

January 18, 2008

Mr. Tom Pyle, Chairman
Climate Action Team Cement Subgroup

Mr. James Goldstene
Executive Officer
California Air Resources Board
1001 I St.
P.O. Box 2815
Sacramento, CA 95812

Subject: Comments On Scoping Plan Developments Affecting the Cement Industry

Dear Mr. Pyle and Mr. Goldstene:

We are writing you on behalf of three manufacturers of Portland cement in California. Six companies operate 11 cement plants that produce more than 12 million tons of cement annually. California consumes and produces more cement than any other state in the country and annual in-state production supplies only sixty to seventy percent of the state's demand.

The purpose of this letter is to outline comments and concerns relating to the scoping plan process as it affects the cement industry, in response to the Climate Action Team (CAT) cement subgroup meeting on December 5, 2007 and the scoping plan workshops on November 30th and December 14th. This letter is addressed to both the cement subgroup committee members who work for CalEPA and California ARB, and also the other ARB staff and management responsible for the scoping plan, to whom the cement subgroup recommendations will be sent. We are diligently attempting to gather data in response to ARB requests and to work with ARB on defining technologically feasible and cost effective GHG reduction measures. Due to the absence or limited availability of some information related to certain issues to be addressed by the scoping plan process, we are unable to provide all information at this time relevant and necessary to the proper determination of the issues in order to implement the scoping plan. The following comments relate to the procedures for evaluating the measures and comparing with other sectors, as part of developing a scoping plan that includes only the most cost effective measures. Subsequent to the general comments provided herein, we plan to provide additional letters addressing blended cements, energy efficiency, fuel switching, and other topics, as specific data becomes available.

The letter is divided into three parts:

- Part I discusses the concerns about meeting the principal evaluation criteria under AB32.
- Part II describes additional evaluation criteria from the AB32 regulatory language that, although less important than the criteria under Part I, are critical to consider in regulatory development
- Part III presents auxiliary impacts from AB32 on the cement industry, and explains how these impacts must also be considered in deciding on cement-specific control measures.

In each of the parts, we provide practical suggestions about how to make the upcoming scoping plan development process meet these important criteria.

Part I—Principal Evaluation Criteria for Scoping Plan Measures

A successful and legitimate process for developing the list of scoping measures must satisfy the following three AB32 requirements:

- First, AB32 requires ARB to select measures that achieve maximum technological feasibility and cost effectiveness. Health & Safety Code §§ 38560, 38561.
- Second, AB32 requires ARB to adopt measures in a “manner that is equitable, seeks to minimize costs and maximize the total benefits to California.” Health & Safety Code § 38562(b).
- Third, AB32 requires ARB to conduct its evaluation of measures by using the “best available economic models, emission estimation techniques, and other scientific methods.” Health & Safety Code §§ 38561(d), 38562(e).

Meeting the above requirements for the cement industry measures will require ARB (and the cement industry) to work diligently together to collect available data, carefully analyze the data and draw conclusions that are technically defensible and legally sound.

After participating in the December 5, 2007, meeting, we have the following concerns about the process and procedures for evaluating potential measures for inclusion in the scoping plan:

- **Best available technology:** At the December 5, 2007, meeting, ARB suggested that cement plants in California would be compared with an energy intensity equivalent to the best performing plant in the world, i.e. best available technology (BAT). If ARB pursues this strategy, we would remind ARB that it must provide scientific and technical evidence that BAT and “maximum technological feasibility and cost effectiveness” are identical. Otherwise, because AB32 does not mention BAT, it would have no place in the scoping plan scheme. For example, comparison of energy efficiency and GHG reduction based upon either individual plants in California or around the world must

directly consider specific product output as different products require significantly different amounts of energy to manufacture. Simply put, a general comparison is flawed and only an “apples-to-apples” analysis will determine the actual and achievable energy intensity and thus GHG reductions that might be achieved. Furthermore, depending on the current performance of the plants, application of best available technology may not be cost effective, because the corresponding reduction in emissions is too small to warrant the high capital cost for equipment replacement. Moreover, as suggested above, ARB should also define how BAT will be evaluated in terms of demonstrated long-term performance and applicability to California cement kilns with different raw materials and subject to different cement product specifications than elsewhere in the world. We will be providing further information on cost effectiveness in later letters, but wanted to outline our general concerns about applying the BAT principle in this letter.

- Cost effectiveness evaluation procedures: To make effective comparisons between sectors, ARB should develop a specific cost effectiveness calculation methodology, and, after it has undergone rigorous review and public participation, apply it consistently to all sectors. The possibility that all of the measures in one sector are less cost effective than the measures in another sector must be envisioned and planned for. In addition, the parameters used in the cost effectiveness calculations need to be consistent with the parameters used in the subsequent economic analysis that will be performed to validate the rulemaking (e.g., interest rate, inflation rate, energy costs, other financial parameters). In order to satisfy AB32’s equity requirement, measures applied to different sectors need to be compared on a level playing field to ensure that the most cost effective measures **overall** are ultimately selected, to avoid unnecessary burdens on the California economy.
- Data quality standards: It is essential that data quality standards be applied and used in evaluating cement kiln performance elsewhere in the world, particularly in countries that do not have rigorous environmental regulations and also are not subject to the business ethics standards found in the United States (where falsification of data is likely to have serious consequences). As suggested above, the analysis must be tied to a comparison of similar products as all cement is not the same (and in fact is different in California depending upon the use of the product, and may be significantly different than production in other countries where substantially inferior products are produced at much lower energy levels – which products could not be produced in California). Given that ARB has just passed stringent mandatory reporting regulations that essentially establish data quality standards for California’s regulated community (derived from international standards), ARB appears to be more conscious than anyone of the need for reliable GHG data.

- Completeness of evaluation of achievable GHG emission reductions: When evaluating GHG emission reductions associated with a given measure, it is important to consider potential offsetting GHG emission increases, including transportation emissions, especially transportation emissions that are not warranted. For example, when evaluating the use of supplementary cementitious materials (SCMs) in California, consideration must be given to whether the SCMs could instead be used where they are produced, as opposed to incurring transportation emissions for bringing SCMs to California that would otherwise be used locally (and in fact may ultimately not be available as those markets implement global warming controls by the similar proposal of incorporation of SCMs into their regional cement products).

In addition to providing the above general comments, we wanted to explain our efforts corresponding to each of the above suggestions made to ARB:

- Best available technology: The cement industry is currently collecting information on best practices in the United States, Europe, and elsewhere (see third bullet below regarding Chinese cement). We are also evaluating achievable reductions and overall costs for specific equipment changes at California plants. These tasks are technically demanding, and time-consuming, and require a high level of commitment from all parties. We plan to provide this information as it becomes available in order that ARB obtains the necessary data in order to make accurate and defensible determinations about technically feasible and cost effective.
- Cost effectiveness evaluation procedures: While waiting for guidance from ARB, the cement industry plans to adapt standards for cost effectiveness calculations as published by the South Coast Air Quality Management District (SCAQMD) in their BACT documents and to use these on a trial basis in evaluating cost effectiveness of potential GHG reduction measures. These BACT-related references can also potentially be applied in assessing technological feasibility standards under AB32.
- Data quality standards: Due to the concerns raised about the WBCSD report on the cement industry, we are collecting published data on the Chinese cement industry, as well as reviewing the format for data collection for the WBCSD report. For example, as generally set forth above, the nature of Chinese products needs to be addressed by product type in terms of product blends and manufacturing controls to ensure that an accurate and comparable comparison of GHG reduction is performed. To the extent that this information is available, we will provide it to ARB. However, please be aware that we have no control (nor does ARB) over the Chinese cement manufacturing industry, in terms of data availability, accuracy, or completeness. We have contacted Lawrence Berkeley National Laboratory (LBNL) concerning a report that they are assembling on Chinese cement, and been told that their report is not available for public release yet.

- Completeness of evaluation of achievable GHG emission reductions: The cement industry is currently evaluating available sources of SCMs and is including in their evaluation a determination of whether local use of these SCMs is possible, in lieu of transport to California, which results in a GHG emission increase.

Therefore, we are working diligently to meet ARB data requests and to prepare for the deadlines specified relating to the scoping plan.

Part II—Additional Evaluation Criteria for Scoping Plan Measures

In addition to the above issues, we believe that changes in the current approach are needed to adequately address the following additional criteria that apply to scoping plan measures:

- Recommendations shall be made by ARB on “direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and non-monetary incentives for sources...” Health & Safety Code § 38561(b). This implies that options other than command-and-control must be considered, **in parallel and on the same timeframe** as command-and-control. If ARB intends to have viable options other than command-and-control, ARB must devote equivalent resources to those options, including those needed for the public participation process, to make these options available as a way of mitigating the high costs of command & control. Given the complexity of market-based mechanisms, the effort required is significant, and the fact that ARB has made no recent public announcement concerning progress in these areas suggests that, at best, there will be a delay compared to other efforts, and, at worst, this option is no longer under consideration.
- ARB must “ensure that activities undertaken pursuant to the regulations complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions.” Health & Safety Code § 38562(b)(4). Currently, the federal government has ongoing efforts to reduce mercury emissions from cement plants and other sources. The federal efforts include studies of mercury emissions, detailed control equipment performance analyses, and other efforts aimed at understanding the mercury problem and selecting a technically sound solution. Consistency between these programs needs to be considered and how any changes under the guise of AB32 would potentially impact these federal efforts.
- ARB’s policies are required to minimize leakage. Health & Safety Code § 38562(b)(8). Command-and-control measures that involve large burdens on domestic industry that are not shared by out-of-state industry lead to leakage. Therefore, ARB needs to actively pursue strategies to prevent leakage for the cement industry.

The following describes the cement industry efforts in each of the above areas:

- Relating to alternative compliance mechanisms and market-based mechanisms, the cement industry has been actively working on alternative fuels and has previously provided extensive comments to the Market Advisory Committee (MAC) regarding the proposed format for a GHG market in California.
- Relating to mercury emissions, the Portland Cement Association is currently conducting a detailed study of mercury emissions and working closely with EPA on mercury regulation development. Part of the study is evaluating the relative significance of fuel and raw material contributions to mercury emissions. In the scenario that the raw material contribution is relatively significant, fuel switching will have less than expected effects on mercury emissions.
- Relating to leakage, the cement industry is investigating compliance options that will level the playing field between domestic and out-of-state industry.

We look forward to coordinating our efforts in these areas with those of ARB and providing the additional data in order that ARB makes appropriate technological and cost effective determinations.

Part III—Auxiliary Impacts of AB32 on the Cement Industry

In developing AB32 regulations for the cement industry, we request that ARB be mindful of the economic circumstances impacting the cement industry, and extend the same protections to the cement industry as are being offered to the utility sector. For example, in the utility sector, extensive consideration has been given to the problem of imports. Yet, as much as 40% of the cement sold in California comes from outside the State. Therefore, any legitimate, AB32-compliant consideration of the cement sector needs to address the issue of imports to the same degree that it is addressed in the utility sector. In addition, ARB is actively considering market-based mechanisms for the utility sector, because of potential benefits in higher program effectiveness and lower program costs. The cement sector would also like to have the option of using market-based mechanisms. Finally, economic modeling is being performed to evaluate alternative utility sector programs. Similarly, detailed economic modeling is necessary to evaluate the impact of AB32 on the cement industry, particularly since, unlike the utility industry, the cement industry cannot pass through costs. It does not make sense to apply these regulatory principles to the utility sector, and not apply them to the cement sector, given that the cement sector suffers from similar problems.

In addition to our request that the cement sector be given the same consideration as the utility sector, we ask ARB to consider the following unique features of the cement industry affecting AB32 compliance:

- The cement industry is a large consumer of electricity. Given the projected increases in electricity rates associated with AB32 and other GHG requirements, the cement industry faces significant operating cost increases, even without the requirement to take any additional cement-specific AB32 compliance measures. If the cost of electricity increases 50% as some experts predict, the variable cost of cement (the portion of cost that is not tied to capital investment) will increase 20 to 40%. **Hence, it is likely that the cement industry will actually be paying for a significant percentage of the changes already being made in the utility sector**, in addition to funding any changes applied by ARB to the cement sector itself.
- Another issue for the cement industry is that one potential technology to improve cement industry efficiency is to install a cogeneration system to recover waste heat from the cement process and generate electricity. However, current PUC policies create disincentives for cogeneration, and planned changes under SB1368 may prevent new cogeneration systems from coming on-line, even though the use of cogeneration achieves a significant net GHG reduction, as recognized in national and international standards. This is an example of a policy of another state agency (the PUC) that is not technically sound and will actually increase GHG emissions, in contravention of AB32. At a minimum, ARB should issue a statement to the PUC about the technical issues for bottoming-cycle cogeneration, where ARB has recently published a technical approach under the mandatory reporting regulations.
- Another potential technology for reducing GHG in the cement industry is the use of alternative fuels. Using biofuels and waste fuels can provide a net GHG benefit, because the waste fuels displace fossil fuels, and provide energy while being converted to CO₂, which the fuels would eventually have been converted to CO₂ anyway in the waste treatment process (with no energy benefit). However, there are significant barriers to alternative fuel use in the cement industry, and most of these barriers are due to incorrect public perceptions and misinformation, rather than legitimate scientific concerns. ARB can play a significant role in educating the public and environmental groups about these issues.

For each of the above problems, we believe that ARB can play a key role in **helping** the cement industry realize further GHG reductions. As with all environmental programs, achieving GHG reduction will involve certain tradeoffs with other policy goals. Therefore, in addition to playing the role of enforcer, ARB should be taking a strong stance within State government to steer other agencies towards enlightened GHG-friendly policy. ARB should expend equal efforts on helping industry meet GHG goals as on developing performance mandates. We again note that

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we are diligently gathering data in response to ARB requests and working with ARB on defining technologically feasible and cost effective GHG reduction measures as quickly as possible.

We appreciate your consideration of our perspectives on these matters. We remain committed to working constructively with the California Air Resources Board and the California Environmental Protection Agency on AB 32 implementation, and to that end, would be delighted to address any questions you may have on the views conveyed herein.

If you have any questions about these comments, please contact Anne McQueen with Geomatrix Consultants, Inc., at 949-574-7082. Thank you for your consideration.

Sincerely yours,



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