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

RE: Comments regarding October 28th Proposed Regulation for a Cap and Trade Program

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 Regulation for a California Cap and Trade Program issued 28 October 2010. Air Products supports the state's efforts to develop a fair, effective, and economically efficient means by which to meet the requirements of AB32. Consistent with comments Air Products submitted in January of this year in response to the November 2009 Draft Cap and Trade Regulation, we have compiled comments that speak to both specific aspects of the program outlines in the current proposal as well as general, over-arching themes that must continue to guide those remaining aspects under development.

Air Products most significant concerns regarding the Proposed Regulation are:

- ***Equitable Treatment in Allowance Allocations – Inclusion of Hydrogen Production within Petroleum Products Manufacturing Sector*** – The supporting appendices of the Proposed Rule, specifically, Appendices J (Allowance Allocation) and K (Leakage Analysis), provide appropriate justification for inclusion of all hydrogen production activities associated with petroleum refining in the subsequent determination of allowance allocations for the sector. *In order to insure equitable treatment of all market participants, third-party owned/operated hydrogen production facilities must be included in benchmarking determination and the allowance allocations.* CARB's inclusion of the Industrial Gas NAICS Code in the Leakage Analysis (Tables K-2 of Appendix K) indicates their understanding of the inherent integrations between industrial gas company hydrogen production and petroleum refining activity.

  Further, allowance allocations must be provided for hydrogen production, regardless of it source – captive or third-party supply. *Any presumption that third-party hydrogen suppliers can simply pass-on the full cost of allowances required to satisfy their compliance obligation to their*

respective hydrogen customers ignores the complexity, limitations, variety of commercial agreements/arrangements between supplier and customer. Equitable treatment can be assured by applying a consistent benchmark for, and allocating the resulting allowances to, both captive and third-part hydrogen producers.

- ***Relevant Benchmarking Method for the Petroleum Products Sector*** – The principle objective of the benchmarking process should be to insure equitable treatment of all sector participants through methodology that appropriately reflects the emission performance relative to production output. Within the Petroleum Products Manufacturing sector, this means *the benchmarking method must provide both an accurate relative ranking, and an absolute (emissions per unit of production) measure for all sub-processes within the sector – specifically, petroleum refining and hydrogen production, including third-party hydrogen production.* Air Products has considered the relevance and fairness of each of the three alternative benchmarking methods described in Appendix J of the proposed rule.

  On that premise, it is not possible to provide equivalent and equitable treatment of both captive and third party hydrogen plants using the "output barrel approach" as the emissions associated with captive hydrogen plants will not be differentiated from total refinery emissions and there are no "output barrels" directly associated with third party hydrogen plants. We also expect many petroleum refiners will find this method does a poor job accounting for the differences in crude stock product mix, and process configuration – and thus does not satisfy the relevance and fairness principles.

  Secondly, the Solomon Energy Intensity Index (EII) approach provides a better relative ranking of petroleum refining activities, but the fact that it solely considers energy consumption and does not effectively consider process emissions, the EII method does not reduce to an effective absolute measure (emissions per unit of production) as a benchmark. Further, since process emissions make up the predominant fraction of total GHG emissions from hydrogen production, this method will be particularly unfair for third-party hydrogen production. In order to establish a relationship between EII and GHG emissions, CARB will have to be very careful to separate refineries that produce hydrogen from those that purchase hydrogen – or include an allocation of the appropriate third-party energy consumption and GHG emissions associated with imported hydrogen dedicated to each refinery in the benchmarking analysis.

  Air Products recommends employing the Carbon Weighted Barrel (CWB) approach as the benchmarking method for the Petroleum Product Manufacturing sector. This method is analogous to the Complexity Weighted Tonne (CWT) method employed under the European Union's Emission Trading Scheme (EU ETS) Phase 3 program. Comprehensive analysis by third-party technical consultants led to a consensus among petroleum refiners, industrial gas producers, chemical manufacturers and the European Commission of the relative ranking and absolute measure of GHG emissions that would be expected when accounting for differences in crude feedstock product mix and process configuration. In addition, since the methodology distinguishes between the emissions resulting from each discrete processing step, it allows for a benchmark for hydrogen production to be defined which is representative of all production processes and producers. Therefore, this method allows for equitable allocation treatment of both captive and third-party hydrogen production.

  Overall, it appears that the CWB approach which deals, with hydrogen production more directly, will be best suited for benchmarking both refining operations and hydrogen production. To the

greatest extent possible, CARB would benefit from building directly on the work of the EU ETS Phase 3 program development. This is particularly valuable given CARB's tight schedule for defining and implementing the allowance allocation system to support the cap and trade program.

- ***Appropriate Interim Benchmarking Methods*** – Air Products recognizes that CARB may not have all the necessary emission and production data compiled to immediately employ the CWB approach for benchmarking the Petroleum Products Manufacturing sector. If an interim method would be necessary for the first compliance period, it still needs to be a method that maintains the equitable treatment of third-party hydrogen producers. Air Products understands that refiners may prefer a simplified method (e.g. the Simple Output Barrel Approach), despite its inherent limitations, including lack of a relevant benchmark for third-party hydrogen producers. In such circumstances, *Air Products recommends that CARB adopt the absolute benchmark value (in tonnes CO_2-e/tonne hydrogen produced) that is being adopted as the EU ETS Phase 3 hydrogen benchmark and apply this benchmark as the basis for allowance allocations directly to the third-party hydrogen producers.* Air Products acknowledges that the EU ETS "model" CWT benchmark value may not be the "exact" value that will be derived for a California (or, as necessary, a broader, North American) refining CWB benchmark – but it will be a reasonable representation and more relevant and appropriate for hydrogen production than the alternative Output Barrel or EII methods. Equitable treatment can be maintained, as closely as possible, by the remaining participants in the refinery sector using an alternative interim method that also accounts for the emissions resulting from their captive hydrogen production.

- ***Fair and Efficient Mechanism for Allowance Allocation Distributions*** – *Allowance allocations attributable to hydrogen production should be provided directly to the hydrogen producer – regardless of whether they are inside the refinery or a third-party producer.* In order to allow for efficient compliance processes, the appropriate allowance allocations should be provided directly to the party incurring the compliance obligation. There are several reasons to support this position:

    - Contractual terms limit the degree and expediency of any cost recovery (or allowance transfer), between the hydrogen producer who bears the compliance obligation and the customer for the hydrogen. Efficient management of a compliance allowance account is enhanced by allocated allowances being directed to the entity responsible for their respective compliance obligation.
    - Where a single third-party hydrogen producer supplies multiple refinery customers from one or more plants, connected by a pipeline distribution system, allocation of the hydrogen producer's compliance obligation between multiple customers could require disclosure of confidential business information between customers, creating anti-trust concerns. A direct allocation of allowances to the hydrogen producer, based on a production-based benchmark, precludes the necessity to disclose such information for effective "re-allocation" of allowances between customer and producer.
    - Should an interim allocation benchmark approach be required (as noted above), direct allocation of allowances based on the proposed "model" benchmark is based on hydrogen production, not consumption – hence allowances would be directed to the hydrogen producer.
    - Allowance allocations made to compensate hydrogen producers for hydrogen used as a transportation fuel (see comment below) can only, logically, be made directly to the hydrogen producer. Making all allowance allocations for hydrogen production directly to creates more consistent treatment under the program.

- Allocating allowances directly to the hydrogen producer is consistent with the EU ETS program and allows core consistent and effective linking of cap and trade programs in the future.

- ***Allowance Allocations for Hydrogen Produced as Transportation Fuel in First Compliance Period*** – Hydrogen represents a "de-carbonized" fuel, relative to gasoline, diesel and even natural gas, when used as a transportation fuel. Air Products has been an active partner with CARB in development of hydrogen fueling stations across the state and fulfillment of the vision of the "Hydrogen Highway" from Sacramento to Los Angeles. Whereas other distributed transportation fuels will not be subject to a compliance obligation for their inherent carbon-footprint until the second compliance period, the compliance obligation resulting from production of hydrogen as a transportation fuel will be imposed immediately under the first compliance period. *Air Products encourages CARB to provide free allocation of allowances for such hydrogen fuel to prevent an increased barrier for deployment of this long-term transportation solution.*

- ***Onsite versus Offsite Combined Heat and Power Facilities Treated Inconsistently*** – The proposed allowance allocation methodology for combined heat and power (CHP) facilities creates inconsistent treatment of onsite versus offsite facilities, effectively discouraging the purchase of steam and electricity from offsite CHP facilities, and, as such, provides incentives that are contrary to the goal of reducing GHG emissions by encouraging efficient, low-carbon energy production.

  The proposed cap and trade rule proposes to allocate GHG emission allowances to "electrical distribution utilities" and "industrial covered entities." Electrical distribution utilities are defined as either an "Investor Owned Utility" (IOU) or a "Publicly Owned Utility" (POU). "Industrial covered entities" include the industrial sectors listed in Table 8-1 of the regulation. Independently owned electrical generators, including offsite combined heat and power (CHP)/cogeneration facilities, are not "electrical distribution utilities" and are not a listed "industrial covered entity," and, therefore, will not receive GHG allowance allocations under the proposed cap and trade rule.

  However, onsite CHP facilities co-located at an industrial covered entity will receive direct allowance allocations for both the thermal energy produced and used onsite and the electricity produced and used onsite (see Table J-7 and Appendix J, Section D.1.e of ARB Staff's Initial Statement of Reasons).

  Therefore, an independent offsite CHP facility that transfers thermal energy and electricity across its fenceline to an adjacent industrial facility will receive no allowance allocations, whereas an identical onsite CHP owned by an industrial covered entity will receive thermal and electrical allowance allocations. This inequitable treatment of similar CHP facilities is arbitrary and unfair to the offsite CHP facility. The offsite CHP must now compete against allocation subsidized electrical distribution utilities to provide power to its industrial host, and the industrial host has an economic incentive to build its own onsite allocation subsidized CHP even if the offsite CHP is more efficient.

  CHP facilities provide efficient, reliable, cost-effective power and thermal energy to their industrial hosts without the transmission and distribution losses of grid power. CHP was adopted

as a GHG reduction strategy in CARB's AB32 Scoping Plan, and ARB asserts in Appendix J of its Initial Statement of Reasons document that the cap and trade program actually creates an incentive for efficient CHP systems. As such, *the program should provide equivalent incentives for both offsite and onsite CHP systems. Therefore, the regulation should be amended to provide allowance allocations to offsite CHP/cogeneration facilities, as it currently does for onsite CHP systems, based on the quantity of thermal and electrical power provided directly to industrial covered entities.*

Further, this equivalent treatment should be afforded to entities regardless of the ownership structure – treating leased assets the same as wholly owned assets.

In addition, Air Products makes the following general comments regarding the Proposed Regulation:

- ***Free Allocations are Needed to Provide an Effective Transition and Protect against Carbon Leakage –*** CARB correctly identifies the potential impact on the state's economy and employment of the imposition of the cap and trade program and the resultant costs. Free allocation of allowances if critical to a smooth transition into the program, avoiding economic shocks. Further, the continued risk of leakage, industries' flight (capital investment and jobs) from the state in favor of increased interstate and international importation into California of critical goods, requires free allocation of allowances until other jurisdictions place comparable climate management burdens on their industries.

- ***Assistance Factor Reductions for Petroleum Product Manufacturing Sector are too Rapid –*** The refining industry is clearly under trade pressure from fuel imports. The proposed reduction of the Assistance Factor from 100% in the first compliance period to 75% and then 50% in the subsequent second and third compliance periods, respectively, leaves in-state production capacity vulnerable to increased dependence on imports (and hence supply disruptions). Industry experts anticipate this import pressure to materially increase over the next several years, increasing the industry sectors leakage risk to "High", where no reduction in the Assistance Factor would be imposed. At a minimum, CARB should re-evaluate the leakage risk preceding each subsequent compliance period and determine of the proposed reduction in the Assistance Factor is warranted.

- ***Allowance Cost Controls are Critical – Multiple Options and Maximum Flexibility are Warranted*** – Air Products encourages all measures that will mitigate the potential cost of allowances, particularly at the step change portions of the program (first compliance period – program initiation, and second compliance period – inclusion of distributed fuels). Controls such as the three-year compliance period, modest compliance account balance requirements (vis-à-vis the incurred compliance obligation), flexibility in the amount and source of offsets, the ability to bank allowances and the use of the Strategic Allowance Reserve will all be necessary and the maximum flexibility in their application should be allowed.

  Further, some of the mechanism in the proposed will serve to constrain the market liquidity of allowances. For example, CARB should relax the holding limit for allowances. Entities with large compliance obligations will seek to mitigate the uncertainty of market fluctuations by accruing a more significant fraction of their anticipated compliance obligation during the course

of the compliance period. Current holding limits will overly restrict this cost control tool for large emitters.

- ***Recognize Carbon Capture and Storage by Including its Definition in §95802*** – Carbon Capture and Storage (CCS) can play an important role in enabling the development of a clean energy future for California and the country. Including a definition of CCS in the rule will facilitate its further consideration during development of the implementing regulations.

Air Products appreciates the opportunity to contribute to the regulation development process and will remain an active partner in this effort. 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). Thank you for your careful consideration of our concerns.

Respectfully,

Keith Adams, P.E.

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Environmental Manager – Climate Change Programs

c: Jeff Lockett, Peter Snyder, Wendy Graham, Stephen Crowley – Air Products
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