Initial Study/Negative Declaration for the Amendments to Bay Area Air Quality Management District Regulation 9, Rule 13: Nitrogen Oxides, Particulate Matter, and Toxic Air Contaminants From Portland Cement Manufacturing

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Chapter 1

Introduction

Purpose of this Document

This Negative Declaration assesses the environmental impacts of the proposed adoption of Regulation 9, Rule 13 – Nitrogen Oxides, Particulate Matter, and Toxic Air Contaminants from Portland Cement Manufacturing (Regulation 9-13) - by the Bay Area Air Quality Management District (BAAQMD or District). This assessment is required by the California Environmental Quality Act (CEQA) and in compliance with the state CEQA Guidelines (Title 14 California Code of Regulations §15000 et seq.). A Negative Declaration serves as an informational document to be used in the decision-making process for a public agency that intends to carry out a project; it does not recommend approval or denial of the project analyzed in the document. The BAAQMD is the lead agency under CEQA and must consider the impacts of the proposed rule amendments when determining whether to adopt them. The BAAQMD has prepared this Negative Declaration because no significant adverse impacts are expected to result from the proposed rule amendments.

Scope of this Document

This document evaluates the potential impacts of the Proposed project on the following resource areas:

- aesthetics,
- agriculture and forestry resources,
- air quality,
- biological resources,
- cultural resources,
- geology / soils,
- greenhouse gas emissions,
- hazards & hazardous materials,
- hydrology / water quality,
- land use / planning,
- mineral resources,

- noise,
- population / housing,
- public services,
- recreation,
- transportation / traffic, and
- utilities / service systems.

Impact Terminology

The following terminology is used in this Initial Study/Negative Declaration to describe the levels of significance of impacts that would result from the proposed rule amendments:

- An impact is considered *beneficial* when the analysis concludes that the project would have a positive effect on a particular resource.
- A conclusion of *no impact* is appropriate when the analysis concludes that there would be no impact on a particular resource from the proposed project.
- An impact is considered *less than significant* if the analysis concludes that an impact on a particular resource topic would not be significant (i.e., would not exceed certain criteria or guidelines established by BAAQMD). Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that an impact on a particular resource topic would be significant (i.e., would exceed certain criteria or guidelines established by BAAQMD), but would be reduced to a less than significant level through the implementation of mitigation measures.

Organization of This Document

The content and format of this document, described below, are designed to meet the requirements of CEQA.

- Chapter 1, "Introduction," identifies the purpose, scope, and terminology of the document.
- Chapter 2, "Description of the Proposed Rule," provides background information of Regulation 9, Rule 10, describes the proposed rule amendments, and describes the area and facilities that would be affected by the amendments.

- Chapter 3, "Environmental Checklist," presents the checklist responses for each resource topic. This chapter includes a brief setting description for each resource area and identifies the impact of the proposed rule amendments on the resources topics listed in the checklist.

- Chapter 4, "References Cited," identifies all printed references and personal communications cited in this report.

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Chapter 2

Description of the Proposed Rule

BACKGROUND

The BAAQMD is proposing to regulate nitrogen oxides (NO_X), particulate matter (PM), toxic air contaminants (TACs), and ammonia emissions from Portland cement manufacturing operations by adopting Regulation 9, Rule 13, (Regulation 9-13). Regulation 9-13 is proposing to impose NOx, PM, and TAC limits based on the tons of clinker (a preliminary stage of cement) produced at Portland cement manufacturing facilities operating within the District's jurisdiction. Currently, there is one existing Portland cement manufacturing facility within the jurisdiction of BAAQMD known as the Lehigh Southwest Cement Plant (Lehigh).

In Stationary Source Control Measure 9 (SSM-9) of the Bay Area 2010 Clean Air Plan, the District identified Portland cement manufacturing as a potential source of emissions reductions of NOx, a precursor of ozone and secondary fine particulate matter. Additionally, the control measure sought to reduce emissions of sulfur dioxide (SO_2), a precursor of fine particulate matter, and PM, from the manufacturing of Portland cement. Reducing emissions would allow the District to make progress toward meeting federal and state ozone and particulate standards, for which the District is currently in a non-attainment status.

In August of 2010, the United States Environmental Protection Agency (U.S. EPA) issued final amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry. The revised NESHAP significantly reduces emissions of TACs from new and existing Portland cement kilns. Since adoption of the amended rule, individual Portland cement manufacturing companies along with the national industry association have petitioned the U.S. EPA to reconsider these rules, and subsequently challenged them in Federal Court. In addition, legislation has been proposed in both the U.S. House of Representatives and Senate (H.R. 2681 and S. 1610, Cement Sector Regulatory Relief Act of 2011) to provide a legislative stay of U.S. EPA emissions standards that apply to cement manufacturing plants. In April, 2012, a settlement agreement was reached between the cement manufacturers and EPA. It stipulates EPA will consider comments submitted by the industry and, by June 15, 2012, propose a delay of up to two years, or leave the deadline unchanged and solicit comments on the action. In order to ensure that emissions from the manufacture of Portland cement are expeditiously reduced in the Bay Area, the NESHAP emissions limits for the Portland Cement Industry are included in the proposed Regulation 9-13.

On June 22, 2012, EPA proposed revised amendments to the NESHAP. The NESHAP would, if finalized in December, 2012, allow two additional years to comply with the

limits and change the limit for PM from 0.04 pounds per ton of clinker to 0.07 pounds per ton of clinker. To provide the most stringent standard feasible to protect public health, the District proposes to make the standards for TACs go into effect in 2013 and to retain the 2010 NESHAP limit of 0.04 pounds PM per ton of clinker.

OBJECTIVES

In SSM-9, the District suggested further limits of NOx, PM, and SO_2 emissions from cement production. The objective of the proposed Regulation 9-13 is to achieve the maximum feasible, cost effective emissions reductions of NOx and PM in concert with efforts to bring the Lehigh facility into compliance with limits for TACs consistent with the federal NESHAP requirements. NOx reductions are necessary in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The Bay Area and neighboring regions are not yet in attainment with the State one-hour ozone or PM standards, so further emission reductions are needed.

The U.S. EPA has set primary national ambient air quality standards for air pollutants to define the levels considered safe for human health. The California Air Resources Board (CARB) has also set California ambient air quality standards. The Bay Area is a non-attainment area for the state one-hour ozone standard and federal eight-hour ozone standard. In addition, the Bay Area is not in attainment of California ambient air standards for particulate matter of 10 microns or less (PM10) or for particulate matter of 2.5 microns or less (PM2.5). Under State law, non-attainment areas must prepare plans showing how they will attain the state standards. The BAAQMD has prepared, approved and is currently implementing, the 2010 Clean Air Plan (CAP) which provides a plan to show how the district will meet applicable air quality standards. The CAP included SSM-9, which considers emissions reductions of NOx and PM from the manufacturing of Portland cement.

PROPOSED RULE

The District is considering adoption of Regulation 9-13 to achieve the maximum feasible, cost effective emissions reductions of NOx and PM in concert with efforts to bring the Lehigh facility into compliance with limits for TACs consistent with the 2010 federal NESHAP requirements.

Two federal rules address air emissions from the manufacture of Portland cement: New Source Performance Standards (NSPS) and NESHAPs. EPA promulgates NSPS for specific industrial operations to address emissions of criteria pollutants from new, modified, and reconstructed sources. NESHAP requirements address TAC emissions from both new and existing sources, and may have separate standards for each case. The most recent amendments to the NSPS for Portland cement manufacture were proposed in June 2008. The previous standard remains in effect for all sources constructed after 1971. For facilities constructed, modified, or reconstructed after June 6, 2008, emissions standards are more stringent and continuous emission monitoring systems (CEMS) are

required. The EPA issued final amendments to the NESHAP and NSPS requirements for cement kilns concurrently in August of 2010. The modifications to the NSPS and NESHAP were required to be implemented by September 2013, but the compliance deadline has been extended until September, 2015 in the revised amendments to the federal rules. The implementation of the amendments to the NESHAP requirements for cement kilns are expected to result in emission reductions of mercury, total hydrocarbons and hydrogen chloride. The implementation of the NSPS requirements for cement kilns are expected to result in emission reductions of SO_2, NOx and PM.

As an existing facility, Lehigh is not subject to the criteria pollutant emissions standards of the amended NSPS. Significant modifications will be required to reduce TAC emissions, including additional controls such as lime slurry injection (LSI) and activated carbon injection (ACI), as well as enhanced monitoring requirements. The emission limits proposed in Regulation 9-13 represent the maximum feasible NOx and PM controls as applied to an existing unmodified source. The equipment modifications necessary to meet the proposed NOx emission limit may result in some excess ammonia emissions. Ammonia is a TAC and a precursor to secondary particulate matter formation, for this reason an ammonia emission limit is included in the proposed rule. Additional requirements of the proposed rule address concerns over the present configuration of the emission point from the kiln, and the need for enforceable fugitive dust control and mitigation measures. The proposed effective date of September 9, 2013 corresponds with that of the NESHAP as amended prior to the June, 2012 proposal.

Criteria Pollutant Emissions Limits

The District proposes the following emission limits for Portland cement manufacturing kilns:

- 2.3 pounds NOx per ton of clinker produced averaged over 30 days
- 0.04 pounds PM per ton of clinker produced
- 10 ppmv ammonia above baseline, dry at 7 percent oxygen averaged over 24 hours.

Where possible, limits and averaging times are expressed to maintain consistency with federal standards and represent the most stringent limits that Lehigh can achieve for these pollutants in a cost-effective manner. BAAQMD has evaluated the controls required by the federal standards and has proposed these standards based on reasonably achievable emission rates for this facility. The NOx and ammonia emission limits will require the use of a continuous emission monitoring system (CEMS) or parametric monitors, as well as a means of monitoring and recording the production rates. PM emission limits will be determined by source test. CEMS, parametric monitors, and production monitoring requirements are detailed in the monitoring and records section of the rule. There is currently no commercially available CEMS for PM; however, there is a reasonable expectation that parametric monitoring equipment will become available before the federal standards requiring CEMS for PM go into effect in 2015. Because of this

uncertainty, the federal rule will require CEMS but compliance will be determined by source test. Lehigh has already installed a parametric monitor to measure ammonia and is currently calibrating and testing this equipment for quality assurance of the measurements. All CEMS and parametric monitors are required to comply with the provisions of the District Manual of Procedures, federal requirements, and to maintain records as provided in District Regulation 1. An initial demonstration of compliance with these emission limits must be performed within 90 operating days of the effective date of the rule and repeated annually thereafter.

Toxic Air Contaminant (TAC) Emissions Limits

The following emission limits are proposed to address TACs:

- 0.2 nanograms dioxins/furans (TEQ) per standard cubic meter, dry at 7 percent oxygen averaged over 24 hours
- 55 pounds mercury per million tons of clinker produced averaged over 30 days
- 24 ppmv Total Hydrocarbons (THC), dry at 7% oxygen averaged over 30 days, or alternatively, 9 ppmv total organic hazardous air pollutant (HAP), dry at 7 percent oxygen averaged over 30 days
- 3 ppmv hydrogen chloride, dry at 7 percent oxygen averaged over 30 days.

The proposed emissions limits are consistent with the federal NESHAP requirements and will provide protection to nearby communities should the federal rules be delayed or overturned either through legislative efforts or pending litigation. Lehigh has currently installed control equipment (LSI and ACI) and monitoring equipment (CEMS and parametric monitors) in order to meet the compliance date of the federal rules.

Opacity Standard and Dust Control

BAAQMD proposes an opacity limit of 10 percent opacity lasting for no more than three minutes in any one hour period from any miscellaneous operation or emissions point other than the kiln or clinker cooler, which are subject to more stringent monitoring by CEMS. Compliance with this standard will be facilitated through the following dust mitigation control measures:

- Mitigation measures to minimize fugitive dust emissions from disturbed soil, open areas and unpaved roads
- Surface stabilization methods for material storage piles and dust suppression methods for material transfer processes, material handling equipment, housekeeping, and material cleanup
- Track-out prevention and control provisions to minimize dust emissions from paved roads

- Vehicle traffic speed limits
- Provisions to minimize emissions from material transfer and blasting at rock quarries
- Personnel training procedures.

These fugitive dust mitigation measures were derived from the Fugitive Dust Control Plan (FDCP) that Lehigh developed in cooperation with the District, as part of Lehigh's recent Title V permit renewal. To provide clarity and improve enforceability, additional definitions and test methods were derived from the California Air Resources Board Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations.

Emission Point Requirements

District staff is proposing that emissions from the kiln enter the atmosphere from a point such that the facility would not be required to perform notifications as per the Air Toxics Hot Spots Program. A Health Risk Assessment performed in accordance with OEHHA guidelines on the revised emissions stack must be submitted to the District showing that even assuming maximum permitted operations, the health risk to surrounding community remains below significance thresholds. In general, a higher emission point allows emitted pollutants to be transported over a longer distance before reaching ground level. The concentration of pollutants decreases as the plume travels from the point of release and is dispersed by wind and other natural forces, greatly reducing health impacts. Structural constraints, dynamic back pressure on the plume, as well as aesthetics and compliance with local building codes place constraints on the actual height of the stack.

Sulfur Dioxide

On June 2, 2010, EPA established a new one-hour SO_2 ambient air quality standard which became effective on August 23, 2010. The new national standard, 0.075 ppmv, is considerably more stringent than the existing California ambient air quality standard, 0.25 ppmv. District staff is examining whether existing sources of SO_2, including Lehigh, have emissions sufficient to result in SO_2 concentrations above the new ambient standard. Based on preliminary dispersion modeling according to EPA specified methodology, Lehigh's SO_2 emissions may result in modeled concentrations above the standard; however, consistent with every other major source of SO_2 in the District, these modeling results do not correlate well with local monitoring data. This is likely due to the complex terrain surrounding the Lehigh facility, which is not adequately accommodated by the AERMOD model. In such instances, the model greatly over-predicts the likely downwind concentration (between 5 and 10 times the monitored data for complex terrain versus twice the monitored data for flat terrain). District staff is evaluating the potential of other models to more closely correlate with existing monitoring and improve the accuracy of the modeled results. Currently Lehigh is limited by permit condition to SO_2 emissions of 481 pounds per hour.

As mentioned previously, the LSI and ACI systems recently installed at Lehigh will reduce SO_2 emissions and the elevated stack will greatly reduce ground level concentrations of this pollutant. No SO_2 emissions standard is being proposed in this rule at this time; however, should future modeling or monitoring results indicate the need for SO_2 reductions from the facility, an emissions standard will be proposed that ensures that Lehigh does not cause an exceedance of the new standard.

PROPOSED METHOD OF CONTROL

Controlling Emissions from Cement Manufacturing

The manufacturing of cement requires the movement and processing of many tons of material as well as the combustion of large amounts of fuel in order to heat that material to extremely high temperatures. Emissions of pollutants are directly attributable to both the fuel combustion and materials processing. Any improvements to the efficiency of the material handling processes as well as the delivery of heat can result in a reduction in emissions to the atmosphere. Over many years of operation Lehigh has implemented efficiency related modifications to their process as cement manufacturing has developed and improved. The facility has switched from a wet to a dry process, introduced heat recovery methods, and installed a precalcining tower. Improved efficiency has reduced emissions. There do not appear to be any obvious additional modifications of this type that might be undertaken at this time. Add-on emissions control or improvements to existing emissions control devices hold greater potential to reduce emissions in a cost effective manner.

NOx Emissions Control

The formation of NOx during the manufacture of cement is due to the high temperature, oxidizing atmosphere necessary for clinker formation. NOx is primarily formed by two mechanisms: the oxidation of molecular nitrogen in the combustion air or “thermal NOx”; and the oxidation of nitrogen compounds in the fuel or “fuel NOx”. Although the contribution of fuel NOx cannot be discounted, in the high temperature zone of cement kilns, thermal NOx is the dominant contributor to NOx formation. Additionally, some NOx may be formed by oxidation of nitrogen compounds from the raw materials or “feed NOx”, and a small amount of NOx is formed instantaneously at the flame surface or “prompt NOx.” The predominant nitrogen species in cement kiln exhaust gas is NO, at typically up to 90-95 percent, with NO_2 accounting for the remainder.

Emissions of NOx from cement manufacture come primarily from the manner in which fuel is combusted to heat and chemically formulate the cement clinker. These emissions may be reduced by control of the combustion zone temperature and excess air, as well as combustion modifications. These modifications include low NOx burners in both the kiln and precalciner, mixing air systems, fuel addition systems, and staged combustion. In addition, post-combustion controls involving the use of chemical additives to the pollutant stream can further reduce emissions of NOx to the atmosphere. Many of these

methods may be used in combination and some preclude one another or have operational constraints due to the design of the kiln that may limit their efficacy.

A number of post-combustion or add-on control techniques have proven successful at removing NOx in exhaust streams from a variety of industrial combustion sources. These include scrubbing technology utilizing various chemical additives, oxidation technology utilizing hydrogen peroxide, and selective reduction technology utilizing ammonia or urea injection either with or without a catalyst present. The applicability of these add-on NOx controls to the exhaust from cement kilns is somewhat limited by high temperature, high flow rate, and high level of particulate in the exhaust. The cost, availability, and handling requirements of the chemical additives can further restrict their usefulness in this application. The two post-combustion techniques that present the greatest likelihood of successful NOx reduction from cement kiln exhaust are selective non-catalytic reduction (SNCR) and selective catalytic reduction (SCR).

Both SNCR and SCR utilize a nitrogen based reducing agent (usually ammonia or urea) to convert NOx into molecular nitrogen (N_2) and water vapor (H_2O). The chemical reactions that accomplish this conversion depend on the reducing agent and the presence of a catalyst. However, the catalyst and the temperature at which the reactions occur is the main difference between SNCR (1600-2000 degrees F) and SCR (570-700 degrees F). Ammonia may be obtained as either anhydrous (dry) or aqueous (mixed with water). Anhydrous ammonia is the most efficient form because it is 100 percent ammonia, but there are significant issues with the transport, handling and storage of anhydrous ammonia. Both U.S. EPA and OSHA classify anhydrous ammonia as a hazardous material. Aqueous ammonia is not a hazardous material but is usually available in concentrations of 19 or 29 percent by weight, so a greater amount is required to achieve the same benefit. Urea is perhaps a safer alternative than anhydrous ammonia, but is about 46 percent nitrogen, so it takes about twice as much mass of urea to provide the same NOx control. Urea is available in dry form or mixed with water at 40 to 50 percent by weight urea solution. Urea solutions are also more viscous than aqueous ammonia so delivery systems must account for this.

Use of either SNCR or SCR would require substantial equipment upgrades as well as operational modifications to any cement manufacturing plant. Operational plans and equipment are required for the delivery, storage, mixing and delivery of the reagent. The complexity of this depends on the form of the reagent used. The performance of these systems is highly dependent on temperature, residence time, and concentration of the applied reagent. Control systems to monitor these variables as well as CEMS for NOx and ammonia are required to determine the optimum conditions to maximize NOx control and minimize emissions of unreacted ammonia. Emissions to the atmosphere of unreacted ammonia resulting from the use of SNCR and SCR are referred to as “ammonia slip” and can result in odor concerns, stack plume visibility problems and secondary PM formation. Additional issues associated with poorly managed SNCR systems at cement plants include the potential for increased emissions of CO, and N_2O (more likely when using urea as a reagent).

SNCR has proven an effective means of NOx control at a number of cement kilns across Europe, Japan, and the United States. As of 2007, over 60 cement plants across Europe utilized SNCR for the control of NOx emissions achieving control efficiencies in excess of 50 percent. Higher NOx reduction efficiencies are possible when SNCR is paired with staged combustion or some other combustion modification. In the United States, the application of SNCR to cement kilns is more recent and initially only proved successful on preheater/precalciner kilns. However, there are currently several cement plants across the country utilizing SNCR including wet kilns, long kilns and those using waste derived fuels. Reported NOx control efficiencies for the U.S. applications run from 12 to 65 percent. Higher efficiencies are generally associated with higher concentrations of ammonia added to the flue gas, and this often results in greater ammonia slip (emissions of unreacted ammonia).

SCR has proven an effective means of NOx control for a variety of combustion sources, from gas turbines at power plants to industrial boilers to diesel locomotives and even automobiles. The application of this technology to cement kilns is much more limited. Primarily, this is due to the high levels of dust (PM) in cement kiln gas at the temperature favorable for SCR use. It is possible to utilize SCR after the PM control device, but the exhaust gases would need to be reheated. SCR requires a catalyst bed, catalyst cleaning system, bypass ducting and periodic replacement of the catalyst, and a significantly higher capital investment over SNCR. In determining emissions levels for the NSPS, EPA considered lower NOx levels based on performance of SCR, but determined that SCR was not "sufficiently demonstrated technology for this industry."

PM Emissions Control

Particulate emissions arise from a variety of activities at cement manufacturing facilities, some of which are amenable to collection and control by add-on systems and some of which are fugitive in nature but which may be reduced by mitigation methods. Dust sources amenable to collection and control include crushing, mixing and storage of raw materials, clinker production and cooling, finish grinding, and packaging. Of these sources, the largest single point of emissions are the stack emissions from the kiln including the feed system, fuel firing, and clinker cooling and handling systems. Fugitive emission come from quarrying and primary crushing of raw materials, storage and handling of raw materials, fuel, clinker, and finished product, and from vehicle traffic.

Fugitive dust emissions are best controlled by efficient site design and lay-out as well as proper maintenance and operation of equipment to reduce spillage and air leakage from collection systems. These can be addressed appropriately in a dust mitigation plan and operation and maintenance plan. Fugitive dust control and mitigation measures include open pile wind protection, use of water spray or chemical dust suppressors, paving, road wetting, and housekeeping requirements, and humidification of stockpiles. Additional measures may include enclosing or encapsulating dusty operations such as grinding, screening and mixing, covering conveyors and elevators, vacuum systems to prevent formation of diffuse dust from spillage during maintenance operations, and flexible

filling pipes for dispatch and loading processes. Particularly dusty operations may require ventilation and collection by a control device similar to that for stack emissions.

Various systems have been employed in the cement industry to control point source or stack emissions in the past, but the predominant means of add-on particulate control currently in use are either fabric filtration (bag houses), electrostatic precipitation (ESP) or a combination of the two (hybrid filters). Hybrid filters are often ESP systems that have been modified to include a bag house in order to extend the useful life of the control device. In some cases a cyclonic separator may be used to remove larger particulate matter upstream of these fine particulate control devices.

Electrostatic precipitators (ESPs) generate an electrostatic field across the path of particulate matter in the air stream. The particles become negatively charged and then migrate to positively charged collection plates downstream of the electrostatic field. The plates are vibrated, tapped or shaken periodically to remove the collected material on a cycle optimized to minimize re-entrainment of the particulate matter. ESPs can operate effectively in conditions of high temperature (up to 750 degrees F) and high humidity. Performance is impaired by particulate build-up on the electrodes forming an insulating layer and thereby reducing the electric field. This is most likely to happen with high chlorine or high sulfur fuel or raw materials forming alkali metal chlorides and sulfates. Explosion risks may also arise in conditions of high CO concentrations in exhaust gas.

Fabric filters are very efficient at dust collection, with the basic principle of a fabric membrane that allows the gas to pass but retains particulate. The most common large scale systems use hanging bags arranged geometrically across the top of a box or chamber, hence the name "bag house." Dust is deposited both on the surface and within the fabric, and in time the dust itself becomes the dominant filtering medium. Periodic cleaning of the fabric membrane is required as dust builds up and resistance to gas flow increases. The most common cleaning methods are compressed air pulsing, reverse airflow, mechanical shaking or vibration. Usually baghouses have multiple chambers that can be isolated in case of bag failure, and to maintain efficiency during the cleaning cycle. Filter bags are available in a variety of woven and non-woven fabrics with some synthetic fabrics that can operate effectively at temperatures above 500 degrees F.

TAC Emissions Control

The TACs addressed in the proposed regulation as well as the federal NESHAP come in a variety of forms, so that control thereof is equally varied. The addition of adsorptive materials to the production process can be utilized to adsorb organic compounds, ammonia and ammonium compounds, HCl, and mercury. The removal of toxic compounds that are emitted in solid form such as lead, beryllium and chrome is also increased slightly by the use of activated carbon. Acidic compounds can be removed through use of scrubbers which either spray caustic liquid into the kiln itself or into a separate reaction chamber downstream of the kiln. Alternatively, dry lime can be utilized in place of the caustic solution. Dioxins and furans are controlled by activated carbon or

through operational controls such as maintaining a lower inlet temperature to the baghouse or other particulate abatement device.

Adsorption addition refers to adding lime or activated carbon to the cement manufacturing process in either a wet or dry form when raw materials are mixed prior to entering the kiln, or directly incorporated into the clinker formation process. The lime may be calcium oxide (CaO) or any of the various chemical and physical forms of quicklime, hydrated lime, or hydraulic lime. Dry scrubbing is another term for the addition of dry CaO and this has already been implemented to a degree at Lehigh. Two raw mills are situated immediately prior to final mixing of the raw materials and test results show a decrease in emissions when these are operating due to the increased addition of pulverized limestone into the flue gas. LSI is a suspension of hydrated lime in water and may be sprayed into the cement kiln flue gas to reduce emissions. Lehigh obtained a permit from the District in 2010 to add LSI to their process (injection point at the last stage of the preheater/precalciner) and the system has been installed and used on a trial testing basis. The facility is awaiting county approval before beginning full scale operation.

Organic compounds, ammonia and ammonium compounds, HCl, mercury, SO_2, and to a lesser extent, residual dust can be removed by adsorption by activated carbon. As stated above, activated carbon can be injected into the cement manufacturing process, or alternatively the kiln gases can be routed to packed beds or filters. In both cases, the saturated carbon is then added to the fuel mix in the kiln. Lehigh applied for a permit from the District to install ACI primarily to reduce emissions of mercury. The installation was completed and ACI was fully operational beginning in May 2011.

SO_2 Emissions and Controls

Similar to NOx, the formation of SO_2 is a product of the chemical make-up of the raw materials and fuel, as well as the high operating temperatures and oxygen concentration in the kiln. The production of SO_2 is more dependent on the sulfur content of fuel and raw materials however, whereas NOx formation is more dependent on combustion effects. Emissions of the two pollutants are interrelated due to the overlap of contributing factors. Process optimization measures are the first step towards reducing SO_2 emissions, including smoothing of kiln operation, choice and homogenization of the raw materials and fuel, and prevention of reducing conditions in the burning process by controlling the amount of available oxygen. When these optimization measures prove insufficient, add-on controls such as adsorption addition, carbon filtration, and wet scrubbing may be employed to further reduce emissions of SO_2.

Wet scrubbing is another means of controlling SO_2 emissions which involves spraying a mixture of calcium carbonate and water countercurrent to the exhaust gas in a tower as an add-on control device. The calcium carbonate reacts to form calcium sulfate dihydrate, which is then separated and can replace gypsum as a modulating agent in the finished cement depending on the properties required. The liquid is recovered and reused in the wet scrubbing tower. Wet scrubbing also removes HCl, residual dust and to a lesser

extent metal and ammonia emissions. This is the most commonly used method of de-sulfurization in coal fired power plants and its use is also well established in cement manufacturing, although more often at facilities where sulfur levels are high in the fuel or raw materials. Limitations on the use of this means of control would be increased energy consumption, increased carbon dioxide (CO_2) emissions, i.e., greenhouse gas emissions, increased water consumption and risk of water contamination, and increased operational costs.

POTENTIAL EMISSION REDUCTIONS

The proposed Regulation 9-13 would limit emissions of NOx to 2.3 pounds per ton of clinker produced. This translates to a reduction in NOx emissions from the kiln of 2 tons per day or a 42 percent reduction over current levels. Lehigh is subject to the NESHAP emission limits and has already taken steps to meet these limits through application of the LSI and ACI systems. Operation of this equipment will have a side-benefit of reducing emissions of SO_2 over previous levels, although it would be difficult to estimate the exact reduction in SO_2 emissions.

The Lehigh kiln currently emits at a rate marginally higher than the proposed standard for PM which is consistent with the 2010 proposed NESHAP standards for existing sources. Compliance with the FDCP provisions of the rule will also help to ensure the continued minimization of fugitive dust emissions. The proposed limit for NOx will decrease the potential for secondary particulate formation, and the proposed standard for ammonia emissions will limit potential secondary particulate formed by increased ammonia emissions resulting from NOx control.

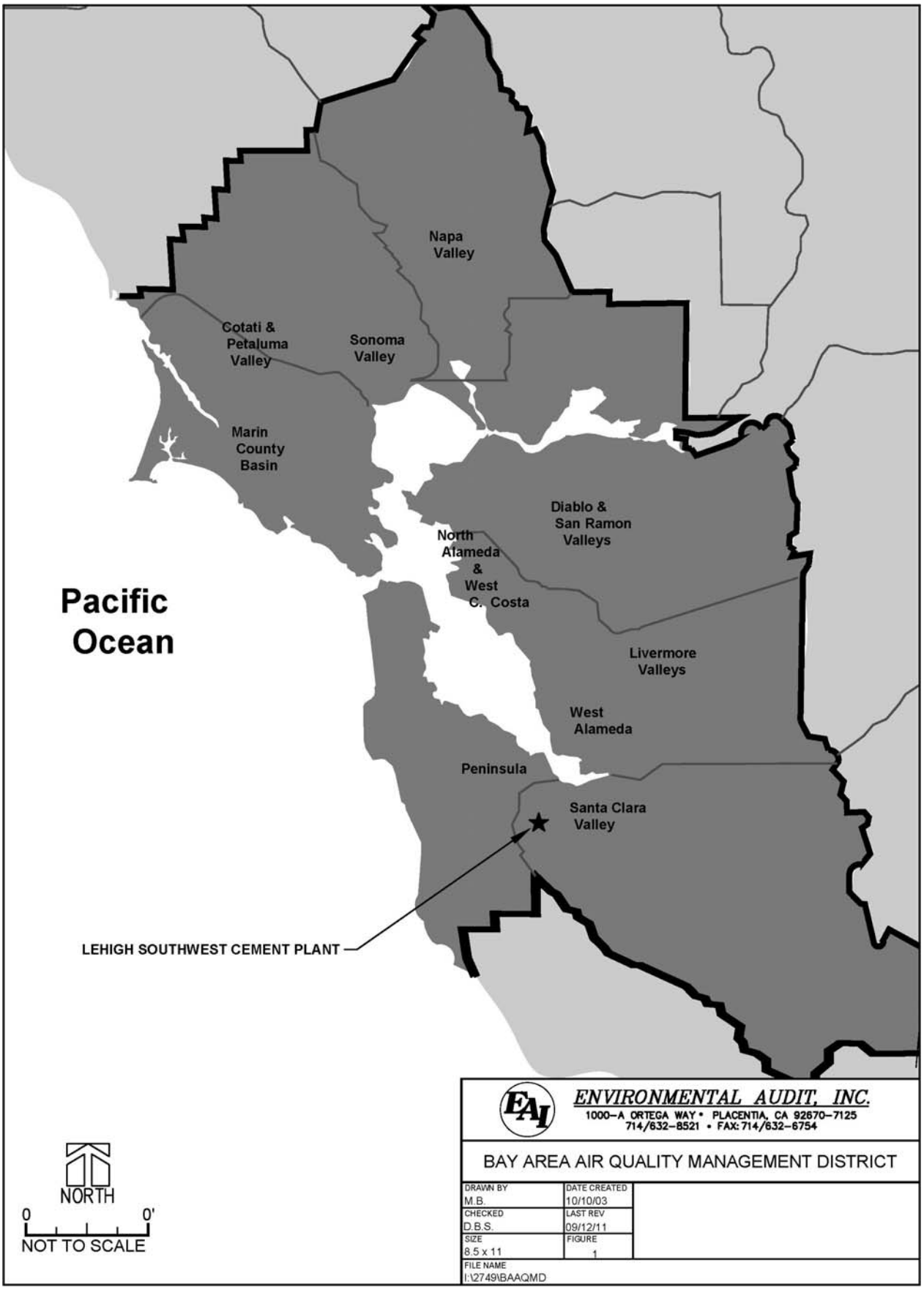
As part of the 2010 Clean Air Plan, District staff developed a multi-pollutant evaluation method (MPEM) to evaluate the benefits of the proposed control measures contained in the plan. This MPEM can be used to calculate the expected resultant reductions in PM2.5 from reductions in PM2.5 precursors: NOx, SO_2, and ammonia based on air quality modeling. The emissions reduction of NOx combined with the proposed ammonia emission standard would be equivalent to a PM2.5 emission reduction of 8.7 tons per year. This number would be slightly increased by the side-benefit reduction in SO_2 emissions mentioned previously.

AFFECTED AREA

The proposed rule amendments would apply to facilities under BAAQMD jurisdiction. The BAAQMD jurisdiction includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles (see Figure 1)). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The

Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays.

There is only one Portland cement manufacturing facility located in the Bay Area. The Lehigh Southwest Cement Permanente Plant is located in an unincorporated portion of Santa Clara County, west of Cupertino and approximately ten miles south of the most southerly portion of the San Francisco Bay. Lehigh lies to the west of Stevens Creek Boulevard and southwest of Interstate 280 (see Figure 1). The plant is basically surrounded by the Rancho San Antonio Open Space Preserve. It is generally bordered on the north and east by the residential communities of Cupertino, Saratoga and Loyola, and to the west and south by open space that borders the Pacific Ocean.


Napa Valley
Cotati & Petaluma Valley
Sonoma Valley
Marin County Basin
Diablo & San Ramon Valleys
North Alameda & West C. Costa
Pacific Ocean
Livermore Valleys
West Alameda
Peninsula
Santa Clara Valley
LEHIGH SOUTHWEST CEMENT PLANT
NORTH
0 0'
NOT TO SCALE
ENVIRONMENTAL AUDIT, INC.
1000-A ORTEGA WAY • PLACENTIA, CA 92670-7125
714/632-8521 • FAX: 714/632-6754
BAY AREA AIR QUALITY MANAGEMENT DISTRICT
DRAWN BY M.B.
DATE CREATED 10/10/03
CHECKED D.B.S.
LAST REV 09/12/11
SIZE 8.5 x 11
FIGURE 1
FILE NAME I:\2749\BAAQMD

Chapter 3

Environmental Checklist

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed Regulation.

GENERAL INFORMATION

Project Title:	Bay Area Air Quality Management District (BAAQMD) Proposed Regulation 9, Rule 13.
Lead Agency Name:	Bay Area Air Quality Management District
Lead Agency Address:	939 Ellis Street San Francisco, California 94109
Contact Person:	Robert Cave
Contact Phone Number:	415-749-5048
Project Location:	This rule applies to the area within the jurisdiction of the Bay Area Air Quality Management District, which encompasses all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties.
Project Sponsor's Name:	Bay Area Air Quality Management District
Project Sponsor's Address:	939 Ellis Street San Francisco, California 94109
General Plan Designation:	Rule 9-13 applies to Portland cement manufacturing facilities within the District, which tend to be located in industrial areas.
Zoning:	Rule 9-13 applies to Portland cement manufacturers within the District, which tend to be located in industrial areas.
Description of Project:	See “Background” in Chapter 2.
Surrounding Land Uses and Setting:	See “Affected Area” in Chapter 2.
Other Public Agencies Whose Approval is Required:	None

Environmental Factors Potentially Affected:

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed Regulation. As indicated by the checklist on the following pages, environmental topics marked with an "✓" may be adversely affected by the proposed Regulation. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation / Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

☒ I find the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: Date:

Printed Name: Date:

Evaluation of Environmental Impacts:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, Program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This checklist is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL CHECKLIST AND DISCUSSION

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.**				
	Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b)	Substantially damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☑	☐
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☑	☐
d)	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☑	☐

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh Southwest Cement plant (Lehigh) is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Visual resources are generally protected by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

I a. & b. Portland cement manufacturing facilities are mining operations conducted at industrial facilities. Currently, Lehigh is the only facility in the District that manufactures Portland Cement (cement). Lehigh is located in an Urban Service Area west of the City Cupertino. As a result of proposed Regulation 9-13, construction of a new stack for the existing baghouse would be required. The height of the existing stack at Lehigh is approximately 50 feet above grade. The new stack required under Regulation 9-13 would be substantially higher, potentially 300 feet.

The existing cement facility is located within a valley surrounded by hills comprised of open space reserves and parks. The topography of the area surrounding Lehigh leaves the facility predominately surrounded by hills and removed from view from the urbanized area. A new stack (presumably, close to 300 feet) for the baghouse will be visible from outside of the facility in portions of the surrounding community, but is consistent with the industrial nature of the site. There are currently numerous industrial structures at the Lehigh site associated with mining and cement preparation. As such, the new stack, while visible from outside the facility, is not expected to block existing views or substantially change the character of the area.

The nearest scenic highway in relationship to Lehigh is Route 9 from the Santa Cruz county line at Saratoga Gap to the Los Gatos city limit. The nearest point of Route 9 to Lehigh is approximately five miles. Route 9 is not visible from Lehigh due to the distance from the scenic highway and the hilly topography between the two locations. Since no scenic highway is visible from Lehigh, substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway are not expected as a result of the proposed Regulation.

I c. Lehigh will be required to add new air pollution control equipment such as SNCR which could be visible to surrounding areas. A new stack of sufficient height is also required as a result of Regulation 9-13, presumably of approximately 300 feet. The existing Lehigh facility is fairly isolated with limited visual access to the site from surrounding areas. There are currently numerous industrial structures at the Lehigh site associated with mining and cement preparation. New equipment required as a result of the proposed Regulation would be consistent with the industrial nature of the site. Therefore, aesthetic impacts of the proposed Regulation on the site and its surroundings are expected to be less than significant.

I d. The proposed Regulation 9-13 will result in additional structures such as the SNCR or SCR, associated with control and monitoring equipment, and the new stack associate with the existing baghouse. The existing facility is currently lighted for safety considerations. The stack on the existing baghouse is lit, but the new stack will require that lighting to be higher than existing light sources at the facility. The new light could be visible from the nearest residents located more than 1,000 feet from the facility, but the relocated lighting on the new stack will be such that additional glare is not created. Any lights installed to illuminate the site should be designed so as to reflect away from adjoining properties and public thoroughfares, and be compliant with local rules or regulations governing lighting protocols at industrial facilities.

Based upon these considerations, no significant adverse aesthetic impacts are expected from the implementation of the amendments to Regulation 9-13.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact

II. AGRICULTURE and FOREST RESOURCES.

In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.--Would the project:

a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b)	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☑
c)	Conflict with existing zoning for, or cause rezoning of, forest land as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
d)	Result in the loss of forest land or conversion of forest land to non-forest use?				
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Agricultural and forest resources are generally protected by the City and/or County General Plans, Community Plans through land use and zoning requirements, as well as any applicable specific plans, ordinances, local coastal plans, and redevelopment plans.

Discussion of Impacts

II a-e. The proposed Regulation 9-13 would further reduce NOx, PM, TAC and ammonia emissions from cement manufacturers in order to reduce air pollution in the Bay Area and reduce transport of air pollutants to neighboring air basins. The Lehigh facility within the District was first developed as an industrial area in 1939. No agricultural or forest resources exist on the Lehigh site. The Lehigh facility may comply with Regulation 9-13 by using either SCR or SNCR, along with other control technologies and monitoring systems, thus reducing the production of NOx, PM, TAC and ammonia. These changes would be made entirely within the confines of the existing facility. No development outside of the existing cement manufacturing facility would be required by the proposed Regulation 9-13.

With all actions required as a result of Regulation 9-13 occurring within the confines of an existing industrial area, no conversion of existing farmland or forest-land to non-farmland or forest-land is required. There is no conflict with zoning for farmland or forest-land, as well as, no conflict with the Williamson Act contract. Therefore, no significant adverse impacts to agricultural or forest resources are expected as a result of the proposed Regulation.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY.				
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☑	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require emission reductions of NOx, PM, TAC, and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh cement plant, located in an unincorporated area of Santa Clara County, is the only cement facility operation within the jurisdiction of the BAAQMD affected by the proposed rule.

Meteorological Conditions

The summer climate of the West Coast is dominated by a semi-permanent high centered over the northeastern Pacific Ocean. Because this high pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus the conditions that persist along the coast of California during summer are a northwest air flow and negligible precipitation. A thermal low pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area's annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate and air pollution potential is very low. During winter periods when the Pacific high becomes dominant, inversions become strong and often are surface based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include tule fog.

Topography

The San Francisco Bay Area is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays. Elevations of 1,500 feet are common in the higher terrain of this area. Normal wind flow over the area becomes distorted in the lower elevations, especially when the wind velocity is not strong. This distortion is reduced when stronger winds and unstable air masses move over the areas. The distortion is greatest when low level inversions are present with the surface air, beneath the inversion, flowing independently of the air above the inversion.

Winds

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream producing southwest winds at Berkeley and northwest winds at San Jose; a branch curves eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Carquinez Strait, the Golden Gate, or San Bruno Gap.

In winter, the Bay Area experiences periods of storminess and moderate-to-strong winds and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon and otherwise light and variable winds.

Temperature

In summer, the distribution of temperature near the surface over the Bay Area is determined in large part by the effect of the differential heating between land and water surfaces. This process produces a large-scale gradient between the coast and the Central Valley as well as small-scale local gradients along the shorelines of the ocean and bays. The winter mean temperature high and lows reverse the summer relationship; daytime variations are small while mean minimum nighttime temperatures show large differences and strong gradients. The moderating effect of the ocean influences warmer minimums along the coast and penetrating the Bay. The coldest temperatures are in the sheltered valleys, implying strong radiation inversions and very limited vertical diffusion.

Inversions

A primary factor in air quality is the mixing depth, i.e., the vertical dimension available for dilution of contaminant sources near the ground. Over the Bay Area, the frequent occurrence of temperature inversions limits this mixing depth and consequently limits the availability of air for dilution. A temperature inversion may be described as a layer or layers of warmer air over cooler air.

Precipitation

The San Francisco Bay Area climate is characterized by moderately wet winters and dry summers. Winter rains (December through March) account for about 75 percent of the average annual rainfall; about 90 percent of the annual total rainfall is received in November to April period; and between June and September, normal rainfall is typically less than 0.10 inches. Annual precipitation amounts show greater differences in short distances. Annual totals exceed 40 inches in the mountains and are less than 15 inches in the sheltered valleys.

Pollution Potential

The Bay Area is subject to a combination of physiographic and climatic factors which result in a low potential for pollutant buildups near the coast and a high potential in sheltered inland valleys. In summer, areas with high average maximum temperatures tend to be sheltered inland valleys with abundant sunshine and light winds. Areas with low average maximum temperatures are exposed to the prevailing ocean breeze and experience frequent fog or stratus. Locations with warm summer days have a higher pollution potential than the cooler locations along the coast and bays.

In winter, pollution potential is related to the nighttime minimum temperature. Low minimum temperatures are associated with strong radiation inversions in inland valleys that are protected from the moderating influences of the ocean and bays. Conversely, coastal locations experience higher average nighttime temperatures, weaker inversions, stronger breezes and consequently less air pollution potential.

Air Quality

Criteria Pollutants

It is the responsibility of the BAAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), PM10, PM2.5, sulfur dioxide (SO_2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.

The state and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The BAAQMD monitored levels of various criteria pollutants at 23 monitoring stations in 2010. The 2010 air quality data from the BAAQMD's monitoring stations are presented in Table 3-2.

Air quality conditions in the San Francisco Bay Area have improved since the District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically (see Table 3-3). The District is in attainment of the State and federal ambient air quality standards for CO, NOx, and SO_2. The District is not considered to be in attainment with the State PM10 and PM2.5 standards.

The 2010 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the state standard and federal ambient air quality standards for CO, NO_2, and SO_2. The federal 8-hour ozone standard was exceeded on 9 days in the District in 2010, while the state 8-hour standard was exceeded on 11 days. The Bay Area is designated as a non-attainment area for the California 1-hour ozone standard. The State 1-hour ozone standard was exceeded on 8 days in 2010 in the District. The ozone standards are most frequently exceeded in the Eastern District (Bethel Island (7 days) and Livermore (6 days)), and the Santa Clara Valley (San Martin (8 days), and Gilroy (7 days)) (see Table 3-2).

All monitoring stations were in compliance with the federal PM10 standards. The California PM10 standards were exceeded on two days in 2010, at the San Rafael and Bethel Island monitoring stations. The Air District exceeded the federal PM2.5 standard on 6 days, most frequently in San Rafael in 2010 (see Table 3-2).

TABLE 3-1

Federal and State Ambient Air Quality Standards

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. > 0.070 ppm, 8-hr	0.075 ppm, 8-hour avg. >	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hour avg.> 35 ppm, 1-hour avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.> 0.100 ppm, 1-hour avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hour avg.> 0.075 ppm, 1-hour avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	20 $\mu g/m^3$, annarithmetic mean > 50 $\mu g/m^3$, 24-hr average>	50 $\mu g/m^3$, annual arithmetic mean > 150 $\mu g/m^3$, 24-hour avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter (PM2.5)	12 $\mu g/m^3$, annual arithmetic mean>	15 $\mu g/m^3$, annual arithmetic mean> 35 $\mu g/m^3$, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 $\mu g/m^3$, 24-hr avg. >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 $\mu g/m^3$, 30-day avg. >=	1.5 $\mu g/m^3$, calendar quarter> 0.15 ug/m^3, rolling 3-month avg.>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70%, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

TABLE 3-2
Bay Area Air Pollution Summary - 2010

MONITORING STATIONS	OZONE						CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}				$PM_{2.5}$				
	Max 1-hr	Cal 1-hr Days	Max 8-hr	Nat 8-Hr Days	Cal Days	3-Yr Avg	Max 1-hr	Max 8-hr	Nat/ Cal Days	Max 1-Hr	Ann Avg	Nat/ Cal Days	Max 1-hr	Max 24-hr	Nat/ Cal Days	Ann Avg	Max 24-hr	Nat Days	Cal Days	Max 24-hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(ppb)						(ppm)			(ppb)			(ppb)			(μm^3)				(μm^3)				
Napa	106	1	89	2	2	66	2.3	1.4	0	56.0	9	0	--	--	--	17.4	37	0	0	--	--	--	--	--
San Rafael*	83	0	69	0	0	54	1.7	1.1	0	57.0	12	0	--	--	--	16.7	51	0	1	46.5	4	*	10.7	*
Santa Rosa	84	0	68	0	0	54	2.5	1.1	0	42.0	8	0	--	--	--	--	--	--	--	26.6	0	26	7.2	8.1
Vallejo	91	0	80	1	2	63	2.9	1.9	0	55.0	9	0	11.0	2.4	0	--	--	--	--	29.5	0	31	7.7	9.1
Coast/Central Bay																								
Berkeley*	75	0	49	0	0	44	2.5	1.5	0	53.4	13	0	9.0	2.4	0	21.0	43	0	0	--	--	--	--	--
Oakland	97	1	58	0	0	53	3.0	1.6	0	64.1	13	0	11.0	3.7	--	--	--	--	--	25.2	0	23	7.8	8.9
Oakland West	--	--	--	--	--	--	2.7	1.7	0	68.6	16	0	--	--	--	--	--	--	--					
Richmond	--	--	--	--	--	--	--	--	--	--	--	--	26.0	6.5	0	--	--	--	--	--	--	--	--	--
San Francisco	79	0	51	0	0	47	1.8	1.4	0	92.9	13	0	--	--	--	19.9	40	0	0	45.3	3	26	10.5	10.0
San Pablo*	97	1	81	1	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	--	--	--	--	--
Eastern District																								
Bethel Island	106	3	86	4	7	76	1.4	0.8	0	32.3	6	0	19.0	3.3	0	18.7	70	0	1	--	--	--	--	--
Concord	103	2	87	1	4	74	1.2	1.0	0	42.0	8	0	9.0	2.4	0	13.7	41	0	0	36.4	1	30	7.6	9.0
Crockett	--	--	--	--	--	--	--	--	--	--	--	--	16.3	4.1	0	--	--	--	--	--	--	--	--	--
Fairfield	103	1	81	2	3	69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	150	3	97	3	6	80	--	--	0	58.4	11	0	--	--	--	--	--	--	--	34.7	0	30	7.6	9.0
Martinez	--	--	--	--	--	--	--	--	--	--	--	--	37.0	5.5	0	--	--	--	--	--	--	--	--	--
South Central Bay																								
Fremont*	120	1	81	1	1	62	*	*	*	*	*	*	--	--	--	--	--	--	--	*	*	*	*	*
Hayward*	*	*	*	*	*	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	113	2	77	1	1	57	3.3	1.7	0	52.7	12	0	--	--	--	--	--	--	--	36.5	1	25	8.3	8.7
Santa Clara Valley																								
Gilroy	94	0	81	5	7	74	--	--	--	--	--	--	--	--	--	--	--	--	--	29.9	0	23	8.2	8.6
Los Gatos	109	2	87	2	3	73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central	126	5	86	3	3	66	2.8	2.2	0	64.0	14	0	4.9	1.8	0	19.5	47	0	0	41.5	3	30	8.8	10.1
San Martin	109	2	87	5	8	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Days over Standard		**8**		**9**	**11**				**0**			**0**			**0**			**0**	**2**		**6**			

* The Fremont site was closed on October 31, 2010; statistics are not available for all but the summer 2010 ozone season. The Berkeley site was closed on December 31, 2010 at the conclusion of a 3-year monitoring study. The San Pablo site was temporarily closed from March 2009 to May 2010 due to damage from a building fire. 2010 statistics are not available except for the summer peak ozone season. 3-year ozone statistics are not available. The Hayward site was temporarily closed in 2010 due to a major construction project adjacent to the site. Annual and 3-year average ozone statistics are not available. $PM_{2.5}$ monitoring began in San Rafael in October 2009. Three-year average $PM_{2.5}$ statistics are not available. A new site was opened in Cupertino on September 1, 2010 for a one-year monitoring study. Due to the brief period of monitoring in 2010, Cupertino data are not shown in this table.

(ppb) = parts per billion (ppm) = parts per million, ($\mu g/m^3$) = micrograms per cubic meter.

TABLE 3-3

Bay Area Air Quality Summary
Days over standards

YEAR	OZONE			CARBON MONOXIDE				NO_X	SULFUR DIOXIDE		PM10		PM2.5
	1-Hr	8-Hr	8-Hr*	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Cal	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
2001	15	-	7	0	0	0	0	0	0	0	0	10	5
2002	16	-	7	0	0	0	0	0	0	0	0	6	7
2003	19	-	7	0	0	0	0	0	0	0	0	6	0
2004	7	-	0	0	0	0	0	0	0	0	0	7	1
2005	9	9	1	0	0	0	0	0	0	0	0	6	0
2006	18	22	12	0	0	0	0	0	0	0	0	15	10
2007	4	9	1	0	0	0	0	0	0	0	0	4	14
2008	9	20	12	0	0	0	0	0	0	0	0	5	12
2009	11	13	8	0	0	0	0	0	0	0	0	1	11
2010	8	11	9	0	0	0	0	0	0	0	0	2	6

* Ozone exceedance days beginning in 2008 reflect new U.S.EPA standard of 0.075 ppm.
** PM2.5 exceedance days beginning in 2006 reflect new U.S.EPA standard of 35 µg/m^3.

Toxic Air Pollutants

The BAAQMD maintains a database that contains information concerning emissions of TACs from permitted stationary sources in the Bay Area. This inventory, and a similar inventory for mobile and area sources compiled by CARB, is used to plan strategies to reduce public exposure to TACs. The detailed concentrations of various TACs are reported in the BAAQMD, Toxic Air Contaminant Control Program, 2009 Annual Report (BAAQMD, 2012) and summarized in Table 3-4. The 2009 TAC data show decreasing concentrations of many TACs in the Bay Area. The most dramatic emission reductions in recent years have been for certain chlorinated compounds that are used as solvents including 1,1,1-trichloroethane, methylene chloride, and perchloroethylene. Table 3-4 contains a summary of ambient air toxics listed by compound.

TABLE 3-4

Summary of 2009 BAAQMD Ambient Air Toxics Monitoring Data

Compound	LOD (ppb)[1]	% of Samples < LOD[2]	Max. Conc. (ppb)[3]	Min. Conc. (ppb)[4]	Mean Conc. (ppb)[5]
1,3-butadiene	0.10	88	0.25	0.05	0.039
Acetaldehyde[6]	0.0344*	0	4.26*	0.31*	1.300*
Acetone	0.10	0	16.2	0.3	1.757
Acetonitrile[7]	0.12	29	3.36	0.06	0.726
Benzene	0.02	2	1.14	0.01	0.172
Carbon tetrachloride	0.01	0	0.15	0.09	0.095
Chloroform	0.01	48	0.09	0.005	0.021
Dichloromethane (MeCl)	0.10	45	2.00	0.05	0.155
Ethyl Alcohol[7]	0.39	0	70.6	4.5	15.894
Ethylbenzene	0.04	47	0.68	0.02	0.072
Ethylene dibromide	0.01	100	-	0.005	0.005
Ethylene dichloride	0.10	100	-	0.05	0.05
Formaldehyde[6]	0.0541*	0	5.53*	0.51*	0.054*
Freon 113 (CFC 113)	0.01	0	1.22	0.04	0.01
Methyl chloroform (1,1,1 TCE)	0.02	91	1.79	0.01	0.035
Methyl ethyl ketone	0.10	21	1.68	0.05	0.168
Tetrachloroethylene (Perc)	0.005	43	0.157	0.0025	0.013
Toluene	0.04	0	5.41	0.02	0.571
Trichloroethylene	0.01	90	0.16	0.005	0.009
Trichlorofluoromethane	0.01	0	0.68	0.06	0.283
Vinyl chloride	0.05	100	-	0.025	0.025
m/p-xylene	0.04	5	2.63	0.02	0.301
o-xylene	0.04	29	0.88	0.02	0.101

NOTES: Table 3-4 summarizes the results of the BAAQMD gaseous toxic air contaminant monitoring network for the year 2009. These data represent monitoring results at 19 sites at which samples were collected, except as indicated. Data from the Fort Cronkhite "clean-air" background site was not included. Acetone, ethyl alcohol, Freon 113, and trichlorofluoromethane are not toxic compounds, but are included in the monitoring network.

* Indicates concentration measured in $\mu g/m^3$.

(1) "LOD" is the limit of detection of the analytical method used.

(2) "% of samples < LOD" is the percent of the total number of air samples collected in 2003 that had pollutant concentrations less than the LOD.

(3) "Maximum Conc." is the highest daily concentration measured at any of the 19 monitoring sites.

(4) "Minimum Conc." is the lowest daily concentration measured at any of the 19 monitoring sites. Non-detects reported as one half the LOD concentration.

(5) "Mean Conc." is the arithmetic average of the air samples collected in 2003 at the 19 monitoring sites. One half the LOD (for minimum concentrations) was used to calculate the mean.

(6) Samples collected only at Berkeley and San Jose – Jackson Street stations.

(7) Samples collected only at San Jose – Jackson Street station.

Regulatory Background

Criteria Pollutants

At the federal level, the Clean Air Act (CAA) Amendments of 1990 gave the U.S. EPA additional authority to require states to reduce emissions of ozone precursors and particulate matter in non-attainment areas. The amendments set attainment deadlines based on the severity of problems. At the state level, CARB has traditionally established state ambient air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a local level, California's air districts, including the BAAQMD, are responsible for overseeing stationary source emissions, approving permits, maintaining emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

The BAAQMD is governed by a 22-member Board of Directors composed of publicly-elected officials apportioned according to the population of the represented counties. The Board has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. It is also responsible for developing air quality planning documents required by both federal and state laws.

Toxic Air Contaminants

TACs are regulated in the District through federal, state, and local programs. At the federal level, TACs are regulated primarily under the authority of the CAA. Prior to the amendment of the CAA in 1990, source-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) were promulgated under Section 112 of the CAA for certain sources of radionuclides and Hazardous Air Pollutants (HAPs).

Title III of the 1990 CAA amendments requires U.S. EPA to promulgate NESHAPs on a specified schedule for certain categories of sources identified by U.S. EPA as emitting one or more of the 189 listed HAPs. Emission standards for major sources must require the maximum achievable control technology (MACT). MACT is defined as the maximum degree of emission reduction achievable considering cost and non-air quality health and environmental impacts and energy requirements. All NESHAPs were to be promulgated by the year 2000. Specific incremental progress in establishing standards were to be made by the years 1992 (at least 40 source categories), 1994 (25 percent of the listed categories), 1997 (50 percent of remaining listed categories), and 2000 (remaining balance). The 1992 requirement was met; however, many of the four-year standards were not promulgated as scheduled. Promulgation of those standards has been rescheduled based on court ordered deadlines, or the aim to satisfy all Section 112 requirements in a timely manner.

Many of the sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. CARB developed three regulatory programs for the control of TACs. Each of the programs is discussed in the following subsections.

Control of TACs Under the TAC Identification and Control Program: California's TAC identification and control program, adopted in 1983 as Assembly Bill 1807 (AB 1807) (California Health and Safety Code §39662), is a two-step program in which substances are identified as TACs, and airborne toxic control measures (ATCMs) are adopted to control emissions from specific sources. Since adoption of the program, CARB has identified 18 TACs, and CARB adopted a regulation designating all 189 federal HAPs as TACs.

Control of TACs Under the Air Toxics "Hot Spots" Act: The Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with those emissions. Inventory reports must be updated every four years under current state law. The BAAQMD uses a maximum individual cancer risk of 10 in one million, or an ambient concentration above a non-cancer reference exposure level, as the threshold for notification.

Senate Bill (SB) 1731, enacted in 1992 (California Health and Safety Code §44390 et seq.), amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan which will reduce the risk below a defined significant risk level within specified time limits. At a minimum, such facilities must, as quickly as feasible, reduce cancer risk levels that exceed 100 per one million. The BAAQMD adopted risk reduction requirements for perchloroethylene dry cleaners to fulfill the requirements of SB 1731.

Targeted Control of TACs Under the Community Air Risk Evaluation Program: In 2004, BAAQMD established the Community Air Risk Evaluation (CARE) program to identify locations with high emissions of toxic air contaminants (TAC) and high exposures of sensitive populations to TAC and to use this information to help establish policies to guide mitigation strategies that obtain the greatest health benefit from TAC emission reductions. For example, BAAQMD will use information derived from the CARE program to develop and implement targeted risk reduction programs, including grant and incentive programs, community outreach efforts, collaboration with other governmental agencies, model ordinances, new regulations for stationary sources and indirect sources, and advocacy for additional legislation.

Discussion of Impacts

III a. The proposed rule would implement SSM-9 of the Bay Area 2010 Clean Air Plan, which indentified Portland cement manufacturing as a potential source of emission reductions of NOx (a precursor of ozone) and secondary fine particulate matter. Because the proposed rule would directly implement a control measure in the 2010 Clean Air Plan, the proposed rule is in compliance with the local air quality plan and is expected to provide beneficial impacts associated with reduced NOx, ozone, PM and TAC concentrations in the Bay Area.

III b. SSM-9 of the 2010 Clean Air Plan committed the BAAQMD to study ways that the emissions limits might be tightened to achieve further NOx and PM emissions reductions from Portland cement manufacturing facilities. The District is considering adoption of Regulation 9-13 to achieve maximum feasible emission reductions of NOx and PM in conjunction with efforts to bring the Lehigh facility into compliance with limits for TACs consistent with the federal NESHAP and NSPS requirements. Additional requirements of the proposed rule address concerns over the present configuration of the emission point from the kiln and the need for an enforceable fugitive dust control plan.

Table 3-5 shows the average daily emissions from the cement kiln at Lehigh according to BAAQMD records for 2010. These values were determined by emission factors assigned by District permit engineers, stack testing, mass balance estimates, and the annual throughput of fuel used and clinker produced as reported by the facility. Lehigh reported that they produced 847 thousand tons of clinker in 2010, a little over half the permitted capacity of 1.6 million tons of clinker per year.

TABLE 3-5

Lehigh Cement Kiln 2010 Emissions

POLLUTANT	AVERAGE EMISSIONS (pounds/day)
Particulate Matter (PM)	32.62
Precursor Organics (POC)	59.2
Nitrogen Oxides (NOx)	9,290
Sulfur Dioxide (SO_2)	2,665
Carbon Monoxide (CO)	5,435
Benzene	16.1
Hydrochloric Acid (HCL)	179
Mercury	0.72
Total Equivalent CO_2 (GHG emissions)	4.08×10^6

The proposed Regulation 9-13 would limit emissions of NOx to 2.3 pounds per ton of clinker produced. This translates to a reduction in NOx emissions from the kiln of and estimated two tons per day or a 48 percent reduction over current levels. Lehigh is subject to the NESHAP emission limits and has already taken steps to meet these limits through application of the LSI and ACI systems. Operation of this equipment will have a side-benefit of reducing emissions of SO_2 over previous levels, although the SO_2 emission reductions are speculative at this time.

The Lehigh kiln currently emits at a rate only slightly above the proposed standard for PM which is consistent with the 2010 amended NESHAP standards for existing sources. Compliance with the fugitive dust control and mitigation measures of the rule will also help to ensure the continued minimization of fugitive dust emissions. The proposed limit for NOx will decrease the potential for secondary particulate formation, and the proposed standard for ammonia emissions will limit potential secondary particulate formed by increased ammonia emissions resulting from NOx control.

As part of the 2010 Clean Air Plan, District staff developed a multi-pollutant evaluation method (MPEM) to evaluate the benefits of the proposed control measures contained in the plan. This MPEM can be used to calculate the emissions equivalence for NOx, SO_2, and ammonia to that of directly emitted PM2.5 in terms of the effect on the average increase in PM2.5 concentration in the air. The emissions reduction of NOx combined with the proposed ammonia emission standard would be equivalent to a PM2.5 emission reduction of 8.7 tons per year. This number would be slightly increased by the side-benefit reduction in SO_2 emissions mentioned previously.

The overall impact of the proposed Regulation 9-13 is a decrease in NOx, PM, and TAC emissions. Therefore, no air quality standard is expected to be violated, and no contribution is expected to be made to an existing or projected air quality violation.

Secondary Particulate Emissions: The Lehigh cement plant is expected to comply with the proposed Regulation 9-13 through the use of SNCR. SNCR uses ammonia as a catalyst, which could result in ammonia slip and secondary particulate formation.

Ammonia slip depends on a variety of factors including space velocity, ammonia to NOx molar ratio, temperature, and NOx inlet concentration. Better technology has allowed operators to control ammonia slip: (1) by ensuring adequate mixing of ammonia in the flue gas to maintain uniform ammonia injection; (2) maintaining the proper ammonia to NOx molar ratio; (3) decreasing the exhaust gas flow rate; (4) maintaining consistent exhaust velocity, and maintaining an optimal temperature regime. The potential for secondary particulate emissions can be alleviated by limiting ammonia slip to no more than 10 ppm, which will minimize the potential for secondary particulate formation to less than significant. In addition, NOx reductions may also reduce ambient levels of fine particulate matter ($PM_{2.5}$) pollution, because a fraction of NOx emissions is ultimately converted to nitrate particles in the atmosphere.

Limiting the ammonia slip to 10 ppm or less above baseline is expected to limit the potential for secondary particulate emission formation to less than significant. Further, the proposed Regulation 9-13 is expected to result in a reduction in NOx emissions and NOx is also a precursor to secondary particulate emissions. Reducing NOx emissions will also reduce secondary particulate formation. To determine the impact of secondary PM2.5 formation as a result of ammonia slip, staff modeled the change in concentration of PM2.5 due to the increase in ammonia and the decrease in NOx. Staff modeled both a 20-day simulation from January, 2007 and a 6-day simulation during PM2.5 exceedance days in January, 2007. In both cases, there was an increase in PM2.5 downwind due to the ammonia and a small, diffuse decrease (0.01 – 0.02 $\mu g/m^3$) in PM2.5 elsewhere due to the NOx conversion to nitric acid which in turn reacts with ambient ammonia. Downwind was south during the 20-day simulation and southwest during the 6-day simulation. The increase in PM2.5 was determined to be no greater than 0.03 $\mu g/m^3$ during the 20-day simulation and no greater than 0.08 $\mu g/m^3$ during the exceedance days simulation. Therefore, the PM2.5 generated by the ammonia slip is less than significant.

III c. CEQA Guidelines indicate that cumulative impacts of a project shall be discussed when the project's incremental effect is cumulatively considerable, as defined in CEQA Guidelines §15065(c). The overall impact of the proposed Rule 9-13 is a decrease in NOx, PM and TAC

emissions and an associated decrease in ozone, PM and TAC concentrations. Therefore, the cumulative air quality impacts of the proposed rule amendments are expected to be beneficial. As iterated above, the cumulative impact of the ammonia emissions (considered in association with other point sources) at the point of maximum impact has been determined to be less than significant.

III d. It is expected that the Lehigh cement plant will use SNCR to reduce NOx emissions. SNCR technology uses ammonia (a toxic air contaminant) as a catalyst and can potentially generate ammonia emissions through ammonia "slip." Rule 9-13 also proposes to limit ammonia slip to 10 ppm above baseline, which is expected to minimize the potential exposure to sensitive receptors so that no significant impacts associated with ammonia use are expected.

III e. The proposed project is not expected to result in an increase in odors. Odors associated with ammonia use in new SNCR systems are expected to be minimal. Ammonia can have a strong odor; however, proposed Regulation 9-13 is not expected to generate substantial ammonia emissions. Ammonia is generally stored in an enclosed pressurized tank, which prevents fugitive ammonia emissions. Ammonia emissions from the stack (also referred to as ammonia slip) will be limited to 10 ppm above baseline as part of the proposed Regulation 9-13 and implemented through permit conditions. Since exhaust emissions are bouyant as a result of being heated, ammonia will disperse and ultimate ground level concentrations will be substantially lower than five ppm. Five ppm is below the odor threshold for ammonia of 20 ppm (OSHA, 2005). Potential odor impacts associated with proposed Regulation 9-13 are not expected to be significant.

Based upon these considerations, no significant adverse air quality impacts are expected from the implementation of proposed Regulation 9-13. In fact, the proposed rule is expected to provide beneficial air quality impacts by reducing NOx and PM emissions and subsequent formation of ozone.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e)	Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f)	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

The area affected by the proposed Regulation is not located in Natural Community Conservation Plan (NCCP) area (as defined by the State's Natural Communities Conservation Program). The area affected by the proposed Regulation located within the boundaries of an existing cement manufacturing facility within the Bay Area. The affected area has been graded to develop various mining and cement manufacturing operations. Native vegetation, other than landscape vegetation, has generally been removed from area. Any new development would fall under compliance with the City or County General Plans.

Regulatory Background

Biological resources are generally protected by the City and/or County General Plans through land use and zoning requirements which minimize or prohibit development in biologically sensitive areas. Biological resources are also protected by the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The U.S Fish and Wildlife Service and National Marine Fisheries Service oversee the federal Endangered Species Act. Development permits may be required from one or both of these agencies if development would impact rare or endangered species. The California Department of Fish and Game administers the California Endangered Species Act which prohibits impacting endangered and threatened species. The U.S. Army Corps of Engineers and the U.S. EPA regulate the discharge of dredge or fill material into waters of the United States, including wetlands.

Discussion of Impacts

IV a – f. No impacts on biological resources are anticipated from the proposed Regulation which would apply to an existing cement manufacturing facility. Existing and new equipment affected by the proposed Regulation is located within the operating portions of an existing facility, which do not typically include sensitive biological species. The cement manufacturing facility has been graded and developed, and biological resources, with the exception of landscape species, have been removed. Any construction activities associated with the proposed Regulation will be limited to within the boundaries of the existing facility and near existing operations, and no development outside of the existing facility is expected.

Nitrogen deposition refers to the input of reactive nitrogen species from the atmosphere to plants or the soil. Nitrogen deposition can result in eutrophication, or availability of nitrogen-based plant nutrients. This may favor growth of high nitrogen-demand species and may interfere with the uptake of other elements essential to plant life, such as potassium and magnesium. Nitrogen deposition in water may contribute to eutrophication of freshwater or marine systems, where available nitrogen is often a limiting nutrient. Both NOx and ammonia can cause nitrogen deposition, although the effects may differ because of secondary atmospheric reactions that can also result in deposition. This proposed Regulation will reduce NOx emissions and limit ammonia emissions to 10 ppm above baseline. Consequently, the proposal should result in a net decrease to the impacts of any currently occurring nitrogen deposition.

Based upon these considerations, no significant adverse impacts to biological resources are expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☑
c)	Directly of indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule. This facility has already been graded to develop cement manufacturing operations dating back to 1939. Cultural resources are generally not located in industrial areas that have been developed and active for most of a century.

Regulatory Background

The State CEQA Guidelines define a significant cultural resource as a "resource listed or eligible for listing on the California Register of Historical Resources" (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5(b)). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the California Register of Historical Resources or a local register or survey that meets the requirements of Public Resources Code Sections 50020.1(k) and 5024.1(g).

Discussion of Impacts

V a – d. No impacts on cultural resources are anticipated as a result of the proposed Regulation which would apply to cement manufacturing facilities in the Bay Area. The equipment affected by the proposed Regulation already exists and is located within the confines of an existing operating cement plant. Any modifications to existing equipment and any new equipment would be installed or modified within the boundaries of the existing facility near existing operations. The existing areas have been graded and developed. No new construction would be required outside of the existing facility boundaries or outside of already developed areas due to the adoption of the proposed Regulation 9-13. Therefore, no significant adverse impacts to cultural resources are expected due to the proposed Regulation 9-13.

Based upon these considerations, no significant adverse impacts to cultural resources are expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI.	**GEOLOGY AND SOILS.**				
	Would the project:				
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i)	Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a know fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii)	Strong seismic ground shaking?	☐	☐	☑	☐
iii)	Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv)	Landslides?	☐	☐	☐	☑
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

The Lehigh plant is located in the natural region of California known as the Coast Ranges geomorphic province. The province is characterized by a series of northwest trending ridges and valleys controlled by tectonic folding and faulting, examples of which include the Suisun Bay, East Bay Hills, Briones Hills, Vaca Mountains, Napa Valley, and Diablo Ranges.

Regional basement rocks consist of the highly deformed Great Valley Sequence, which include massive beds of sandstone inter-fingered with siltstone and shale. Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Straight and Suisun Bay. The estuarine sediments found along the shorelines of Solano County are soft, water-saturated mud, peat and loose sands. The organic, soft, clay-rich sediments along the San Francisco and San Pablo Bays are referred to locally as Bay Mud and can present a variety of engineering challenges due to inherent low strength, compressibility and saturated conditions. Landslides in the region occur in weak, easily weathered bedrock on relatively steep slopes.

The San Francisco Bay Area is a seismically active region, which is situated on a plate boundary marked by the San Andreas Fault System. Several northwest trending active and potentially active faults are included with this fault system. Under the Alquist-Priolo Earthquake Fault Zoning Act, Earthquake Fault Zones were established by the California Division of Mines and Geology along “active” faults, or faults along which surface rupture occurred in Holocene time (the last 11,000 years). In the Bay area, these faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Seal Cove/San Gregorio and West Napa faults. Other smaller faults in the region classified as potentially active include the Southampton and Franklin faults.

Ground movement intensity during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geological material. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

Regulatory Background

Construction is regulated by the local City or County building codes that provide requirements for construction, grading, excavations, use of fill, and foundation work including type of materials, design, procedures, etc. which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. Necessary permits, plan checks, and inspections are generally required.

The City or County General Plan includes the Seismic Safety Element. The Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in the planning of future development. The California Building Code is the principle mechanism for protection against and relief from the danger of earthquakes and related events.

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California Division of Mines and Geology (DMG) develop maps that identify the areas of the state that require site specific investigation for earthquake-triggered landslides and/or potential liquefaction prior to permitting most urban developments. The act directs cities, counties, and state agencies to use the maps in their land use planning and permitting processes.

Local governments are responsible for implementing the requirements of the Seismic Hazards Mapping Act. The maps and guidelines are tools for local governments to use in establishing their land use management policies and in developing ordinances and review procedures that will reduce losses from ground failure during future earthquakes.

Discussion of Impacts

VI a. The control equipment associated with the proposed Regulation will be located within the confines of the existing cement manufacturing facility in the Bay Area. New construction activities are expected to be required as a result of adopting the proposed Regulation 9-13. All new structures must be designed to comply with the California Building Code Zone 4 requirements. The local cities and counties are responsible for assuring that new construction complies with the California Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The California Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The California Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The California Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the California Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Any new development at cement manufacturing facilities would be required to obtain building permits, as applicable, for new structures at any site. The issuance of building permits from the local agency will assure compliance with the California Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since new development is consistent with the type of existing equipment at the facility and is required to comply with the California Building Code in order to implement proposed Regulation 9-13.

VI b. New equipment will be required by the proposed Regulation 9-13. Any new equipment, or any upgrades to existing equipment, would be installed within the confines of the existing boundaries. Therefore, the proposed Regulation is not expected to result in substantial soil erosion or the loss of topsoil as no major grading activities would be required.

VI c – e. New equipment that may be required due to proposed Regulation 9-13 would be located within the confines of existing cement manufacturing facility. No major grading activities are expected as the Lehigh plant site is already graded. No construction activities are expected to occur on a geologic unit or soil that is unstable or that would become unstable, or potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse. Likewise, no structure would be constructed on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Compliance with the California Building Code would minimize the impacts associated with existing geological hazards. Construction would not affect soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater, as the proposed Regulation 9-13 will have no impact on wastewater treatment/disposal systems. Therefore, no adverse significant impacts to geology and soils are expected as a result of the proposed Regulation 9-13.

Based upon these considerations, no significant geology and soils impacts are expected from the implementation of the proposed Regulation.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS.					
Would the project:					
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☑
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

Setting

Global climate change refers to changes in average climatic conditions on the earth as a whole, including temperature, wind patterns, precipitation and storms. Global warming, a related concept, is the observed increase in the average temperature of the earth's surface and atmosphere. One identified cause of global warming is an increase of greenhouse gases (GHGs) in the atmosphere. The six major GHGs identified by the Kyoto Protocol are CO_2, methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), haloalkanes (HFCs), and perfluorocarbons (PFCs). The GHGs absorb longwave radiant energy reflected by the earth, which warms the atmosphere. GHGs also radiate longwave radiation both upward to space and back down toward the surface of the earth. The downward part of this longwave radiation absorbed by the atmosphere is known as the "greenhouse effect." Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years.

Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. The GHG inventory for California is presented in Table 3-5 (CARB, 2007 and CARB, 2009). Approximately 80 percent of GHG emissions in California are from fossil fuel combustion and over 70 percent of GHG emissions are carbon dioxide emissions (see Table 3-6).

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

TABLE 3-6

California GHG Emissions and Sinks Summary
(Million Metric Tons CO2 Equivalent)

Categories Included in the Inventory	1990 (1)	2006 (2)
ENERGY	**386.41**	**419.32**
Fuel Combustion Activities	**381.16**	**414.03**
Energy Industries	157.33	160.82
Manufacturing Industries & Construction	24.24	19.03
Transport	150.02	184.78
Other Sectors	48.19	49.41
Non-Specified	1.38	2.16
Fugitive Emissions from Fuels	**5.25**	**5.28**
Oil and Natural Gas	2.94	3.25
Other Emissions from Energy Production	2.31	2.03
INDUSTRIAL PROCESSES & PRODUCT USE	**18.34**	**30.22**
Mineral Industry	4.85	5.92
Chemical Industry	2.34	0.37
Non-Energy Products from Fuels & Solvent Use	2.29	1.85
Electronics Industry	0.59	0.77
Product Uses as Substitutes for Ozone Depleting Substances	0.04	13.38
Other Product Manufacture & Use Other	3.18	1.67
Other	5.05	6.25
AGRICULTURE, FORESTRY, & OTHER LAND USE	**19.11**	**25.10**
Livestock	11.67	15.68
Land	0.19	0.19
Aggregate Sources & Non-CO_2 Emissions Sources on Land	7.26	9.24
WASTE	**9.42**	**9.23**
Solid Waste Disposal	6.26	6.31
Wastewater Treatment & Discharge	3.17	2.92
EMISSION SUMMARY		
Gross California Emissions	**433.29**	**483.87**
Sinks and Sequestrations	**-6.69**	**-4.07**
Net California Emissions	**426.60**	**479.80**

Source: (1) CARB, 2007.
(2) CARB, 2009.

Regulatory Background

In response to growing scientific and political concern regarding global climate change, California has adopted a series of laws to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the state.

In September 2006, Governor Schwarzenegger signed California's Global Warming Solutions Act of 2006 (AB32). AB32 required CARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;

- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;

- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and,

- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011.

SB97, passed in August 2007, is designed to work in conjunction with CEQA and AB32. SB97 required the California Office of Planning and Research (OPR) to prepare and develop guidelines for the mitigation of GHG emissions or the effects thereof, including but not limited to, effects associated with transportation and energy consumption. These guidelines have been adopted and became effective March 18, 2010. The OPR and the Resources Agency shall periodically update these guidelines to incorporate new information or criteria established by CARB pursuant to AB32.

There has also been activity at the Federal level on the regulation of GHGs. In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), the U.S. Supreme Court held that the U.S. EPA had authority to regulate greenhouse gases. The U.S. Supreme Court ruled that CO_2 and other greenhouse gases are pollutants under the Clean Air Act, which U.S. EPA must regulate if it determines they pose an endangerment to public health or welfare. On October 30, 2009, the U.S. EPA issued 40 CFR Part 98, which requires reporting of GHG emissions from large sources and suppliers in the United States. Under Part 98, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA, with abbreviated report required in 2011 (for 2010 emissions), and full reporting in 2012 (for 2011 emissions). Part 98 became effective December 29, 2009.

Discussion of Impacts

VII a and b. Combustion of conventional hydrocarbon fuel results in the release of energy as bonds between carbon and hydrogen are broken and reformed with oxygen to create water vapor and CO_2. CO_2 is not a pollutant that occurs in relatively low concentrations as a by-product of the combustion process; CO_2 is a necessary combustion product of any fuel containing carbon. Therefore, attempts to reduce emissions of greenhouse gases from combustion focus on increasing energy efficiency – consuming less fuel to provide the same useful energy output.

The proposed Regulation 9-13 could result in the addition of SNCR or SCR. The energy requirements for the use of such units are limited to new air blowers, pumps, and a vaporization unit which have relatively small motors (about 100 horsepower) (SCAQMD, 2008 and SCAQMD, 2004). The use of SCR or SNCR equipment would occur at an the

existing Lehigh cement manufacturing facility that already uses electricity and the increase in energy use and related greenhouse gas emissions is expected to be negligible. Further, the Lehigh facility is regulated as part of CARB's GHG program and is under a GHG emission CAP. Therefore, any increase in GHG emissions would be required to be offset by GHG emission reductions.

Based on the above discussion, implementation of the proposed Regulation 9-13 is not expected to result in a significant increase in GHG emissions. Therefore, no significant adverse GHG or climate change impacts are expected due to implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c)	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑	☐
d)	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f)	For a project within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☑	☐

Setting

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

The affected cement manufacturing facility does not handle or process large quantities of flammable, hazardous, and acutely hazardous materials. Accidents involving these substances can result in worker or public exposure to fire, heat, blast from an explosion, or airborne exposure to hazardous substances.

The potential hazards associated with handling such materials are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facilities where they exist. The hazards that are likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, including the following events.

- **Toxic gas clouds:** Toxic gas clouds are releases of volatile chemicals (e.g., anhydrous ammonia, chlorine, and hydrogen sulfide) that could form a cloud and migrate off-site, thus exposing individuals. "Worst-case" conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate rather than disperse.

- **Torch fires (gas and liquefied gas releases), flash fires (liquefied gas releases), pool fires, and vapor cloud explosions (gas and liquefied gas releases):** The rupture of a storage tank or vessel containing a flammable gaseous material (like propane), without immediate ignition, can result in a vapor cloud explosion. The "worst-case" upset would be a release that produces a large aerosol cloud with flammable properties. If the flammable cloud does not ignite after dispersion, the cloud would simply dissipate. If the flammable cloud were to ignite during the release, a flash fire or vapor cloud explosion could occur. If the flammable cloud were to ignite immediately upon release, a torch fire would ensue.

- **Thermal Radiation:** Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

- **Explosion/Overpressure:** Process vessels containing flammable explosive vapors and potential ignition sources are present at many types of industrial facilities. Explosions may occur if the flammable/explosive vapors came into contact with an ignition source. An explosion could cause impacts to individuals and structures in the area due to overpressure.

Risks to the public are reduced if there is a buffer zone between industrial processes and residences or other sensitive land uses, or the prevailing wind blows away from residential areas and other sensitive land uses. The Lehigh plant is located in an industrial area.

Regulatory Background

There are many federal and state rules and regulations that facilities handling hazardous materials must comply with which serve to minimize the potential impacts associated with hazards at these facilities.

Under the Occupational Safety and Health Administration (OSHA) regulations [29 Code of Federal Regulations (CFR) Part 1910], facilities which use, store, manufacture, handle, process, or move highly hazardous materials must prepare a fire prevention plan. In addition, 29 CFR Part 1910.119, Process Safety Management (PSM) of Highly Hazardous Chemicals, and Title 8 of the California Code of Regulations, General Industry Safety Order §5189, specify required prevention program elements to protect workers at facilities that handle toxic, flammable, reactive, or explosive materials.

Section 112 (r) of the Clean Air Act Amendments of 1990 [42 U.S.C. 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances to develop Risk Management Programs (RMPs) to prevent accidental releases of these substances, U.S. EPA regulations are set forth in 40 CFR Part 68. In California, the California Accidental Release Prevention (CalARP) Program regulation (CCR Title 19, Division 2, Chapter 4.5) was issued by the Governor's Office of Emergency Services (OES). RMPs consist of three main elements: a hazard assessment that includes off-site consequences analyses and a five-year accident history, a prevention program, and an emergency response program.

Affected facilities that store materials are required to have a Spill Prevention Control and Countermeasures (SPCC) Plan per the requirements of 40 Code of Federal Regulations, Section 112. The SPCC is designed to prevent spills from on-site facilities and includes requirements for secondary containment, provides emergency response procedures, establishes training requirements, and so forth.

The Hazardous Materials Transportation (HMT) Act is the federal legislation that regulates transportation of hazardous materials. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

California Assembly Bill 2185 requires local agencies to regulate the storage and handling of hazardous materials and requires development of a business plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., fire departments), an inventory of the hazardous

materials, an emergency response plan, and an employee training program. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

Discussion of Impacts

VII a - c. It is expected that the proposed Regulation 9-13 will lead to a reduction in NOx emissions through the installation of SNCR or SCR. SNCRs and SCRs use ammonia or urea to react with NOx, in the presence of a catalyst, to form nitrogen gas and water. In some SCR installations, anhydrous ammonia is used. Safety hazards related to the transport, storage and handling of ammonia exist. Ammonia is considered to be a hazardous chemical. Ammonia has acute and chronic non-cancer health effects and also contributes to ambient PM10 emissions under some circumstances. Facilities can use either aqueous ammonia or anhydrous ammonia. The EIR prepared for the 2010 CAP evaluated the potential impacts of ammonia use. The main hazard associated with ammonia is associated with a release that generates a toxic cloud and those hazards are summarized below.

On-Site Release Scenario: The use of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form, which is its normal state at atmospheric pressure and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and gas is only produced when a liquid pool from a spill evaporates. Under current OES regulations implementing the CalARP requirements, anhydrous ammonia and aqueous ammonia is regulated under California Health and Safety Code Section 2770.1.

Any new SCR would require the use and storage of ammonia at existing cement manufacturers primarily located in industrial zones. Currently, the existing cement manufacturer in the District does not operate an SNCR or SCR system. Ammonia storage onsite would be a requirement of proposed Regulation 9-13, and limits to the amount of ammonia that can be generated by the facility make up part of the emission limits comprising the Regulation 9-13. The amount of ammonia storage is expected to be the minimum required to operate add-on control equipment installed at the existing facility.

The use and storage of anhydrous ammonia would be expected to result in potentially significant hazard impacts as there is the potential for anhydrous ammonia to migrate off-site and expose individuals to concentrations of ammonia that could lead to adverse health impacts. Anhydrous ammonia would be expected to form a vapor cloud (since anhydrous ammonia is a gas at standard temperature and pressures) and migrate from the point of release. The number of people exposed and the distance that the cloud would travel would depend on the meteorological conditions present and the distance from the release. Depending on the location of the spill, a number of individuals could be exposed to high concentrations of ammonia resulting in potentially significant impacts.

In the event of an aqueous ammonia release, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a

significant vapor cloud. If a release from on-site vessels or storage tanks were to occur, the spill(s) would be released into a containment area, which would limit the surface area of the spill and the subsequent toxic emissions. The containment area would limit the potential pool size, minimizing the amount of spilled material that would evaporate, form a vapor cloud, and impact residences or other sensitive receptors (including schools) in the area of the spill. Significant hazard impacts associated with a release of aqueous ammonia would not be expected.

In addition, the following safety design and process standards generally apply to facilities that use and store ammonia:

- The California Code of Regulations, Title 8 – contains minimum requirements for equipment design.

- Industry Standards and Practices – designates codes for design of various equipment, including the American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), and National Fire Protection Association (NFPA).

- OSHA passed the Process Safety Management of Highly Hazardous Chemicals rule in 1992 (29 CFR 910.119). This rule was designed to address the prevention of catastrophic accidents at facilities handling hazardous substances, in excess of specific threshold amounts, through implementation of Process Safety Management (PSM) systems for protection of workers. A major PSM requirement is the performance of process hazard analyses to identify potential process deviations and improved safeguards to prevent accidents.

    - A federal EPA Risk Management Program (RMP) and more stringent state RMP program have been developed. The RMP's contain hazard assessments of both worst-case and more credible accidental release scenarios, a five year accident history, an accident prevention program, and an emergency response program.

The standards noted above and other applicable design standards govern the design of mechanical equipment such as pressure vessels, tanks, pumps, piping, and compressors. Adherence to codes minimizes the potential for an ammonia release.

Transportation Release Scenario: If new SNCR or SCR systems are installed, there would be an increase in ammonia transport to the existing cement manufacturing facility. Use and transport of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form, which is its normal state at atmospheric temperature and pressure, and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and pressure, and gas is only produced when a liquid pool from a spill evaporates. Deliveries of ammonia would be made to the facility by tanker truck via public roads. The maximum capacity of a tanker truck is about 150 barrels. Regulations for the transport of hazardous materials by public highway are described in 49

CFR 173 and 177. Nineteen percent aqueous ammonia is considered a hazardous material under 49 CFR 172.

Although trucking of ammonia and other hazardous materials is regulated for safety by the U.S. DOT, there is a possibility that a tanker truck could be involved in an accident spilling its contents. The factors that enter into accident statistics include distance traveled and type of vehicle or transportation system. Factors affecting automobiles and truck transportation accidents include the type of roadway, presence of road hazards, vehicle type, maintenance and physical condition, and driver training. A common reference frequently used in measuring risk of an accident is the number of accidents per million miles traveled. Complicating the assessment of risk is the fact that some accidents can cause significant damage without injury or fatality.

The actual occurrence of an accidental release of a hazardous material cannot be predicted. The location of an accident or whether sensitive populations would be present in the immediate vicinity also cannot be identified. In general, the shortest and most direct route that takes the least amount of time would have the least risk of an accident. Hazardous material transporters do not routinely avoid populated areas along their routes, although they generally use approved truck routes that take population densities and sensitive populations into account.

The hazards associated with the transport of regulated (CCR Title 19, Division 2, Chapter 4.5 or the CalARP requirements) hazardous materials, including ammonia, would include the potential exposure of numerous individuals in the event of an accident that would lead to a spill. Factors such as amount transported, wind speed, ambient temperatures, route traveled, distance to sensitive receptors are considered when determining the consequence of a hazardous material spill.

In the unlikely event that the tanker truck would rupture and release the entire 150 barrels of aqueous ammonia, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. For a road accident, the roads are usually graded and channeled to prevent water accumulation and a spill would be channeled to a low spot or drainage system, which would limit the surface area of the spill and the subsequent toxic emissions. Additionally, the roadside surfaces may not be paved and may absorb some of the spill. Without this pooling effect on an impervious surface, the spilled ammonia would not evaporate into a toxic cloud and impact residences or other sensitive receptors in the area of the spill. An accidental aqueous ammonia spill occurring during transport is, therefore, not expected to have significant impacts.

In the unlikely event that a tanker truck would rupture and release the entire contents of anhydrous ammonia, the ammonia would be expected to form a vapor cloud (since anhydrous ammonia is a gas at standard temperature and pressures) and migrate from the point of release. There are federal, State and local agencies with jurisdiction over hazardous materials and waste who are responsible for ensuring that hazardous materials and waste handling activities are conducted in accordance with applicable laws and regulations. While

compliance with these laws and regulations will minimize the chance of an accidental release of anhydrous ammonia, the potential will still exist that an unplanned release could occur. The number of people exposed and the distance that the cloud would travel would depend on the meteorological conditions present. Depending on the location of the spill, a number of individuals could be exposed to high concentrations of ammonia resulting in potentially significant impacts.

Conclusion: Based on the above evaluation and significance criteria, the hazard impacts associated with the use and transport of aqueous ammonia are less than significant. The hazard impacts associated with the use and transport of anhydrous ammonia are potentially significant, but can be mitigated by using aqueous ammonia. Only one facility is expected to add SNCR or SCR equipment as a result of the proposed Regulation 9-13, so no significant increase in the transport of ammonia is expected (no more than one truck per day) within the District. Therefore, the proposed Regulation 9-13 is not expected to generate significant adverse hazard impacts because the increase in ammonia use within the Bay Area is relatively small and limited, and the numerous regulations that exist minimize the potential hazard impacts. Therefore, the impacts of the proposed Regulation on hazards are expected to be less than significant.

VII d. No impacts on hazardous material sites are anticipated from the proposed Regulation 9-13. The affected facility is not located on the hazardous materials sites list pursuant to Government Code Section 65962.5 (DTSC, 2011). The proposed Regulation would have no affect on hazardous materials nor is Regulation 9-13 expected to create a significant hazard to the public or environment. The air pollution control and monitoring equipment associated with proposed Regulation 9-13 are consistent with existing equipment and are located within the confines of the existing cement manufacturing facility in the Bay Area. The proposed Regulation 9-13 neither requires, nor is likely to result in, activities that would affect hazardous materials or existing site contamination. Therefore, no significant adverse impacts on hazards are expected.

VII e – f. No impacts on airports or airport land use plans are anticipated as a result of the proposed Regulation, which would apply to cement manufacturing facilities. Any required facility changes would be located within the confines of the existing cement manufacturing facility. Once the proposed Regulation is implemented, facilities would be expected to comply in the form of air pollution control and monitoring equipment. Additionally, it is proposed that the Lehigh plant add a stack to the existing kiln, of approximately 300 feet in height. These changes are expected to be made with the confines of the existing Lehigh plant. No development outside of existing facilities is expected to be required by the proposed Regulation 9-13. Therefore, no significant adverse impacts on an airport land use plan or on a private air strip are expected.

VII g. No impacts on emergency response plans are anticipated from the proposed Regulation 9-13 which would apply to existing cement manufacturing facilities. Any modifications to the Lehigh facility as a result of the proposed Regulation would occur within the confines of an existing industrial facility. The existing emergency response plan for the Lehigh plant may need to be updated. However, no changes to existing City or

County emergency response plans are expected to be required. Therefore, no significant adverse impacts on emergency response plans are anticipated.

VII h. No increase in hazards related to wildfires is anticipated from the proposed Regulation 9-13. Any changes at the Lehigh plant would be located within the confines of an existing cement manufacturing facility. Native vegetation has been removed from the operating portions of the existing facility to minimize fire hazards. Any changes or additions of equipment will occur within the confines of the existing facility. Therefore, no increase in exposure to wildfires will occur due to the proposed Regulation 9-13.

Based upon these considerations, no significant adverse hazards and hazardous materials impacts are expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY.					
Would the project:					
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☑
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☑
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☐	☑
d)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☐	☑
e)	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
f)	Otherwise substantially degrade water quality?	☐	☐	☐	☑
g)	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including	☐	☐	☐	☑

	flooding as a result of the failure of a levee or dam?				
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

The affected area is located within the San Francisco Bay Area Hydrologic Basin. The primary regional groundwater water-bearing formations include the recent and Pleistocene (up to two million years old) alluvial deposits and the Pleistocene Huichica formation. Salinity within the unconfined alluvium appears to increase with depth to at least 300 feet. Water of the Huichica formation tends to be soft and relatively high in bicarbonate, although usable for domestic and irrigation needs.

The cement manufacturing facility affected by the proposed Regulation 9-13 is located in an unincorporated area of Santa Clara County west of the City of Cupertino. The affected area is primarily surrounded by rural hills and canyons. Reservoirs and drainage streams are located adjacent to the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located throughout the Bay Area.

Regulatory Background

The Federal Clean Water Act of 1972 primarily establishes regulations for pollutant discharges into surface waters in order to protect and maintain the quality and integrity of the nation's waters. This Act requires industries that discharge wastewater to municipal sewer systems to meet pretreatment standards. The regulations authorize the U.S. EPA to set the pretreatment standards. The regulations also allow the local treatment plants to set more stringent wastewater discharge requirements, if necessary, to meet local conditions.

The 1987 amendments to the Clean Water Act enabled the U.S. EPA to regulate, under the National Pollutant Discharge Elimination System (NPDES) program, discharges from industries and large municipal sewer systems. The U.S. EPA set initial permit application requirements in 1990. The State of California, through the State Water Resources Control Board, has authority to issue NPDES permits, which meet U.S. EPA requirements, to specified industries.

The Porter-Cologne Water Quality Act is California's primary water quality control law. It implements the state's responsibilities under the Federal Clean Water Act but also establishes state wastewater discharge requirements. The RWQCB administers the state requirements as specified under the Porter-Cologne Water Quality Act, which include storm water discharge permits. The water quality in the Bay Area is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board.

In response to the Federal Act, the State Water Resources Control Board prepared two state-wide plans in 1991 and 1995 that address storm water runoff: the California Inland Surface Waters Plan and the California Enclosed Bays and Estuaries Plan, which have been updated in 2005 as the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. San Francisco Bay, and its constituent parts, including Carquinez Strait and Suisun Bay, fall under this category.

The San Francisco Bay Basin Plan identifies the: (1) beneficial water uses that need to be protected; (2) the water quality objectives needed to protect the designated beneficial water uses; and (3) strategies and time schedules for achieving the water quality objectives. The beneficial uses of the Carquinez Strait that must be protected which include water contact and non-contact recreation, navigation, ocean commercial and sport fishing, wildlife habitat, estuarine habitat, fish spawning and migration, industrial process and service supply, and preservation of rare and endangered species. The Carquinez Strait and Suisun Bay are included on the 1998 California list as impaired water bodies due to the presence of chlordane, copper, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, PCBs, and selenium.

Discussion of Impacts

VIII a, f. No significant adverse impacts on hydrology and water quality resources are anticipated from the proposed Regulation 9-13, which would apply to the existing Lehigh cement manufacturing facility. The proposed Regulation is not expected to result in an increase in wastewater discharge or result in an increase in water runoff. The site is already developed and operating as a cement manufacturing facility. The proposed emission control equipment is not expected to require water use or wastewater discharge. Therefore, no violation of any water quality standards or waste discharge requirements, and no decrease in water quality is expected from the proposed Regulation 9-13.

VIII b. The emission control technologies (i.e., SNCR and SCR equipment) that would expected to be installed to comply with Regulation 9-13 do not require additional use of water.

Particulate emissions arise from a variety of activities at cement manufacturing facilities. Fugitive emission come from quarrying and primary crushing of raw materials, storage and handling of raw materials, fuel, clinker, and finished product, and from vehicle traffic. Regulation 9-13 would impose an opacity limit of 10 percent opacity lasting for no more than

three minutes in any one hour period from any emission point or miscellaneous operation. . Compliance with this standard will be facilitated through the following dust mitigation control measures:

- Mitigation measures to minimize fugitive dust emissions from disturbed soil, open areas and unpaved roads
- Surface stabilization methods for material storage piles and dust suppression methods for material transfer processes, material handling equipment, housekeeping, and material cleanup
- Track-out prevention and control provisions to minimize dust emissions from paved roads
- Vehicle traffic speed limits
- Provisions to minimize emissions from material transfer and blasting at rock quarries
- Personnel training procedures.

These fugitive dust mitigation measures were derived from the Fugitive Dust Control Plan (FDCP) that Lehigh developed in cooperation with the District, as part of Lehigh's recent Title V permit renewal. Fugitive dust emissions are best controlled by efficient site design and lay-out as well as proper maintenance and operation of equipment to reduce spillage and air leakage from collection systems. These can be addressed appropriately in a dust mitigation plan and operation and maintenance plan. Plan elements may include open pile wind protection, use of water spray or chemical dust suppressors, paving, road wetting, and housekeeping requirements, and humidification of stockpiles. Additional measures may include enclosing or encapsulating dusty operations such as grinding, screening and mixing, covering conveyors and elevators, vacuum systems to prevent formation of diffuse dust from spillage during maintenance operations, and flexible filling pipes for dispatch and loading processes. Particularly dusty operations may require ventilation and collection by a control device similar to that for stack emissions.

If a fugitive dust mitigation measure requires water spray as a dust suppression method, the amount of water required would be minimal as water would be used for dust suppression activities only. As a result, the proposed Regulation is not expected to deplete groundwater supplies or interfere with groundwater recharge. Therefore, no significant impacts on groundwater supplies are expected due to the proposed Regulation 9-13.

Section 10910 of the California Water Code requires preparation of a water supply assessment for certain new development of large residential, commercial, or industrial uses. Specifically, a water supply assessment would be required if a Project included any of the following types of development:

- Proposed residential developments of more than 500 dwelling units; or

- Shopping center or business establishments employing more than 1,000 persons or having more than 250,000 square feet of floor space; or

- Commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space; or

- Hotels, motels, or both, having more than 500 rooms; or

- Industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; or

- Mixed-use projects that include one or more of the projects specified in this subdivision; or

- A project that would demand an amount of water equivalent to or greater than the amount of water required by a 500 dwelling unit project.

The estimated demand for a 500 dwelling unit project is 262,820 gpd or about 96 million gallons per year. Water supply assessments typically are required when water use continues over an extended period of time. The proposed Regulation 9-13 does not meet any of the thresholds described above (water use will be less than 96 million gallons per year), and a water supply assessment need not be prepared and incorporated into this Negative Declaration.

VIII c - f. the Lehigh plant is expected to comply with the proposed Regulation 9-13 by incorporating new SNCR or SCR systems, associated upgrades of heater controls and ducting to accommodate these controls, and emission monitoring equipment. All affected equipment would be located in industrial an area, where storm water drainage has been controlled and no construction activities outside of the existing facility is expected to be required. Therefore the proposed Regulation is not expected to substantially alter the existing drainage or drainage patterns, result in erosion or siltation, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. Nor is the proposed Regulation expected to create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The proposed Regulation is not expected to substantially degrade water quality. Therefore, no significant adverse impacts to storm water runoff are expected.

VIII g – i. Any new construction or modifications would occur within the confines of the existing cement facility. No construction activities outside the boundaries of the existing Lehigh facility are expected due to the adoption of the proposed Regulation 9-13. The Lehigh cement plant is not located within a 100-year flood zone. Therefore, proposed Regulation 9-13 is not expected to require any additional structures within 100-year flood zones, or other areas subject to flooding. Further, the proposed Regulation would not result in any additional residential

structures, so no housing would be placed within a 100-year flood zone. Therefore, no significant adverse impacts due to flooding are expected.

VIII j. The cement manufacturing facility affected by the proposed Regulation is located in the foothills of Santa Clara County. The facility is located about five miles from the San Francisco Bay and is not susceptible to inundation by seiche or tsunami because of its distance from the ocean. Additional control equipment is expected to be sited near the existing operating portion of the cement facility which is not located near hillsides or areas subject to mud flows. The proposed Regulation is not expected to place any additional structures within areas subject to inundation by seiche, tsunami or mudflow. Therefore, no significant adverse impacts on hydrology/water due to seiche, tsunami or mudflow are expected.

Based upon these considerations, no significant adverse hydrology and water quality impacts are expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	**LAND USE AND PLANNING.** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☑
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

Setting

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Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Land uses in the vicinity of the Lehigh plant are regulated by the County of Santa Clara General Plan through land use and zoning requirements.

Discussion of Impacts

IX a-c. Any new construction or modifications would occur within the confines of the existing Lehigh facility which is an industrial area. No new construction outside of the confines of the existing facility is expected to be required due to the adoption of the proposed Regulation 9-13.

Because all actions resulting from implementation of Regulation 9-13 occur within the confines of the existing cement manufacturing facility, no physical division of an established community is expected. Additionally, no conflict with any applicable land use plan, policy, or regulation is expected as new equipment will be compatible with the existing industrial use of the site.

Based upon these considerations, no significant adverse land use impacts are expected from the implementation of the proposed Regulation 9-13.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Mineral resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

X a-b. The low air pollution control and monitoring equipment associated with the proposed Regulation 9-13 is consistent with existing equipment and are located within the confines of the existing Lehigh plant. Any new construction or modifications would occur within the confines of the existing facility. The proposed Regulation is not associated with any action that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land

use plan. The proposed Regulation would limit emissions from cement plants but would not increase the use of cement or increase the amount of limestone or other materials mined at the facility. Therefore, no impacts on mineral resources are expected.

Based upon these considerations, significant mineral resource impacts are not expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE. Would the project:					
a)	Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b)	Expose persons to or generate of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f)	For a project within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Noise issues related to construction and operation activities are addressed in local General Plan policies and local noise ordinance standards. The General Plans and noise ordinances generally establish allowable noise limits within different land uses including residential areas, other sensitive use areas (e.g., schools, churches, hospitals, and libraries), commercial areas, and industrial areas.

Discussion of Impacts

XI a-d. The proposed Regulation would impose limitations on the NOx, PM, TAC and ammonia emissions from Portland cement manufacturing facilities. Compliance will be achieved through the installation of and new control and monitoring equipment.

The noise environment at the existing cement manufacturing facility is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting the facility premises. Any construction activities required due to the proposed Regulation 9-13 would occur within the confines of the existing facility boundaries. Noise impacts during the construction period are expected to be minimal and occur during daylight hours. Noise related to construction activities would cease following completion of the construction phase.

It is not expected that any modifications to install air pollution control equipment would substantially increase ambient operational noise levels in the area, either permanently or intermittently, or expose people to excessive noise levels that would be noticeable above and beyond existing ambient levels. Depending on the air pollution control technology installed, replaced, or modified, the operations phase may add new sources of noise to the affected facility. Noise increases associated with SNCR or SCR units are expected to be limited to small motors for air blowers and or pumps. It is expected that the Lehigh facility will comply with all existing noise control laws or ordinances. Further, OSHA and California-OSHA (Cal/OSHA) have established noise standards to protect worker health. These potential noise increases are expected to be small, and thus, less than significant. Therefore, no adverse significant impacts to noise are expected due to the proposed Regulation. Further, the Lehigh facility is located more than one half mile from residential areas so no increase in noise at residential or other sensitive receptor areas is expected.

It is also not anticipated that air pollution control devices or other new equipment will cause an increase in groundborne vibration levels because air pollution control equipment is not typically vibration intensive equipment. Consequently, the proposed Regulation 9-13 will not directly or indirectly cause substantial noise or excessive groundborne vibration impacts.

The proposed Regulation would not substantially increase ambient noise levels from stationary sources, either intermittently or permanently. Therefore, noise impacts are expected to be less than significant.

XI. e-f. The Lehigh plant is not located within an airport land use plan, or within two miles of a public airport or public use airport, or within the vicinity of a private use airstrip, and is not expected to expose people residing or working in the project area to excessive noise levels. Therefore, noise impacts are expected to be less than significant.

Based upon these considerations, significant noise impacts are not expected from the implementation of the proposed Regulation 9-13.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Population and housing growth and resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

XII. a. Any construction activities associated with the proposed Regulation at the affected facility are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. Workers who will carry out construction activities required at the Lehigh plant to comply with the proposed Regulation 9-13 can be drawn from the existing labor pool in the Bay Area. Further, it is not expected that installing air pollution control equipment will require a substantial increase

in new employees to operate the equipment (an estimated one to two employees). As a result, the proposed Regulation 9-13 is not anticipated to generate any significant adverse effects, either direct or indirect, on population growth in the district.

XII b-c. Because the proposed Regulation includes modifications and/or changes at an existing facility located within an industrial setting, it is not expected to affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of people or housing elsewhere in the Bay Area.

Based upon these considerations, significant population and housing impacts are not expected from the implementation of the Proposed Regulation 9-13.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES. Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☑
Police protection?	☐	☐	☐	☑
Schools?	☐	☐	☐	☑
Parks?	☐	☐	☐	☑
Other public facilities?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Given the large area covered by the BAAQMD, public services are provided by a wide variety of local agencies. Fire protection and police protection/law enforcement services within the BAAQMD are provided by various districts, organizations, and agencies. There are several school districts, private schools, and park departments within the BAAQMD. Public facilities within the BAAQMD are managed by different county, city, and special-use districts.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate public services are maintained within the local jurisdiction.

Discussion of Impacts

XIII a. Implementation of proposed Regulation 9-13 would require new air pollution control equipment at an existing cement manufacturer. The proposed Regulation may result in greater demand for ammonia, which will need to be transported to the Lehigh facility if SNCR or SCR are installed, and stored onsite prior to use. In the event of an accidental release fire departments are typically first responders for control and clean-up and police may need to be available to maintain perimeter boundaries. The proposed Regulation is not expected to significantly affect fire or police departments because of the low probability of accidents during transport and the limited number of facilities (one) that is expected to use SCNR or SCR ad a result of implementing Regulation 9-13. Therefore, the proposed Regulation is not expected to increase the need or demand for additional public services (e.g., fire departments, police departments, government, et cetera) above current levels.

As noted in the "Population and Housing" discussion above, the proposed Regulation is not expected to induce population growth in any way because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate any construction activities that may be necessary at the affected facility and operation of new or modified equipment is not expected to require a substantial increase in employees. Therefore, there will be no increase in local population and thus no impacts are expected to local schools or parks.

Based upon these considerations, significant public services impacts are not expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV.	**RECREATION.** Would the project:				
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b)	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☑

Setting

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Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Recreational areas are generally protected and regulated by the City and/or County General Plans at the local level through land use and zoning requirements. Some parks and recreation areas are designated and protected by state and federal regulations.

Discussion of Impacts

XIV a-b. As discussed under "Land Use" above, there are no provisions of the proposed Regulation 9-13 that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments. No land use or planning requirements will be altered by proposed Regulation 9-13. Any required new equipment, construction, or modifications would occur within the confines of the existing cement manufacturer, so no changes in land use would be required and construction activities would not impact any existing recreational facilities. Further, the proposed

Regulation would not increase the use of existing neighborhood and regional parks or other recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the proposed Regulation is not expected to induce population growth. Therefore, no significant adverse impacts on recreation are expected.

Based upon these considerations, significant recreation impacts are not expected from the implementation of the proposed Regulation 9-13.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☑	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established b the county congestion management agency for designated roads or highways?	☐	☐	☑	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards because of a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles). Transportation systems located within the Bay Area include railroads, airports, waterways, and highways. The Port of Oakland and three international airports in the area serve as hubs for commerce and transportation. The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The Bay Area contains over 19,600 miles of local streets and roads, and over 1,400 miles of state highways. In addition, there are over 9,040 transit route miles of services including rapid rail, light rail, commuter, diesel and electric buses, cable cars, and ferries. The Bay Area also has an extensive local system of bicycle routes and pedestrian paths and sidewalks. At a regional level, the share of workers driving alone was about 68 percent in 2007. The portion of commuters that carpool was about 10 percent in 2007. About 4 percent of commuters walked to work in 2007. In addition, other modes of travel (bicycle, motorcycle, etc.), account for 3 percent of commuters in 2007 (MTC, 2008). Cars, buses, and commercial vehicles travel about 145 million miles a day (2000) on the Bay Area Freeways and local roads. Transit serves about 1.6 million riders on the average weekday (MTC, 2008).

The region is served by numerous interstate and U.S. freeways. On the west side of San Francisco Bay, Interstate 280 and U.S. 101 run north-south. U.S. 101 continues north of San Francisco into Marin County. Interstates 880 and 660 run north-south on the east side of the Bay. Interstate 80 starts in San Francisco, crosses the Bay Bridge, and runs northeast toward Sacramento. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. State Routes 29 and 84, both highways that allow at-grade crossings in certain parts of the region, become freeways that run east-west, and cross the Bay. Interstate 580 starts in San Rafael, crosses the Richmond-San Rafael Bridge, joins with Interstate 80, runs through Oakland, and then runs eastward toward Livermore. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

Transportation planning is usually conducted at the state and county level. Planning for interstate highways is generally done by the California Department of Transportation.

Most local counties maintain a transportation agency that has the duties of transportation planning and administration of improvement projects within the county and implements the Transportation Improvement and Growth Management Program, and the congestion

management plans (CMPs). The CMP identifies a system of state highways and regionally significant principal arterials and specifies level of service standards for those roadways.

Discussion of Impacts

XV a-b. Construction activities resulting from implementing the proposed Regulation 9-13 will generate a temporary increase in traffic in the vicinity of the Lehigh plant associated with construction workers, construction equipment, and the delivery of construction materials. The increase in traffic associated with construction activities would be temporary comprising the construction period, and would cease upon completion of construction.

Once construction is completed, the proposed Regulation is not expected to cause a significant increase in traffic at the Lehigh plant. Operation of the cement manufacturing operation is not expected to add a substantial number of new employees (less then three new employees). An increase of a maximum of one truck per day may be required to deliver ammonia if SNCR or SCR equipment is installed. Also, the proposed Regulation is not expected to exceed, either individually or cumulatively, the current level of service of the areas surrounding the affected facility. The work force at the affected facility is not expected to significantly increase as a result of the proposed Regulation and no increase in operation-related traffic is expected. Thus, the traffic impacts associated with the proposed Regulation 9-13 are expected to be less than significant.

XV c. The proposed Regulation is not located within an airport land use plan or within two miles of a public airport or public use airport. Actions that would be taken to comply with the proposed Regulation, such as installing new air pollution control equipment, are not expected to significantly influence or affect air traffic patterns. Further, while the proposed Regulation could lead to the construction of a new 300 feet tall stack on the kiln, the proposed Regulation is not expected to impact navigable air space as the nearest airport is more than five miles from the Lehigh facility. Thus, the proposed Regulation would not result in a change in air traffic patterns including an increase in traffic levels or a change in location that results in substantial safety risks.

XV d - e. The proposed Regulation 9-13 will not alter traffic patterns or existing roadways. The proposed Regulation is not expected to substantially increase traffic hazards or create incompatible uses at the affected facility. All construction activities will occur within the confines of the existing cement manufacturing facility. Aside from the temporary effects due to an increase in traffic associated with construction activities, the proposed Regulation is not expected to alter the existing long-term circulation patterns. The proposed Regulation is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. The proposed Regulation does not involve construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at the affected facility is not expected to be impacted by the proposed Regulation.

XV f. Construction and operation activities resulting from the proposed Regulation 9-13 are not expected to conflict with policies supporting alternative transportation since the

proposed Regulation does not involve or affect alternative transportation modes (e.g. bicycles or buses) because the construction and operation activities related to the proposed Regulation will occur solely within the confines of one cement manufacturing plant.

Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII. UTILITIES/SERVICE SYSTEMS. Would the project:					
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements needed?	☐	☐	☐	☑
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☑	☐

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area.

Given the large area covered by the BAAQMD, public utilities are provided by a wide variety of local agencies. The affected facility has wastewater and storm water treatment facilities and discharges treated wastewater under the requirements of an NPDES permits. Water is supplied by several water purveyors in the Bay Area. Solid waste is handled through a variety of municipalities, through recycling activities, and at disposal sites.

There are no hazardous waste disposal sites within the jurisdiction of the BAAQMD. Hazardous waste generated at area facilities, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities are the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Safety-Kleen facility in Buttonwillow (Kern County). Hazardous waste can also be transported to permitted facilities outside of California. The nearest out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc., in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin.

Implementation of Regulation 9-13 will require reduction of NOx, PM, TAC and ammonia emissions at Portland cement facilities in the Bay Area. The Lehigh plant is the only cement facility operating within the jurisdiction of the BAAQMD affected by the proposed rule.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate utilities and service systems are maintained within the local jurisdiction.

Discussion of Impacts

XVI a, b, d and e. Compliance with opacity limits associated with the proposed Regulation 9-13 will be facilitated through various provisions derived from Lehigh's Fugitive Dust Control Plan (FDCP) in their Title V permit. Elements include keeping material storage piles, transfer operations, roads and open soil wet or covered. Operational requirements address speed limits, use of a street sweeper and truck wash-outs. Other provisions provide for wind protection and HEPA filter vacuuming any spilled cement dust. If water spray is used as a dust suppression method, the amount of water required would be minimal as water would be used for dust suppression activities only. Any new construction or modifications would occur within the confines of the existing facility. The proposed Regulation 9-13 would not result in the generation of any wastewater at the Lehigh plant. Water consumption would be limited to dust suppression activities and is expected to be minor. Therefore, no impacts on wastewater treatment requirements or wastewater treatment facilities are expected. Further, the proposed Regulation is not expected to generate wastewater or water runoff. Therefore, no significant impacts on wastewater or stormwater facilities are expected due to the proposed Regulation 9-13.

XVI c. The Lehigh plant is expected to comply with the proposed Regulation by the use of air pollution control and monitoring equipment. Therefore, the proposed Regulation 9-13 is not expected to alter the existing drainage or require the construction of new storm water drainage facilities. Nor is the proposed Regulation expected to create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Therefore, no significant adverse impacts on storm drainage facilities are expected.

XVI f and g. The proposed Regulation 9-13 would not affect the ability of cement manufacturing facilities to comply with federal, state, and local statutes and regulations related to solid waste. No significant impacts on waste generation are expected from the proposed Regulation as the Lehigh plant is the only affected facility within the jurisdiction of BAAQMD. Waste is expected to be limited to metal, in the event that old equipment is replaced with new equipment.

The proposed Regulation may generate hazardous waste from spent catalyst in SNCR or SCR units. The catalyst has a life expectancy ranging from about five to ten years, depending on the catalyst reaction rate. Spent catalysts are expected to be recycled offsite for their heavy metal content. Therefore, no significant impacts to hazardous waste disposal facilities are expected due to the proposed Regulation. Facilities are expected to continue to comply with all applicable federal, state, and local statutes and regulations related to solid and hazardous wastes.

Based upon these considerations, significant impacts to utilities and service systems are not expected from the implementation of the proposed Regulation 9-13.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☑	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☑

Discussion of Impacts

XVII a. The proposed Regulation 9-13 does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory, as discussed in the previous sections of the CEQA checklist. The proposed Regulation is expected to result in emission reductions from cement manufacturing facilities, thus providing a beneficial air quality impact and improvement in air quality. Further, any modifications would occur within the confines of an existing cement manufacturing facility which has already been graded and disturbed. As discussed in Section IV, Biological Resources and Section V, Cultural Resources, no significant adverse impacts are expected to biological or cultural resources.

XVII b-c. The proposed Regulation 9-13 is expected to result in emission reductions of NOx, PM, TAC and ammonia from affected cement manufacturing facilities, thus providing a beneficial air quality impact through these reductions and ambient ozone concentrations. The proposed Regulation is part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone, thus reducing the potential health impacts due to ozone exposure. The proposed Regulation does not have adverse environmental impacts that are limited individually, but are cumulatively considerable when considered in conjunction with other regulatory control projects. The proposed Regulation 9-13 is not expected to have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse environmental impacts are expected.

Chapter 4

References

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