The Fertilizer Institute

Nourish, Replenish, Grow

December 15, 2010

Mr. Kevin Kennedy
Assistant Executive Officer
Office of Climate Change
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted Electronically

Subject: Comments on Article 5: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms

Dear Mr. Kennedy:

TFI represents the nation's fertilizer industry including producers, importers, retailers, wholesalers and companies that provide services to the fertilizer industry. Its membership is served by a full-time Washington, D.C., staff in various legislative, educational and technical areas as well as with information and public relations programs.

TFI has a substantive interest in this program as we represent eleven nitrogenous fertilizer companies with fifty one (51) nitric acid production facilities across the United States. Total nitric acid production from TFI member companies is approximately 25,500 tons of nitric acid per day ($tHNO_3$/day). TFI's membership encompasses ninety percent of nitric acid production in the United States.

The Fertilizer Institute (TFI), on behalf of its member companies, submits these comments on *Article 5 – California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms*. In particular, and on behalf of the U.S. Fertilizer industry, we would like to submit our comments outlining the benefits of incorporating verified nitrous oxide (N_2O) reduction projects to the list of allowable offsets under ARB's compliance mechanisms. TFI and ClimeCo have partnered in promoting the Climate Action Reserve's (CAR) N_2O abatement protocol for nitric acid producers. N_2O offsets are of the highest integrity – they are real, permanent, additional and verifiable.

The ARB acceptance of the CAR Nitric Acid Protocol will be essential in creating a cost effective program due to the high integrity and volume of offsets from this sector. Although these offsets project types take time to develop, once installed, the projects generate scientifically proven, verifiable, reoccurring offsets. Currently, as a result of three early action projects in the United States by TFI member companies, approximately 1.7 million Climate Reserve Tonnes (CRTs) will be available through 2010. With a clear

market incentive, N_2O abatement technology can be installed to allow a great supply of emission reductions from this sector, thus providing critical offsets in the early years of the AB-32 program. ARB's actions to support this protocol will have a dramatic impact on the reduction of GHGs throughout the United States.

Statement of Interest

Many TFI members produce nitric acid in and outside of California. Nitric acid is the feedstock for many nitrate based fertilizers. These products are often blended and sold at the many agricultural retail facilities in California and used by farmers to produce a nutritious and economically viable yields.

According to the USDA, California's agricultural production represented over 11 percent of the U.S. total in 2007, by value. Both of these states produce fruits and vegetables that require both macro and micro nutrients to produce healthy and viable fruits and vegetables.

TFI members sell and distribute fertilizer products throughout California that have direct and indirect contributions to California's economy and jobs. When evaluating direct and indirect job creation in California, the largest fertilizer in California is clearly fertilizer retail and wholesale mixing operations. California ranks fourth in the United States with respect to fertilizer mixing operations and contributes 1.1 billion dollars to the California economy and generates approximately 5,250 jobs.[vii]

For ease of review, this letter has been organized as follows:

- Comments on Article 5;
- Status of current U.S. N_2O offset activity;
- Importance of N_2O under the Clean Development Mechanism (CDM); and
- Summary - Next Steps

Comments on Article 5

1. Subarticle 13: §95971: TFI recommends development of guidance related to the requirements and procedure for the acceptance of additional offset protocols. We believe that the protocol list must be expanded to meet the offset demand and contain costs of the program. As such, it is critical to have a transparent and efficient process for additional protocol approval.

2. Subarticle 13: §95973 (a.2.C): The preliminary list of acceptable offset protocols is very limited and will not create the volume of offsets required under AB-32, in particular in the early compliance periods.[i] ARB has embraced offsets as a cost containment mechanism, albeit tentatively. This list must be expanded expeditiously to send a signal to the market and allow for early action (pre-2012)

offset development. To facilitate the offset protocol review and acceptance process, we recommend that ARB simply select a registry pursuant to the requirements established in § 95972 and § 95973, rather than being selective of the specific protocol within the registry/program itself.

In the event that ARB is selective of specific protocols under a given registry (*e.g.,* CAR), we strongly suggest that ARB review and approve the CAR Nitric Acid Protocol Version 1 and subsequent versions as amended by CAR, for the same reasons ARB accepted the CAR ozone depleting substances (ODS) protocol. The Nitric Acid Protocol is very critical for the supply of high quality and high volume offsets in the early years of the program and clearly meets ARB's requirements listed in Article 5, Subarticle 13, §95972 and §95973. We point out the following facts about N_2O offsets from nitric acid production:

a. In 2007, the estimated US emissions of carbon dioxide equivalent (CO_{2E}) from nitric acid production were 21.7 million metric tonnes.[ii]

b. Nitrous oxide offsets are scientifically proven, real, permanent, additional and verifiable and will contribute to the ARB's program goals. In contrast to CO_2 mitigation projects, N_2O is permanently destroyed, producing harmless N_2 gas as an emission.

c. Currently, with the lack of regulatory mandates and a federal cap-and-trade program, there are only three registered N_2O offset projects listed on CAR.

d. N_2O catalysts for nitric acid plant applications have been proven internationally and include two categories of catalysts – secondary and tertiary. A secondary catalyst is installed within the ammonia oxidation reactor (AOR) directly downstream of the primary gauze, while a tertiary catalyst is installed downstream of the AOR (more similar to a classic tailpipe technology).

   Nitric acid plants can be categorized as low, medium, high and dual pressure plants. The design of the plant has a significant impact on the technology chosen and the overall abatement system design. Under Clean Development Mechanism (CDM), the following average N_2O destruction efficiencies for

each technology have been documented (averaged over all plant designs):

- Secondary – 70%
- Tertiary – 86%

The average N_2O destruction efficiencies presented above are conservative and include early projects where catalysts and installation designs were continually being optimized.

In the U.S., there have been three secondary catalyst installations. Currently, the average N_2O destruction efficiency for these three systems is 80% or higher. In addition, the first tertiary system is currently being designed for a spring 2011 installation. The manufacturer's guaranteed N_2O destruction efficiency for this system is 95%.

e. The monitoring systems required under the CAR Nitric Acid Protocol include instruments such as non-dispersive infrared (NDIR) and Fourier Transform Infrared (FTIR) systems, equipped with mass flow devices. The calibration and operation of these systems meet the highest standards set by EPA under 40 CFR Part 75. These systems make it possible to document GHG reductions with the highest reliability and verifiability.

f. The EPA Prevention of Significant Deterioration (PSD) Tailoring Rule (Tailoring Rule) goes into effect on January 2, 2011and will have little impact on this program as it relates to the installation of Best Available Control Technology (BACT) for N_2O. It is unlikely that a nitric acid plant would increase CO_{2E} emissions beyond the Tailoring Rule thresholds therefore it is unlikely that existing NAPs will be required to install N_2O control under this rule. The NAPs that do trigger the Tailoring Rule will not be eligible for CAR offsets under the Nitric Acid Protocol.

g. The majority of HNO_3 produced in North America is used to make commercial fertilizer (70-80%), while 5-10% goes to the production of adipic acid (used to make nylon), and the remainder goes to the production of explosives, metal etching and the processing of ferrous metals.[iii] Consistent with the CAR protocol, we are supporting N_2O offsets solely from nitric acid production.

3. Subarticle 13: § 95854: We support ARB increasing the percentage of carbon credits that companies can use to meet their compliance obligations, from the earlier discussion of four percent to eight percent, and would support increasing the percentage further. We believe that a further increase will contain costs to California industries and also send an important signal to the United States promoting both carbon offsets and early action. We provide case specific examples:

a. An economic analysis by the U.S. Environmental Protection Agency (EPA) asserts that the cost of compliance under proposed Federal climate change programs could be more than two-and a half times greater than with an unrestricted use of offsets.[iv]

b. As a real case scenario, under the European Union cap-and-trade program (the EU ETS), companies may use between seven and twenty percent of carbon offsets to meet their compliance obligations. This is dependent on the country, with the most stringent country being Slovakia at seven percent, with the most flexible country being Spain at 20%. The average percentage of allowable carbon credits is approximately 13.4%.[v]

c. A comparison of California's gross domestic product reveals that California represents the eighth largest economy in the world (based on 2008 GDP figures). Countries with economies greater than California which are subject to carbon dioxide cap and trade programs include Germany, France and Italy; with each of these countries allowing 13.5%, 20% and 15% carbon offsets respectively. As presented by EPA, having a higher percentage of allowable offsets will decrease the cost of compliance to California industries.

Status of current US N_2O Offset Activity

All N_2O abatement projects which have occurred in the United Sates have been registered under CAR. A review of the CAR project registration website reveals three projects currently in operation, all utilizing secondary abatement technology. Two of the listed projects were initially started prior to the adoption of the CAR Nitric Acid Protocol in December of 2009 but have been verified under the CAR protocol. As such, these project do have earlier vintage reductions beginning in 2008, but occurring after the early action start date requirement of December 31, 2006 as specified in §95973(a.2.B). In summary the three projects underway will generate the following approximate volume of offsets:

- 2008: 105,000 Climate Reserve Tonnes (CRTs)
- 2009: 477,000 CRTs
- 2010 Projection: 1,200,000 CRTs

At full scale operation, these three projects have the capacity to continue to generate approximately 1.6 million CRTs per year, which by themselves would be a significant benefit to California industries as they would provide crucial supply of early year offsets, thus controlling offset costs. These three projects and associated companies should be commended, as they moved forward with early action projects, similar to AB-32 early actions, in a time of great market uncertainty and negative internal rates of return.

Although not listed, we are aware of 5-10 nitric acid plants that are in N_2O abatement planning stages and are closely evaluating the California market developments. If AB-32

sends clear signals as to the acceptance of this offset type, these nitric acid plants may begin the implementation of these projects. Clear and early market signals are very important, as some of these projects have a 6-12 month implementation time prior to generating any offsets.

Importance of N_2O under the Clean Development Mechanism (CDM)

On November 8, 2010, the Stockholm Environmental Institute (SEI) issued a report entitled: Industrial N_2O Projects under the Clean Development Mechanism (CDM): The Case of Nitric Acid Production. This summary report by SEI was prepared to support the continuation of N_2O projects beyond 2012 and into the Phase III period of the Kyoto Protocol (still being defined). This study was completed due to the fact that industrial gas projects implemented under the CDM have come under increased scrutiny due to concerns related to high profit margins, potential perverse incentives, and implications for environmental integrity.

The study suggests that the CDM has successfully fostered innovation and emission reduction in the nitric acid sector which previously had not engaged in abatement practices. Like in the US market, no N_2O would have been abated without clear market signals and an enforceable cap-and-trade market that allows for N_2O based emission reductions to qualify as compliance offsets.[vi]

The report went to clearly define the difference between nitric acid and adipic acid projects. The report findings sclearly supports the continuation of nitric acid N_2O projects and the disallowance of adipic acid N_2O projects post 2012 due to leakage concerns. The difference between nitric acid and adipic acid projects are clear and is consistent with CAR's acceptance of a Nitric Acid Protocol.

Key Findings about Nitric Acid CDM Projects

1. The carbon market was very effective in fostering technology development and innovation in an industry that had not abated N_2O previously. Before the implementation of CDM, Joint Implementation (JI) and the European Union Emissions Trading Scheme (EU – ETS), N_2O abatement in nitric acid plants was not practiced, except for a few pilots in Europe. With CDM support, new N_2O abatement technologies were introduced in 63 plants in 11 countries.[vi]

It is clear that the United States is in the same position as CDM, EU and JI countries prior to mandatory cap-and-trade programs – meaning that N_2O typically is not currently being mitigated. Through its leadership in GHG reductions, ARB is in a position to make a significant contribution to clean air by adding a new category of viable, impactful projects. Approving the CAR Nitric Acid Protocol as an acceptable offset standard would broaden the portfolio of available mitigation opportunities and make it possible to implement N2O reduction projects which otherwise may not be accomplished.

The project type clearly fits all requirements in AB-32 as described in Article 5. In addition, it will provide critical high quality offset volume to serve as cost containment for California industries.

Carbon Offset Market Initiatives

TFI and ClimeCo were actively engaged and served as a member of the Climate Action Reserve's (CAR's) Workshop Group that developed the Nitric Acid Protocol Version 1. TFI supports the use of the CAR protocol and strongly believes that N_2O offsets are of the highest quality, and with sufficient volume to assist ARB and industries subject to AB-32.

Summary / Next Steps

We firmly believe that the inclusion of N_2O into AB-32 is in alignment with the interests of all parties, namely ARB, California Industries, CAR and the fertilizer sector which is so critical to California's economy. Including N_2O among the eligible offset types would broaden the range of reduction opportunities, supply high quality offsets, and allow ARB to provide a reliable mitigation protocol that can contribute to the Program's traction and success.

We understand that there will be a public workshop in early 2011 where ARB will be reviewing additional protocols for inclusion in AB-32. TFI and ClimeCo would like to meet with you and your team prior to the public meeting if possible to further discuss the mutual benefits associated with the inclusion of the CAR Nitric Acid Protocol. ARB is in a position to send a signal to the market, thus accelerating N_2O abatement projects in the U.S. and making a significant positive impact on climate change. In addition, we believe this protocol will greatly assist with the supply of offsets critical for the economic success of AB-32.

Please contact me at (202) 515-2706, or via email at wcherz@tfi.org if you have any questions or to further discuss these comments.

Sincerely:

William C. Herz

Cc: Brieanne Aguila – California Air Resources Board
William Flederbach, ClimeCo Corporation

ATTACHMENTS

1. Economic Contributions of the US Fertilizer Manufacturing Industry. CRA International, 2009.
2. Stockholm Environmental Institute: Industrial N_2O Projects under the CDM: The Case of Nitric Acid Production. November 8, 2010.

REFERENCES

[i] Climate Action Reserve. Projections of Future CRT issuance. November 5, 2010.

[ii] 2009 U.S. Greenhouse Gas Inventory Report: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007 (April 2009).

[iii] Casey Delhotal, April 2005. International Non-CO2 Greenhouse Gas Marginal Abatement Report, Draft Methane and Nitrous from Non-Agricultural Sources Chapter 6, U.S. Environmental Protection Agency, Washington, D.C.

[iv] Source: Analysis of the Climate Stewardship and Innovation Act of 2007 (July 16, 2007), U.S. EPA.

[v] European Commission (2007a) Emissions trading: EU-wide cap for 2008-2012 set at 2.08 billion allowances after assessment of national plans for Bulgaria**.** EC Press Release. 7 Dec 2007.

[vi] Stockholm Environmental Institute: Industrial N_2O Projects under the CDM: The Case of Nitric Acid Production. November 8, 2010.