failures for both Stage I and Stage II equipment.			

As noted above, a total of 83 pressure decay failures were identified from the 234 GDFs surveyed. Of these, 48 failures were related to the operation of the Stage II system. These types of vapor leaks will be eliminated once Stage II is removed, which is the primary cause and the largest source of vapor emissions. The remaining 44 failures were related to Stage I components, but these are typically smaller emission sources (i.e., fugitive emissions) that can be prevented through the elimination of Stage II, simple repairs and ongoing inspections performed by Class B operators under the pending EPA UST regulations that become effective August 2012. Moreover, fugitive emissions from Stage I components are mostly controlled by P/V vent valves since the UST system is under negative pressure the majority of the time due to product dispensing. A periodic testing program can also be put into place to ensure the systems are tight.

4) The dKC report presents data that calls into question the effectiveness of P/V vent valves to control emissions from UST systems. In contrast, information provided to CT DEEP by API

documents that P/V vent valves can be highly effective at controlling emissions from UST systems. The API letter points out technical deficiencies in the data used in the dKC report, including calling into question the representativeness of the data. We request that CT DEEP determine whether the vendor data used in the study can be relied upon. We also request that CT DEEP review the December 9, 2005 API study (Results of pressure monitoring at gasoline dispensing facility) referenced in the API letter which we understand was provided by API.

To evaluate the cost effectiveness of P/V vent valves, we utilized the same calculation methodology as the dKC report and evaluated two scenarios:

1) P/V vent valves to be used by all 2,033 GDFs, and;

2) P/V vent valves to be used at only the 569 highest through-put locations (>1,100,000 gallons).

The California certified P/V vent valve (+3 inches of water column (" WC) / -8" WC), which we understand is significantly less prone to failure than some current industry standards, costs approximately $150, including a minimal installation cost. Based upon the review of data provided in the API letter, the P/V vent valve is capable of controlling nearly 100% of emissions. Therefore we assumed control of all projected uncontrolled emissions for all GDFs (435 tons, corrected to 330 tons for 0.76 lb/1000 gallon emission factor). The information, and resulting cost effectiveness, is summarized in **Table 3** below:

P/V Vent Valve for GDFs	**Uncontrolled Emission Factor**	**Equipment Cost / Total Cost (Annualized)**	**Cumulative Reductions from P/V Vent Valve**	**Cost effectiveness P/V Vent Valve ($ / ton)**
All 2,033 GDFs	0.76 lb/1000 gallons	$150 / $80,110 (annualized)	274 tons (adjusted for lower emission factor)	$292
569 GDFs (>1,100,000 gallons throughput)	0.76 lb/1000 gallons	$150 / $22,421 (annualized)	274 tons (adjusted for lower emission factor)	$81

The resulting cost effectiveness calculation indicates that use of the more robust California P/V vent valves is significantly more cost effective than use of pressure management and continuous monitoring even when it is utilized at all 2,033 GDFs in Connecticut.

5) As mentioned previously, the pending EPA UST regulations will require monthly inspections of UST systems by Class B operators who have been trained to identify problems that could result in uncontrolled VOC emissions. The membership of ICPA believes that these inspections represent a significant upgrade from current inspection requirements and that the CT DEEP should take these inspections into consideration when considering future requirements for GDFs following removal of Stage II. Coupled with a periodic testing program for UST systems (e.g., annual pressure decay testing), we believe these inspections represent the best opportunity to mitigate fugitive vapor emissions and that the limited financial resources of independent GDF owners should be put towards training and testing and not continuous monitoring or pressure control systems.

CONCLUSION

We welcome the CT DEEP's efforts to remove Stage II vapor recovery equipment, given that it is now obsolete with the pending widespread use of ORVR equipment in automobiles. It is widely known that the removal of Stage II results in the elimination of excess emissions associated with ORVR and Stage II vapor recovery incompatibility. Furthermore, we recommend based upon the available data:

1) P/V vent valves be required to control vapor emissions from breathing losses that may occur from UST systems at a cost of approximately $81/ton;

2) With these P/V vent valves in place, and Stage II vapor recovery equipment de-commissioned, the use of expensive pressure management systems is not necessary;

3) Monthly inspections that will be required in Connecticut as part of the pending EPA UST regulations be employed to identify fugitive vapor leaks, thereby eliminating the need for continuous monitoring systems; and,

4) The CT DEEP should closely review information from API and Mr. Todd Temura that many of our conclusions are based upon. We also request that you discuss the issues with the data in the dKC report directly with Mr. Temura as part of your ongoing evaluation of future requirements in Connecticut.

Please do not hesitate to contact me if you have any questions or would like to discuss the information in this letter further. We look forward to our next workgroup meeting to discuss these items and ensure that we arrive at a workable and cost effective solution.

Respectfully,

Christian A. Herb

Vice President

Attachments: API Letter dated February 2, 2012