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Loma Prieta Chapter serving San Mateo, Santa Clara & San Benito Counties

Ms Kristina Chu, Public Information Officer  
Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, CA 94109

25 March 2011

Reference: Public Comments on the Title V Application of Lehigh Southwest Cement Company (Lehigh), Application 17947, Facility A0017

Dear Ms Chu:

Writing on behalf of the Sierra Club Loma Prieta Chapter's Air Quality Committee we wish to provide the following comments:

In reviewing the contents of the Title V Application, several areas of potential deficiency are noted. A detailed explanation of these potential deficiencies is attached as an Exhibit. In reviewing this application, we believe important to keep in mind that the Lehigh plant's pollution exposes a large population to its deleterious effects. The atmosphere around the plant is stagnant and over one million people live within a 25-mile radius. So, as reflected in the first point below, the permit renewal should require comprehensive and aggressive adherence to the most recent standards. Comprehensive adherence includes scientifically accurate monitoring of the pollutants in the emissions (see item 4). Our attached commentary expands on the following summary points:

1. The renewal application does not explicitly endorse full compliance with the latest Federal Regulations (NESHAP - Appendix A). In fact, Lehigh is a member of an industry association that is challenging the regulations in court. Lehigh should commit to compliance with the regulations irrespective of the outcome of future court challenges or even legislative actions. What is paramount is the health of the population, many of whom are children, in the vicinity of the plant.
2. There should be a serious commitment to minimize greenhouse gas emissions. The use of natural gas and replacing train hauling with truck hauling would reduce an important greenhouse gas: carbon dioxide.

3. There should be compliance with Spare-the-Air-Alert days. Since the facility is a major contributor to the County's NO<sub>x</sub> and SO<sub>2</sub> emissions, Lehigh should curtail emissions during Spare-the-Air-Alert days.
4. There should be continuous or at least daily measurements of the individual pollutant chemicals. The use of particulate emissions (PM<sub>10</sub>) as a surrogate indicator for various pollutants is cited several times throughout the Statement of Basis. This is an inadequate method of inferring the pollution levels of dangerous chemicals such as Benzene (a carcinogenic), Mercury (a neurologically active agent), and Chromium VI (carcinogenic and liver poison) among others. Since the emission of these pollutants varies depending on the composition of the materials in the kilns and operational parameters, it is critical that daily direct measurements be made. The document references critical upgrades such as going back to a single exhaust stack, using activated carbon injection, and inserting Kiln Mill Dust Collector (KMDC) materials in the product, but does not provide clear implementation schedules.
5. There should be another air quality monitoring station setup. The location of the current Monta Vista Park monitoring station is inadequate to assess the impact of the facility in that the park is typically upwind of the facility and is located 150 feet below the facility entrance.
6. There should be a new, comprehensive, and thorough Health Risk Assessment (HRA) produced prior to approving any Permit. The HRA referenced in the application (page 7) is under revision. Moreover, the referenced document used out-dated and low values for emissions.

Thank you for the opportunity to comment on this Renewal Permit. Although the cement products produced by this facility are of value to the community, it is essential that they be produced in a fashion that does not cumulatively degrade our community health.



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Comments on Title V Application of Lehigh Southwest Cement Company,  
Application 17947, Facility A0017

1. The current application does not wholeheartedly commit to compliance with National Emission Standards for Hazardous Pollutants From the Portland Cement Manufacturing Industry and the Standards of Performance for Portland Cement (NESHAP) to the New Source Performance Standards (NSPS) for Portland Cement Plants announced on September 9, 2010 in the Federal Register. Without Activated Carbon Injection, or some equivalent technique, the facility cannot meet the federally mandated emission levels. Yet, Lehigh indicates that another application will include (see page 7 of the Permit Evaluation and Statement of Basis subsequently referred to as Renewal Permit) such additions.

Lehigh is a member of the Portland Cement Association, which has filed a lawsuit challenging NESHAP. However, given that Lehigh professes to be a good corporate citizen, and this particular plant is within a populated area with stagnant air due to the constraints of the mountains and frequent inversion layers, Lehigh should commit unequivocally to conform to these emission levels in this application, and that these levels will be accurately measured and monitored.

The NESHAP and NSPS regulations were developed after years of work evaluating the health impact to people and feasibility of implementation. Appendix A is a summary provided by the EPA of the regulations and their benefits.

2. The permit does not address adequately the requirement by both State and Federal Law to reduce greenhouse gas (GHG) emissions. The GHG reduction should consider the following:
  - a. Replace the use of coal and coke for heating with natural gas. Natural gas has been used in the past and produces only half the carbon dioxide emissions per unit of energy. Also, natural gas is a naturally “cleaner” fuel as it will emit fewer poisonous contaminants than either coke or coal.
  - b. Increase the use of trains in transferring materials to and from the plant. Trains are more efficient than the trucks, which are currently used.
  - c. There is no discussion about the feasibility of improving the energy efficiency of the plant through insulating the kilns, etc.

The need to reduce Greenhouse Gases is address on page 21 in the context of using biofuels, but this initiative is “on hold until further notice from Lehigh.”

3. The permit does not address the curtailing of operation during Spare the Air Alerts. According to the EPA’s March 9, 2010 Notice of Violation, the plant is in violation of a PSD (Prevention of Significant Deterioration) of NO<sub>x</sub> and SO<sub>2</sub> emissions. The limits on NO<sub>x</sub> emissions and SO<sub>2</sub> emissions are 5,072 tons/year and 2,106.8 tons/year, respectively. These values indicate that Lehigh is a significant contributor of these pollutants in the County. According to the Bay Area Air Quality Management District, the County vehicular traffic emitted 9,400

tons per year in 2005. Improvements in automobile emission controls by 2011, would reduce this to about 8,000 tons per year. Thus, the plant's emissions are a significant contributor to NOx emissions in the valley. Lehigh should eliminate or reduce operations on Spare the Air Days. (see Appendix B). Obviously, if the "Spare the Air Alerts" are to be effective, this plant must curtail their operations on these days.

4. At several places in the document (page 5 and 108) it is stated that the particulate content (PM<sub>10</sub> in particular) be used as a surrogate for assessing the presence of pollutants. This is an inadequate indicator of emissions as the amount of pollutant emitted is not simply dependent on the amount of particulates, but also the concentration of the pollutant in the material and the precise nature of the manufacturing process. A recent report, dated December 10, 2010 has actual sample data of mercury content of the pre-blend stone, iron ore, and bauxite. The table reveals a 7:1 ratio in the maximum to minimum concentration of mercury in the stone and iron ore. This is explicit evidence of the need for direct and frequent measurements of the pollutants. Moreover, much of the poisonous mercury will be given off as a gas and not reflected at all in the particulate emissions.

The dangerous ionic state of chromium is chromium VI, which is highly toxic. In several places (such as the tables on page 114 and 115), the chromium VI is calculated as one-seventh the total chromium. The actual ratio will depend on the chemical compound in which the chromium atom is contained. This situation is discussed more on the next several pages of the Renewal Permit where Hanson Permanente Cement commits to monthly and then quarterly testing of the input material. This is too infrequent to protect the public. Also, they are committing only to testing the input petroleum coke and not the other constituents.

5. On page 8 the operation of the air-quality monitoring station at Monta Vista Park is discussed. The statement is made that "The PM<sub>10</sub> concentrations measured ... are similar to PM<sub>10</sub> concentrations measured at other Bay Area Locations." other urban settings." However, the document does not discuss that the monitoring station is 150 feet below the facility entrance and that the station is located upwind of the plant. Moreover, the concerns of much of the public has to do with the specific pollutants (such as mercury, chromium, and benzene) whose presence may not be indicated by the simple PM<sub>10</sub> concentration. Additional stations should be installed and operated to represent what is emitted into the valley's air basin. The concentration of all dangerous pollutants should be reported.
6. The Health Risk Assessment Report (see page 7, item 5) needs revision as described subsequently. The EPA has produced an extensive HRA that describes the national health and financial benefits to implementing air pollution controls on cement plants. Nationally, these regulations, which are not fully committed to in the Application, would save between \$6.7 billion and \$18 billion dollars and avoid 1,500 heart attacks, and 130,000 missed workdays. Scaling these numbers by the plant size would imply a 1%-2% benefit for the Bay Area. It is likely the

effect would be greater since, as the report states, “Computer models show that the biggest reductions generally occur near cement kilns.” Appendix A is the EPA fact sheet associated with the report.

The Health Risk Assessment Report (HRA) report referred to in Title V Statement of Basis page 7 item 5 is based on the AERMOD air dispersal program. This program was run based on input meteorological conditions from locations such as the Oakland Airport, which are 40 miles from the facility. The applicability of its output is suspect. At a minimum the model predictions should be subject to a sensitivity analysis involving multiple runs, perhaps one hundred, in which different, but likely input parameters are used. This would greatly reduce the errors associated with only set of parameters.

Moreover, a HRA report (November 2008), which was prepared by BAAQMD, concluded that the maximum health risk was 4.2 in a million (page 2), which is below the public notification level of 10 in a million. But this report was based on mercury emissions of 219 lb/year. The recent letter of December 6, 2010 by AMEC Geomatrix states the emissions in 2005 were 1,284 lb/year – six times the value included in the 2008 HAR assessment. Thus, assuming a linear relationship between emissions and the health risk, the current emission estimates would be above the cancer risk of 10 in a million (i.e., 25 in a million).

The December 6, 2010 letter for emission estimates might actually be low since they were based on an incorrectly calculated sample average. In the letter the concentrations of mercury in the pre-blend stone were measured daily and revealed in table 1. However, in determining the input to the model, the mercury concentrations on 3/26/2009 and 3/27/2009 were eliminated from the average without explanation. Moreover these high values were eliminated from the category of “Maximum Detected Value.” The values on these days are higher than the other measurements, but in the absence of evidence of an error in the measurement on these days, this analysis should be considered indicative of the variation in the concentrations in different batches.

On page 121 and 122, there is a requirement for Lehigh to perform monthly measurements of benzene since its emissions are “associated with the raw feed’s material composition.” The request should be for daily measurements since the content of the materials can vary at a much higher frequency than monthly. The previously mentioned HRA states that benzene is the dominant pollutant in creating the risk. Moreover, the management of Lehigh has demonstrated to be defiant of environmental regulation. More recently, the California Regional Water Quality Control Board in a letter on February 18, 2011 sited several violations and was critical of their lack of response to a previous letter. Past history reveals several NOV’s per year.

The Statement of Basis page 7 states a new AB2588 HRA will be submitted by January 7, 2011. Such a revision has not been made publicly available as of this

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writing. Nevertheless, the approval of a new Title V permit must be contingent upon a professionally done and thorough HRA.

**Appendix B: FACT SHEET**  
**FINAL AMENDMENTS TO NATIONAL AIR TOXICS EMISSION STANDARDS**  
**AND NEW SOURCE PERFORMANCE STANDARDS FOR PORTLAND CEMENT**  
**MANUFACTURING**

**ACTION**

On August 6, 2010, EPA issued amendments to two rules that will significantly reduce emissions of mercury and other air toxics and particle-forming pollutants from new and existing Portland cement kilns across the United States. The rules also will limit emissions of ozone- and particle-forming pollutants from new kilns.

EPA's amended *air toxics standards* will reduce air emissions of mercury, total hydrocarbons, hydrochloric acid and particulate matter from both new and existing cement kilns. The rules apply both to large and small kilns that emit toxic air pollutants. Air toxics, also known as hazardous air pollutants, are known or suspected to cause cancer or other serious health effects. Portland cement manufacturing is the third-largest source of mercury air emissions in the U.S.

The Agency's amended *new source performance standards* will reduce nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>) and particulate matter from new kilns. NO<sub>x</sub> and SO<sub>2</sub> both are harmful to health, and they react in the air to form other harmful pollutants. NO<sub>x</sub> contributes to the formation of ground-level ozone and fine particle pollution, two of the pollutants most commonly found across the U.S. SO<sub>2</sub> contributes to fine particle pollution.

The combined benefits of the two rules significantly outweigh costs, yielding an estimated \$7 to \$19 in public health benefits for every dollar in costs.

Portland cement manufacturing is an energy-intensive process that grinds and heats a mixture of raw materials such as limestone, clay, sand and iron ore in a rotary kiln. That product, called clinker, is cooled, ground and then mixed with a small amount of gypsum to produce concrete. Pollutants are emitted from the burning of fuels and heating of the raw materials. Emissions also can occur from the grinding, cooling and materials-handling steps in the manufacturing process.

A projected 181 Portland cement kilns will be operating at approximately 100 facilities in the United States in the year 2013. The amended air toxics requirements will apply to 158 of those kilns. The remaining kilns are subject to a separate regulation, for kilns that burn hazardous waste. About seven kilns will be subject to the new source performance standards.

EPA estimates the following annual emission reductions when the rules are implemented in 2013:

Mercury: 16,600 pounds, a 92 percent reduction from projected 2013 emission levels

Total hydrocarbons: 10,600 tons, a reduction of 83 percent;

Particulate matter: 11,500 tons, a 92 percent reduction;

Acid gases (measured as hydrochloric acid): 5,800 tons, a 97 percent reduction;

Sulfur dioxide (SO<sub>2</sub>): 110,000 tons, a 78 percent reduction; and

Nitrogen oxides (NO<sub>x</sub>): 6,600 tons, a reduction of 5 percent.

□

Another EPA model estimates reductions in some pollutants that would be slightly less.

### **WHAT THE AMENDED RULES WILL REQUIRE**

*Air Toxics Standards (National Emissions Standards for Hazardous Air Pollutants)*

Under the Clean Air Act, EPA must set industry-based standards for 187 air toxics, also called hazardous air pollutants. These standards apply to both new and existing sources.

Today's amended rule sets emission limits for mercury, total hydrocarbons and particulate matter that apply both to kilns that are major sources of air toxics and to kilns that are area sources. The rule also sets a hydrochloric acid limit (to reduce acid gases) for major source kilns only.

A "major source" of air toxics emits 10 or more tons a year of a single air toxic pollutant, or 25 or more tons of a combination of air toxics. Sources emitting lesser amounts are known as "area sources."

The emissions limits include:

<b>Pollutant</b>	<b>Existing Source Kilns</b>	<b>New Source Kilns</b>
Mercury	55 pounds per million tons of clinker, averaged over 30 days	21 pounds per million tons of clinker, averaged over 30 days
Total Hydrocarbons	24 parts per million by volume (ppmv), averaged over 30 days	24 ppmv, averaged over 30 days
Particulate Matter (as a surrogate for toxic metals other than mercury)	0.04 pounds per ton of clinker, averaged over 30 days	0.01 pounds per ton of clinker, averaged over 30 days
Hydrochloric acid (major sources only)	3 ppmv, averaged over 30 days	3 ppmv, averaged over 30 days



built after May 6, 2009) must comply at startup or within 60 days after this rule was published, whichever is later.

□

The amended rule removes a ban on the use of fly ash from utility boilers beginning in 2013 (the compliance date for the air toxics standards). Previous rules banned the use of fly ash from utility boilers if the mercury content of that fly ash had increased as a result of certain utility mercury emission controls, such as activated carbon injection. The amendments address emissions from fly ash through the mercury emission limits.

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EPA also is requiring continuous emissions monitoring for mercury, total hydrocarbons, particulate matter, and, in some cases, hydrochloric acid.

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As part of today's rule, EPA is issuing methods and criteria for installing and certifying the accuracy of continuous emission monitoring systems for mercury.

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The particulate matter monitoring requirement replaces existing opacity (visual evaluation) standards with a more accurate means of demonstrating compliance with particulate matter emissions limits.

New Source Performance Standards

The Clean Air Act requires EPA to set new source performance standards (NSPS) for industrial categories that cause, or significantly contribute to, air pollution that may endanger public health or welfare. Cement kilns emit NO<sub>x</sub> and SO<sub>2</sub>, which are harmful to health and which react in the air to form other harmful pollutants. Kilns also emit particulate matter.

Today's amended new source performance standards (NSPS) will apply to all cement kilns built after June 16, 2008. Those standards set emissions limits for nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>) and particulate matter. The limits for particulate matter are the same as the new source limits under the air toxics standard.

The NSPS emission limits are:

New Source Performance Standards	
Pollutant	Emission Limits
NO <sub>x</sub>	1.5 lb/ton clinker, averaged over 30 days
SO <sub>2</sub>	0.4 lb/ton clinker, averaged over 30 days
Particulate Matter	0.01 pounds per ton of clinker, averaged over 30 days

EPA is requiring continuous emissions monitoring each of the three pollutants covered under this rule.

□

Kilns must comply with the new source performance standards within 60 days of publication of the rule in the *Federal Register*, or at startup, whichever is later.

## **BENEFITS AND COSTS**

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The public health benefits of the two rules are expected to significantly outweigh costs.

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EPA estimates benefits of these rules will range from \$6.7 billion to \$18 billion annually in 2013, as a result of reductions in fine particle pollution (PM<sub>2.5</sub>). This includes the value of avoiding 960 to 2,500 premature deaths in people with heart disease. EPA estimates this rule also will prevent other serious health effects each year, including:

17,000 cases of aggravated asthma,

1,500 heart attacks,

650 cases of chronic bronchitis,

1,000 emergency room visits for respiratory problems, such as asthma,

740 hospital admissions for respiratory or cardiovascular problems,

32,000 cases of upper and lower respiratory symptoms,

130,000 days when people miss work, and

750,000 days when people must restrict their activities because of particle pollution-related symptoms.

□

Today's air toxics rule also is expected to reduce the amount of mercury that deposits to land and water by up to 30 percent in some areas of the western United States, and 17 percent in some areas of the East. Computer models show that the biggest reductions generally occur near the cement kilns.

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Once mercury from the air reaches water, microorganisms can change it into

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methylmercury, a highly toxic form that builds up in fish. Methylmercury exposure is a particular concern for women of childbearing age, unborn babies, and young children, because studies have linked high levels of methylmercury to damage to the developing nervous system. This damage can impair children's ability to think and learn.

□

EPA conducted two analyses to estimate costs of implementing the new standards. An analysis estimating the costs of installing and operating pollution controls and indirect social costs at \$926 million to \$950 million annually in 2013. Another analysis, which includes only the costs of installing and operating controls, estimates costs will be lower, at \$350 million annually in 2013.

## **BACKGROUND**

EPA issued air toxics standards for Portland cement manufacturing in June 1999. That rule established emissions limits for particulate matter as a surrogate for certain metals, dioxins and furans, and set a total hydrocarbon limit for new kilns (those constructed after March 24, 1998). It did not include limits on total hydrocarbon for existing sources, or for acid gases and mercury for new or existing sources.

Several organizations filed petitions for judicial review of that rule. On Dec. 15, 2000, the U.S. Court of Appeals for the D.C. Circuit remanded parts of the 1999 air toxics standards. The Court instructed EPA to set standards for hydrochloric acid, mercury, total hydrocarbons and metal hazardous air pollutants.

In response to the remand, EPA amended the air toxics standards for Portland cement kilns in December 2006. The amendments set emissions limits for mercury and total hydrocarbons for cement kilns built after Dec. 2, 2005. The amendments also required that existing kilns meet “work practice” standards for mercury and hydrocarbon emissions. The final rule also adopted a standard for new and existing sources banning the use of utility boiler fly ash in cement kilns where the fly ash mercury content has been increased through the use of activated carbon or any other sorbent. The 2006 amendments did not set limits on hydrogen chloride emissions from cement kilns.

In a separate action Dec. 8, 2006, EPA announced that it would reconsider the emission limits for mercury and total hydrocarbons for new cement kilns. Today’s action responds to that reconsideration.

Before the Dec. 8, 2006 reconsideration, the cement industry, environmental groups and states sued the Agency on the final amendments. The litigation was stayed by court order pending EPA’s completion of today’s rules. EPA also received petitions to reconsider the existing-source standards for mercury and total hydrocarbons, and the decision not to regulate hydrochloric acid. EPA granted those petitions, and today’s final amendments serve as a response.

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**FOR MORE INFORMATION**

To download a copy the final rule, go to EPA's Worldwide Web site at <http://www.epa.gov/ttn/oarpg/ramain.html>

Information about previous rules is available at <http://www.epa.gov/ttn/atw/pcem/pcempg.html>.

For technical information about the rules, contact Keith Barnett of EPA's Office of Air Quality Planning and Standards at (919) 541-5605 or [barnett.keith@epa.gov](mailto:barnett.keith@epa.gov)

## **Appendix B: Calculations of NO<sub>x</sub> and SO<sub>2</sub>**

According to the EPA's Notice of Violation on March 9, 2010 (page 12 of the Permit Application), the emission limits for NO<sub>x</sub>, and SO<sub>2</sub> are respectively 5,072 tons/year and 2,106 tons/year.

The 9,400 tons/year of NO<sub>x</sub> was extracted from A report by the Bay Area Air Quality Management District, dated December 24, 2008 and titled "Emission Inventory Summary Report Base Year 2005." On Table 14, page 20, of the report, the estimated emissions from passenger cars/light-duty vehicles is given as 25.8 tons/day. This value times 365 provides the 9,400 tons/year value used in the text.

Moreover, Santa Clara Valley Vehicle –miles-traveled has been estimated by Metropolitan Transportation Commission to have been 40,037,600 in 2007. At the emission rate of 0.07 grams/mile (requirements for 2011 cars), the annual emissions are only 2,800 tons/year. Thus, the plant emissions today are a significant portion of the total for the county and in future years will become the dominant emitter.

SO<sub>2</sub> is also a factor, and the emissions from the plant may actually dominate the county's 750 tons/year (using the same table as above).