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October 14, 2013

Ms. Mary Nichols – Chair, California Air Resources Board
1001 I Street
PO Box 2815
Sacramento, CA 95812

RE: Comments Regarding Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions - "ghg2013" docket
(Submitted electronically to http://www.arb.ca.gov/lispub/comm/bcsubform.php?listname=ghg2013&comm_period=A)

Dear Ms. Nichols:

Air Products is a global, Fortune 250 company that supplies atmospheric, process, medical and specialty gases, specialty chemicals and process equipment serving a diverse range of industries, including primary metals, refining, electronics, food and glass sectors, as well as healthcare and many other general manufacturing industries. Air Products has over 400 employees and 30 locations in California, including numerous atmospheric gases (oxygen/nitrogen/argon) and hydrogen production facilities, electronic specialty gases and materials production and electricity generating facilities. In addition, Air Products serves a fleet of hydrogen fueling stations across the state, facilitating the transition to carbon-free transportation.

Air Products welcomes the opportunity to submit comments regarding the proposed amendment to the Mandatory Reporting Regulation (MRR) as issued on 4 September 2013. We currently report GHG emissions and associated production data for five hydrogen plants in California (and twenty more plants outside California under the US EPA MRR). From this perspective of multiple years of reporting under these programs, we offer the following comments and concerns regarding the potential changes to the CA MRR program.

KEY CONCERNS:

1. ***Air Products does not support adding a requirement for hydrogen producers to provide carbon and hydrogen content for all feedstocks. Such a requirement adds compliance costs with no material gain toward informing the overall state GHG emission inventory.***

2. ***Air Products does not support adding a requirement to report CO_2 and CH4 emissions from waste gases directed to hydrogen plant flare systems.***

3. ***Air Products seeks clarification of the required determination of whether a hydrogen plant is considered an "integrated refinery operation."***

4. ***Air Products recommends eliminating or narrowing the requirements for reporting the nature and reasons for coincident increase in facility criteria air pollutant and toxic air contaminant emissions to only those instances where an increase is caused by operational or design changes that seek to reduce GHG emissions.***

DETAILED DISCUSSION of KEY ISSUES & CONCERNS:

1. ***Air Products does not support adding a requirement for hydrogen producers to provide carbon and hydrogen content for all feedstocks. Such a requirement adds compliance costs with no material gain toward informing the overall state GHG emission inventory.*** [§95114(e)(1)]

   Air Products acknowledges that staff has reduced the sampling burden for other gaseous fuels from an initial proposal of daily to monthly. Nevertheless, adding this requirement will increase the cost of compliance for hydrogen production facilities in the following ways:

   a. Facilities that made the irrevocable decision (under 40CFR98) to employ CO_2 CEMS, consistent with 40CFR98.163(a), made such investments as a means to avoid the more significant costs associated with sampling, analyzing, and measuring the flow of multiple fuel and feedstock streams used to produce hydrogen at that facility. Both US EPA and the CA ARB have accepted CEMS emissions determinations for compliance reporting.

      While the capital, operating, calibration and maintenance costs for proper operation of a CO_2 CEMS is also significant, the "elegance" of a CEMS approach is that it does not require the multiple sampling, analysis flow measurement, and data handling tasks (and costs). Under the proposed §95114(e)(1)(A) revision, monthly analysis for carbon and hydrogen content would be required for all gaseous feedstocks, including natural gas. Typical natural gas supplier data, even when available monthly, does not provide hydrogen content values, necessitating sampling and analysis for even a stream that has negligible hydrogen content and variability from standard specification values. This requirement to sample and analyze gaseous feedstock streams adds compliance costs - sampling, shipping, contract lab analysis, and data management requires in excess of $500 per sample – so characterization according to §95114(e)(1)(A) standards results in an additional cost of $6,000 per year for each feedstock. Costs for installing and maintaining feedstock flow measurement devices (needed to calculate the carbon and hydrogen content of the feedstocks as a "weighted average") further increase the capital, calibration and maintenance costs to satisfy the feedstock characterizations proposed under §95114(e)(1)(A).

      The proposed amendment to the MRR will require facilities that have already committed to a CEMS approach to incur these large, redundant costs to characterize their feedstock streams. These added costs are particularly unwarranted because the information the ARB will garner from the characterization of feedstocks will not effectively inform either their statewide emission inventory or support their efforts to derive and administer allowance allocation benchmarks under the cap & trade program. Air Products engaged ARB staff in an attempt to determine how feedstock

characterization data will enhance the ARB's understanding/quality of the components of AB-32, but cannot ascertain any such benefit. Suggestions that theoretical calculations from hydrogen production and feedstock data will be useful, ignore the realities of process variability, equilibrium limitations of the chemical reactions taking place, process-critical recycle streams employed, degradation of catalyst activity over time, equilibrium limitations of crude hydrogen purification and numerous other real-world process deviations from theoretical or stoichiometric calculations as to render such "academic" exercises useless.

b. For facilities that chose to comply with the MRR using the fuel and feedstock mass balance approach, §95114(e)(1) indicates only carbon content and molecular weight determinations are required, which is consistent with the data required to calculate the GHG emissions according to 40CFR98.163(b).. Air Products recommends that ARB modify the language of §95114(e)(1)(A) to clearly articulate that the requirement to characterize feedstock hydrogen content does ***not*** extend to facilities that are not monitoring CO2 emissions with a CEMS. As written, it can be inferred that §95114(e)(1) applies to both CEMS and non-CEMS monitoring methods, and §95114(e)(2) is an "in addition to" rather than an "instead of" requirement.

Air Products strongly recommends eliminating any sampling and analysis requirements imposed on pipeline natural gas feedstocks, and further recommends eliminating or reducing the sampling and characterization requirements for other gaseous feedstocks, except as otherwise needed to calculate the facility's GHG emissions.

2. Air Products does not support adding a requirement to report CO_2 and CH4 emissions from waste gases directed to hydrogen plant flare systems [§95114(g) and §95114(l)]

Air Products' hydrogen production facilities across the U.S. report emissions under 40CFR98 Subpart P. EPA's Subpart P recognizes that flare GHG emissions are negligible for hydrogen plants. Under 40CFR98.30(b)(4), emissions from flares are exempt from reporting unless otherwise required by provisions of another applicable Subpart (in this case, Subpart P). Subpart P does not require reporting GHG emissions from flares.

Air Products does not understand the ARB's rationale for imposing the additional administration, calculation, recordkeeping and reporting tasks (and costs) of such negligible emissions. The ARB proposal, in §95114(l), to apply the flare emission calculations methodologies of §95113(d) (Petroleum Refineries) is overly burdensome The §95113(d) requirements reference 40CFR98 Subpart Y methods – emission estimating methodologies and reporting requirements specifically tailored by US EPA to Petroleum Refining facilities in recognition that the facilities covered under that Subpart are likely to have flare emissions which are not de minimis… and thus appropriately should have a requirement for estimating and reporting. Applying these methods to the negligible emissions of hydrogen production units is disproportionate. This is further demonstrated by the fact that under the initial versions of California's MRR, when flare emission reporting was imposed, our hydrogen plants could routinely demonstrate that the emissions satisfied the de minimis reporting threshold. Air Products recommends the requirements of §95114(g) and (l) be eliminated.

3. ***Air Products seeks clarification of the required determination of whether a hydrogen plant is considered an "integrated refinery operation."*** [§95114(j)]
   The new requirement proposed asks hydrogen plant operators to specify if the hydrogen plant in an integrated refinery operation. All off-site hydrogen plants in California are closely integrated with at least one refinery customer. ARB has not provided any definition of what constitutes an "integrated refinery operation" in order for hydrogen plant operators to make such a determination.

4. ***Air Products recommends eliminating or narrowing the requirements for reporting the nature and reasons for coincident increase in facility criteria air pollutant and toxic air contaminant emissions to only those instances where an increase is caused by operational or design changes that seek to reduce GHG emissions.*** [§95104(E)]

   There are many reasons why criteria air pollutant and toxic air contaminant emissions may increase or decrease year-on-year, including many reasons completely unrelated to GHG emissions management. In the case of hydrogen production, year-on-year changes in production, catalyst activity, customer demand changes, and process stability can result in emissions variability. So long as a facility is operating within its air permit limits for such pollutants, there is no requirement to otherwise justify such normal variability.

   Air Products would not want to disclose confidential information, suggesting a causal relationship between normal (and permitted) operating flexibility changes and other air pollutant emissions, specifically causal relationships attributed to changes in production rates (than otherwise reported as required product data), customer demand, changes in facility operation to comply with other regulations, or changes in efficiency. Air Products is concerned that such data may be considered "emissions data" and may not qualify for protection as confidential business information. Further, it is unclear if this causal reporting is subject to verification and what the standard for conformance would be. Air Products recommends this requirement be eliminated, or limited only to situations where the cause of an increase is attributed to changes in facility operations necessary to comply with the cap and trade regulation.

Air Products hopes that the above comments on the proposed MRR amendments illustrate our critical interest and support of CARB's efforts. If you have any questions or need additional information to support Air Products position on these matters, please contact me by phone (610-909-7313) or email (adamskb@airproducts.com).

Respectfully,

Keith Adams, P.E.

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Environmental Manager – Climate Change Programs

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