SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment for:

Proposed Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities

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PREFACE

The Notice of Preparation/Initial Study (NOP/IS) of an Environmental Assessment (EA) for proposed Rule 1156 was released for a 30-day public review period from January 21, 2005 to February 22, 2005. The NOP was released with an Initial Study, which contained a brief project description and the environmental checklist, as required by state CEQA Guidelines. The NOP/IS identified "air quality" and "hydrology and water quality" as the only areas that may be adversely affected by the proposed project. No comments were received on the NOP/IS Those two areas were evaluated by the Draft EA and only NOx construction emissions under "air quality" was concluded to be significant. The Draft EA for PR 1156 was circulated for a 45-day public review and comment period from August 12, 2005 to September 27, 2005. No comments were received on the Draft EA

Subsequent to the release and circulation of the Draft EA for PR 1156, minor modification s were made to PR 1156. The following modifications are the only changes that directly affect the analysis of the impacts in the Draft EA: the removal of the general open storage pile requirement for storage piles with a silt content greater than five percent and where the loading and unloading activity occurs at a cumulative rate of more than 50,000 tons per year. This requirement has been replaced by the following requirement: clinker must be stored in an enclosed area if the total area for clinker storage is greater than four acres, or if the cumulative 12-month rolling average loading/unloading or process rate of clinker is more than 80,000 tons per month by December 31, 2006 or no later than one calendar year from the date these thresholds are exceed.

The Draft EA originally estimated that one storage pile at each facility would require a one acre concrete dome enclosure. Alternative C – Full Enclosures, also evaluated the enclosure of all storage piles at both facilities, which was estimated to be 15 enclosures.

Pursuant to the proposed modifications to PR 1156, it is expected that neither affected facility would be required to build an enclosure. Operators at CPCC have already enclosed clinker in a building. Operators at TXI do not have clinker piles that are either greater than four acres in size or have a cumulative 12-month rolling average loading/unloading rate of clinker (or processing rate of clinker) that is more than 80,000 tons per month. Even without the requirement to build an enclosed clinker storage structure, the NOx construction emissions from building three-sided enclosures and miscellaneous construction associate with other requirements of PR 1156 (e.g., delivery truck and forklift emissions from installing conveyor covers, transfer point control, replacing baghouse filters, enclosing a primary crusher and adding a wet suppression system) are greater than the NOx significance threshold of 100 pounds of per day (148 pounds per day). Therefore, the change to the enclosure requirements would not change any conclusions in the Draft EA, that is, NOx construction emissions would remain significant. None of other the modifications to PR 1156 were determined to affect or alter the conclusions for any other environmental topic.

Staff has reviewed the above modifications to PR 1156 and concluded that none of the modifications alter any conclusions reached in the Draft EA, nor provide significant new information relative to the draft document that would require recirculation of the Draft EA pursuant to CEQA Guidelines §15088.5. This conclusion is supported by substantial evidence in the administrative record. Therefore, this document is now a Final EA. Additions to the text are denoted with <u>underline</u> and deletions are demoted with ~~strikeout~~.

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CHAPTER 1

EXECUTIVE SUMMARY

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977 as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin referred to here as the district. By statute, the SCAQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the district. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP. The 2003 AQMP concluded that major reductions in emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) are necessary to attain the air quality standards for ozone and particulate matter (PM10).

The area of jurisdiction under the SCAQMD exceeds state and federal ambient air quality standards for PM10 (defined as particulate matter with an aerodynamic diameter of 10 microns or less). These microscopically fine particles can originate from a variety of area sources, both natural and man-made, and from a variety of stationary source processes, which include direct emissions (referred to as primary PM10) and atmospheric chemical reactions that convert gases to particles (referred to as secondary PM10). Approximately one-third of the ambient PM10 concentrations are a result of soil dust entrainment, commonly referred to as fugitive dust[1]. In response to these elevated PM10 levels, the SCAQMD adopted Rule 403 – Fugitive Dust, to reduce fugitive dust and the corresponding PM10 emissions; Rule 404 - Particulate Matter – Concentration, to reduce particulate concentration from permitted equipment; Rule 405 - Solid Particulate Matter – Weight, to reduce particulate mass emissions from permitted equipment, and Rule 1112.1 - Emissions of Particulate Matter from Cement Kilns, to reduce particulate matter from cement kilns and clinker coolers.

Proposed Rule (PR) 1156 would implement the cement manufacturing particulate matter (PM) control portion of the 2003 AQMP control measure BCM-08 – Further Emission Reductions from Aggregate Operations (PM10), which would strengthen control of particulate matter from fugitive and process sources. Cement manufacturing facilities are defined as any facility engaged in producing Portland cement or associated products. Two facilities in the Basin would be affected by PR 1156, California Portland Cement Company (CPCC) and Texas Industry, Riverside Cement (TXI).

Currently, fugitive dust from cement manufacturing facilities is regulated under Rule 403. Process emissions are regulated by Rules 404, 405 and 1112.1. PR 1156 would further regulate PM emissions from specific particulate generating activities and operations at cement manufacturing facilities to supplement or supercede PM/PM10 control requirements from Rules 403, 404, 405, and 1112.1. PR 1156 requires PM reductions instead of PM10 reductions for two reasons: 1) the emission inventory and reductions were based on source tests for PM, and 2) USEPA is considering eliminating PM10 standards and developing PM and PM2.5 standards.

[1] SCAQMD, Board Package for Proposed Rule 403, Agenda No. 38, April 2, 2004.

Control Measure BCM-08 was partially implemented when Rule 1157- PM10 Emission Reductions from Aggregate and Related Operations, was adopted. Rule 1157, was adopted by the Governing Board on January 7, 2005 to address emissions generated by aggregate and related operations. The Staff Report for Rule 1157[2] states that Rule 1157 applies to aggregate and related operation, and that a separate rule would be proposed to address cement manufacturing operations. PR 1156 is the separate rule mentioned in the Rule 1157 Staff Report designed to control particulate emissions from cement manufacturing operations. Since the release of the Draft EA, PR 1156 has been modified to provide an exemption from requirements that apply to equipment or operations that would otherwise be subject to Rule 1157 or Rule 1158 - Storage, Handling, and Transport of Petroleum Coke, located at the cement manufacturing facilities. This exemption does not apply to primary crushing, open material storage piles, and covers and enclosures for conveying systems, provided that there is no backsliding from the current level of control as stated in permits approved by the Executive Officer prior to the adoption date of PR 1156 or as required under Rule 1157 or Rule 1158, whichever is more stringent. Together PR 1156 and Rule 1157 would complete implementation of control measure BCM-08. Similar to Rules 403, 404, 405, 1112.1 and 1157, PR 1156 would control PM emissions though the use of performance standards and proposed dust control measures.

Modifications to PR 1156 Since Draft EA Was Released

Staff worked closely with representatives of the impacted industry and resolved all key issues raised by the industry. The following is a list of the significant issues raised during the public comment period.

Compliance Options

Both facilities requested that the proposed optional alternative standard of 99.5% efficiency for baghouses and the proposed optional emission factors be removed from the rule. Both facilities indicated that they would not elect to comply with the alternative standards. Staff agreed to remove these compliance options.

Performance Standard

Staff initially proposed performance standards in terms of PM10. Both facilities indicated that the fraction of PM10 to PM emissions can vary for certain processes; and information on this fraction is not currently available for all of the processes at a cement manufacturing facility; and therefore an average fraction of PM10 to PM of 0.5 is only accurate to be used for developing an emission inventory but not for setting the PM10 performance standards for all processes at a cement manufacturing facility. Staff agreed that the performance standards should be expressed in terms of total particulate matter (PM) and not PM 10.

Enclosure of Storage Piles

The initial staff proposal set forth criteria for full enclosure of all open storage piles containing materials with a silt content of more than five percent and where loading and unloading activity amounts to more than 50,000 tons per year. Based on further evaluation of the costs of full enclosure, staff changed the proposal to require enclosure on material

[2] SCAQMD, Final Staff Report for PR 1157: PM10 Emission Reductions from Aggregate and Related Operations, December 2004.

storage piles that pose a significant potential source of fugitive emissions. Therefore, full enclosure will only apply to clinker storage piles and only in the event that their cumulative storage area exceeded four acres, or the facility's cumulative 12-month rolling average loading/unloading or processing rate exceeded 80,000 tons per month.

Primary Crusher

Only one of the facilities has a primary crusher. This facility presented technical evidence that the staff proposal for enclosure of the existing primary crusher and venting to a baghouse control system would require an expensive redesign of the crushing system without significant additional emission reductions. Staff agreed and language was added to allow the operator to use wind fences on at least two sides of the primary crusher with one side facing the prevailing winds and wet suppression as a control for the primary crusher in lieu of the total enclosure and baghouse control system. Staff estimated that the wind fences and wet suppression would provide a reasonable level of control at reduced costs.

Overlap with Existing Rules

One facility argued that some of the proposed requirements in PR 1156 overlapped with, and in some cases exceeded, existing requirements of newly-adopted rule 1157 that affects aggregate processing operations found at the cement manufacturing facility. Language has been added to the proposal to provide an exemption for equipment subject to Rule 1157 and Rule 1158 with the exception of the primary crusher, conveyors and certain raw material storage piles exclusive to cement manufacturing operations, where further controls were feasible.

Since, there are only two facilities that are affected by the cement manufacturing portion of BCM-08, if during the development of PR 1156, it is determined that separate requirements are needed to reduce particulate emissions from both facilities because of their unique operating characteristics, SCAQMD may enter into a Memorandum of Understanding (MOU) with each of the two affected facilities instead of adopting PR 1156. The MOUs would detail the specific requirements each facility would need to achieve the goals of BCM-08. Any MOUs entered into by the SCAQMD and the operators of the two affected facilities will undergo a public process.

Based on the conclusions in the initial study (IS) prepared for PR 1156, this ~~Draft~~ Final EA further analyzed potential adverse air quality and hydrology and water quality impacts. Adverse impacts to all other environmental areas were determined to be less than significant in the IS. This ~~Draft~~ Final Environmental Assessment (EA), prepared pursuant to the California Environmental Quality Act (CEQA), identified construction-related air pollutant emissions as the only potentially significant adverse impact. Water quality impacts were determined to be less than significant.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PR 1156 is a "project" as defined by the California Environmental Quality Act (CEQA). CEQA requires that the potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the CEQA process is to inform the SCAQMD's Governing Board, public agencies, and interested parties of

potential adverse environmental impacts that could result from implementing the proposed project and to identify feasible mitigation measures when an impact is significant.

California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the Secretary of Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110. Pursuant to Rule 110 (the rule which implements the SCAQMD's certified regulatory program), SCAQMD ~~is preparing~~ has prepared a ~~Draft~~ Final EA to evaluate potential adverse impacts from PR 1156.

Appendix D includes a Notice of Preparation/Initial Study (NOP/IS) which identifies environmental topics to be analyzed in this document. The NOP/IS identified "air quality" and "hydrology and water quality" as the only areas that may be adversely affected by the proposed project. The NOP/IS was distributed to responsible agencies and interested parties for a 30-day review and comment period from January 21, 2005, to February 22, 2005. During that public comment period SCAQMD did not received any comment letters on the NOP/IS.

~~Any~~ No comments were received during the public comment period on the analysis presented in ~~this~~ the Draft EA ~~will be responded to and included in the Final EA~~. Minor modifications have been made to the Draft EA to reflect the current version of PR 1156, such that this document is now a final EA. Prior to making a decision on the proposed rule, the SCAQMD Governing Board must review and certify ~~the~~ this Final EA as providing adequate information on the potential adverse environmental impacts of the proposed rule.

If SCAQMD decides to pursue the MOU process with operators of the two affected facilities, it is expected that their PM control requirements will be similar to the PM control requirements in PR 1156 or alternatives presented in this ~~Draft~~ Final EA. If MOUs are used in place of PR 1156 to implement the portion of BCM-08 related by controlling PM emissions from cement manufacturing facilities, SCAQMD staff will rely upon this ~~Draft~~ Final EA as the CEQA document for the MOUs as applicable. This ~~Draft~~ Final EA can be used as the CEQA document for the MOUs, as long as, the scope and analysis of adverse environmental impacts from the MOUs do not exceed those associated with PR 1156 or the alternatives presented in this ~~Draft~~ Final EA. If the PM control requirements in the MOUs exceed the scope or generate additional or substantially more significant impacts compared to the adverse environmental impacts analyzed in this ~~Draft~~ Final EA, another CEQA document will be prepared as necessary that focus the analysis on the impacts not addressed in this ~~Draft~~ Final EA.

CEQA DOCUMENTATION FOR PROPOSED RULE 1156

This ~~Draft~~ Final EA is a comprehensive environmental document that analyzes potential adverse environmental impacts from implementing PR 1156. SCAQMD rules, as ongoing regulatory programs, have the potential to be revised over time due to a variety of factors (e.g., regulatory decisions by other agencies, new data, lack of progress in advancing the effectiveness of control technologies to comply with requirements in technology forcing

rules, etc.). The other document which comprises the CEQA record for PR 1156 is the NOP/IS (January 20, 2005) in Appendix D. The following is a summary of the contents of the NOP/IS:

Notice of Preparation/Initial Study of an Environmental Assessment for Proposed Rule 1165, January 20, 2005 (SCAQMD, No. 050114JK): The NOP/IS of an EA for proposed Rule 1156 was released for a 30-day public review period from January 21, 2005 to February 22, 2005. The NOP was released with an Initial Study, which contained a brief project description and the environmental checklist, as required by state CEQA Guidelines. The environmental checklist contained a preliminary analysis of potential adverse environmental effects that may result from implementing the proposed amendments. The NOP/IS identified "air quality" and "hydrology and water quality" as the only areas that may be adversely affected by the proposed project. No comment letters regarding the NOP/IS were received. This document, attached to this EA as Appendix D, can also be obtained by contacting the SCAQMD's Public Information Center at (909) 396-2039 or by visiting following website at: http://www.aqmd.gov/ceqa/aqmd.html.

INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers and the public generally of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project (CEQA Guidelines §15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this ~~Draft~~ Final EA is intended to: (a) provide the SCAQMD Governing Board and the public with information on the environmental effects of the proposed project; and, (b) be used as a tool by the SCAQMD Governing Board to facilitate decision making on the proposed project.

Additionally, CEQA Guidelines §15124(d)(1) requires a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the EA in their decision-making;
2. A list of permits and other approvals required to implement the project; and
3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

To the extent that local public agencies, such as cities, county planning commissions, et cetera, are responsible for making land use and planning decisions related to projects that must comply with the requirements in PR 1156, they could possibly rely on this EA during their decision-making process. Similarly, other single purpose public agencies approving projects at facilities complying with PR 1156 may rely on this EA.

If MOUs are used instead of PR 1156 to implement BCM-08, SCAQMD staff would rely on this ~~Draft~~ Final EA as the CEQA document for the MOUs. As a result, other public agencies that are responsible for land use and planning decisions related to projects that implement the MOUs could still rely on this ~~Draft~~ Final EA as part of their decision making process.

AREAS OF CONTROVERSY

CEQA Guidelines §15124(d)(2) requires a public agency to identify areas of controversy, including issues raised by agencies and the public. The following issues have been raised during the rule development process for PR 1156. Staff and the regulated public are currently engaged in intense discussions to addresses the areas of controversy listed below. The proposed rule circulated with this document may be modified to reflect resolutions reached subsequent to the release of this document.

- Operators of the affected facilities have commented on the economic infeasibility of fully enclosing open storage piles. Staff ~~is~~ has evaluated ~~evaluating~~ the economic impacts of the open storage pile enclosure requirements, and full enclosure of storage piles has been limited to clinker piles that are larger than four acres or if a facility's cumulative 12-month rolling average loading and unloading (or processing) rate of clinker is more than 80,000 tons per month . ~~If further evaluation determines that building the enclosures is economically infeasible, the open storage pile enclosure requirements may be removed from PR 1156. If the open storage pile enclosure requirements are removed the significant adverse construction air quality adverse impacts would be similar to those presented in Alternative B.~~

- Staff and operators of the affected facilities ~~are in the process of~~ evaluated~~ing~~ source tests on baghouses at both affected facilities and other pertinent information to verity the feasibility of the proposed performance standard of 0.01 grain per dry standard cubic foot vis-a-vis the proposed source test methods. ~~If the~~ The source tests demonstrate that the affected facilities ~~already~~ could achieve the 0.01 grain per dry standard cubic foot performance standard for kilns and clinker coolers at TXI and CPCC; and finish mills with coated polyester bags at CPCC.~~, then no~~ Since source test indicate that no additional emission reductions ~~would be required~~ may be needed for kilns and clinker coolers at TXI and CPCC; and finish mills with coated polyester bags at CPCC; ~~and~~ existing filter bags ~~would~~ may not need to be replaced. ~~If the~~ If replacement of kiln, clinker cooler and finish mill filter bags ~~are~~ is not needed ~~replaced~~, minor secondary emissions from the replacement of these filter bags would not occur. Based on source tests the uncoated polyester bags may not meet the 0.01 grain per dry standard cubic foot performance standard and would need to be replaced. Filter bags for devices and processes other than the kilns, clinker coolers and finish mills may also need to be replaced.

- Operators of affected facilities have stated that Control Measure BCM-08 - Further Emission Reductions from Aggregate and Cement Manufacturing Operations, is designed to control fugitive PM10 emissions. Therefore, the baghouse and related monitoring requirements exceed what is required by BCM-08, because baghouses are considered point sources. Operators requested that the baghouse requirement be removed from PR 1156 and a separate baghouse rule developed that applies to all baghouses under the SCAQMD's jurisdiction instead.

  Appendix IV-A: Stationary Source Control Measures of the 2003 AQMP states that, in addition to establishing prescriptive measures to control fugitive dust, BCM-08 is to

evaluate whether additional controls are necessary to control PM10 from sources at cement manufacturing operations subject to Rules 404, 405 and 1112.1. Rules 404, 405 and 1112.1 control emissions from point sources; therefore, BCM-08 addresses both point and fugitive sources. The proposed control method for particulate matter from cement kilns is proposed by refining the emission inventory and evaluation and implementation of possible controls such as electrostatic precipitators, high efficiency baghouses, and improved maintenance programs. Baghouse requirements for cement plants would be different than those at most facilities, because kiln and clinker cooler baghouses are large baghouses that are operated at high temperatures. Therefore, even if a baghouse rule is developed in the future, specific requirements for kiln and clinker cooler baghouses would be required. Since these baghouses necessitate unique requirements because of their specialized use, it is not inappropriate to address specific baghouse requirements in PR 1156.

- During the development of Rule 1157, cement manufacturing operators requested that SCAQMD restrict Rule 1157 to aggregate facilities and PR 1156 to cement manufacturing facilities. The Final EA for PR 1157 states, "PR 1157 would implement the non-cement operation portion of Control Measure BCM-08. A separate rule will be proposed to address emissions generated by cement manufacturing operations." However, cement manufacturing operators have recently stated that operations up to the raw mill are aggregate operations and should be subject to Rule 1157 and not PR 1156.

  Subsequently to the release of the Draft EA, and after several meetings with industry, PR 1156 has been modified so that, with the exception of primary crushing, open material storage piles, and covers and enclosures for conveying systems, the provisions of PR 1156 shall not apply to equipment or operations that are subject to Rule 1157 or Rule 1158 located at the cement manufacturing facilities, provided that there is no backsliding from the current level of control as stated in the permits approved by the Executive Officer prior to rule adoption date or as required under Rule 1157 or Rule 1158, whichever is more stringent

  ~~Operators of cement manufacturing facilities have also argued that fugitive dust control at their facilities exceed the fugitive dust requirements required of aggregate facilities under Rule 1157 - PM10 Emission Reductions from Aggregate and Related Operations. The operators have requested that SCAQMD model PR 1156 after the requirements under Rule 1157.~~

  ~~Even though Rule 1157 and PR 1156 are developed to implement the same Control Measure BCM-08, the purpose of Rule 1157 is to reduce PM10 emissions from all permanent and temporary aggregate and related operations *not* at a cement manufacturing facility, which is stated in the Public Notice of Rule 1157. While both Rule 1157 and PR 1156 have requirements for controlling fugitive dust from roads, process equipment and storage piles, the requirements were developed to address the two different types of operation.~~

~~If the fugitive dust requirements of Rule 1157 where adopted in place of the fugitive dust requirements of PR 1156, fewer emission reductions would be generated. Construction emission impacts would become insignificant since additional structures would not be required. Therefore, since the adverse impacts would be reduced, if the fugitive dust requirements of Rule 1157 are adopted in place of the fugitive dust requirements of PR 1156, the Draft EA would not need to be recirculated.~~

EXECUTIVE SUMMARY

CEQA Guidelines §15123 requires a CEQA document to include a brief summary of the proposed actions and their consequences. In addition, areas of controversy including issues raised by the public must also be included in the executive summary. This ~~Draft~~ Final EA consists of the following chapters: Chapter 1 – Executive Summary; Chapter 2 – Project Description; Chapter 3 – Existing Setting, Chapter 4 – Potential Environmental Impacts and Mitigation Measures; Chapter 5 – Project Alternatives; Chapter 6 - Other CEQA Topics and various appendices. The following subsections briefly summarize the contents of each chapter.

Summary of Chapter 1 – Executive Summary

Chapter 1 includes a discussion of the legislative authority that allows the SCAQMD to amend and adopt air pollution control rules, identifies general CEQA requirements and the intended uses of this CEQA document, areas of controversy and summaries the remaining five chapters that comprise this ~~Draft~~ Final EA.

Summary of Chapter 2 - Project Description

The following summarizes the main components of PR 1156. PR 1156 would:

- Establish visible emission standards for cement manufacturing facilities.
- Establish dust control for loading, unloading and transferring; crushing, screening, milling, blending, drying, heating, mixing, sacking, palletizing, packaging, and other operations. PM from these processes would be controlled by baghouses, chemical dust suppression, enclosures, covers, dust curtains, shrouds, gaskets, stackers, chutes, wind fences, and ~~fog~~ wet suppression systems. ~~PR 1156 also allows an alternative performance standard based on USEPA AP-42 emission factors by specific process.~~
- Establish a kiln and clinker cooler outlet concentration standard of 0.01 grains per dry cubic feet PM, ~~or an overall control efficiency of 99.95 percent~~ by December 31, 2006 for pulse-jet baghouses and by December 31, ~~2007~~2010 for ~~reverse-air~~ non-pulse jet baghouses. Demonstration of compliance toward the December 31, 2010 compliance date would be required. By December 31, 2006, affected operators would be required to submit a list of baghouse candidates for future modification or replacement. Each year starting on December 31, 2006, affected facilities would be required to submit a notification letter demonstrating that the operator has completed at least 20 percent of the modification. Equipment installed after PR 1156 is adopted would need to meet an outlet standard of 0.0005 grains per dry cubic feet PM. Establish a minimum capture velocity for baghouse ventilation and hood systems for kilns and clinker coolers as specified by the applicable standard of the U.S. Industrial Ventilation Handbook, American Conference of Governmental Industrial Hygienists, at the time of installation. If modification to the baghouse ventilation and hood system is required to meet the

applicable standard, the operators would be granted additional time up to December 31, 2006 to complete this process.

- Establish dust control for material storage. Silos, bins or hoppers would be required to be vented to baghouses. Large, ~~silty,~~ active clinker storage piles would be required to be enclosed. Provide a menu of dust control options for other active storage piles requiring them to be stabilized by chemical dust suppressants, three-sided barriers, wind fence materials or tarps.
- Establish outlet concentrations of baghouses of 0.01 grains per dry cubic feet PM for existing systems, or a BACT outlet concentration not to exceed0.005 grains per dry cubic feet PM for systems installed on or after the date PR 1156 is adopted~~, or a 99.95 percent overall control efficiency. PR 1156 allows an alternative performance standard based on USEPA AP-42 emission factors by specific process~~. Operators would be required to meet these requirements by December 31, 2006 for pulse-jet baghouses and by December 31, ~~2007~~2010 for ~~reverse-air~~ non-pulse jet baghouses. Establish a ~~baghouse capture efficiency of 99.5 percent or a~~ minimum capture velocity for baghouse ventilation and hood systems as specified by the applicable standard of the U.S. Industrial Ventilation Handbook, American Conference of Governmental Industrial Hygienists, at the time of installation. If modification to the baghouse ventilation and hood system is required to meet the applicable standard, the operators would be granted additional time up to December 31, 2006 to complete this process.
- Establish dust control for unpaved and paved roadways, and track-out. Unpaved roadway dust would be controlled by chemical dust suppressants, gravel pads, speed limits and road signs. Paved road dust would be controlled by sweeping at least once a day. Track-out dust would be controlled by paving at least 0.25 mile of roads leading to public roadways; rumble grates, truck and wheel washers; ~~removal of accumulation on truck wheels leaving the facility; leveling loaded materials~~ truck cleaning facilities; chemical dust suppressants; road signs; and annual fugitive dust flyers provided to trucking companies.
- Establish operation and maintenance procedures, monitoring and source testing, reporting and recordkeeping, and test methods and calculations.

Summary of Chapter 3 - Existing Setting

Pursuant to the CEQA Guidelines §15125, Chapter 3 – Existing Setting, includes descriptions of those environmental areas that could be adversely affected by PR 1156 as identified in the Initial Study (Appendix D). The following subsections briefly highlight the existing setting for air quality and hydrology and water quality, which were the only environmental areas identified that could potentially be adversely affected by implementing PR 1156.

Air Quality

Air quality in the area of the SCAQMD's jurisdiction has shown substantial improvement over the last two decades. Nevertheless, some federal and state air quality standards are still exceeded frequently and by a wide margin. Of the National Ambient Air Quality Standards (NAAQS) established for six criteria pollutants (ozone, lead, sulfur dioxide, nitrogen dioxide, carbon monoxide and PM10), the area within the SCAQMD's jurisdiction is only in attainment with sulfur dioxide, nitrogen dioxide and lead standards. Chapter 3 provides a

brief description of the existing air quality setting for each criteria pollutant, as well as the human health effects resulting from exposure to each criteria pollutant.

Hydrology and Water Quality

The U.S. USEPA is the federal agency responsible for water quality management and administration of the federal Clean Water Act (CWA). The U.S. USEPA has delegated most of the administration of the CWA in California to the California State Water Resources Control Board (SWRCB).

Water quality of regional surface water and groundwater resources is affected by point source and non-point source discharges occurring throughout individual watersheds. Regulated point sources, such as wastewater treatment effluent discharges, usually involve a single discharge into receiving waters. Non-point sources involve diffuse and non-specific runoff that enters receiving waters through storm drains or from unimproved natural landscaping. Common non-point sources include urban runoff, agriculture runoff, resource extraction (on-going and historical), and natural drainage. Within the regional Basin Plans, the Regional Water Quality Control Boards (RWQCBs) establish water quality objectives for surface water and groundwater resources and designate beneficial uses for each identified waterbody.

Local sources of water account for approximately 26 percent of the total volume consumed annually in the Southern California Association of Governments (SCAG) area. Local sources include surface water runoff and groundwater. Local water resources are fully developed and are expected to remain relatively stable in the future on a region-wide basis. However, local water supplies may decline in certain localized areas and increase in others.

Nonresidential water use represents about 25 percent of the total municipal and industrial (M&I) demand in the MWD's service area. The nonresidential sector represents water that is used by businesses, services, government, institutions (such as hospitals and schools), and industrial (or manufacturing) establishments. Within the commercial/institutional category, the top water users include schools, hospitals, hotels, amusement parks, colleges, laundries, and restaurants. In southern California, the major industrial users include electronics, aircraft, petroleum refining, beverages, food processing, and other industries that use water as a major component of the manufacturing process (MWD, 2002).

Summary of Chapter 4 - Environmental Impacts

CEQA Guidelines §15126(a) requires that a CEQA document, "shall identify and focus on the significant environmental effects of the proposed project. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

The following subsections briefly summarize the analysis of potential adverse environmental impacts from the adoption and implementation of PR 1156.

Air Quality

PR 1156 is expected to result in two tons per day of anticipated PM emission reductions from construction of storage pile and process PM control enclosures. The emission

reductions are expected to occur by December 31, ~~2007~~ 2010. Though an overall net air quality benefit is expected from PR 1156, affected facilities may choose to install new or modify existing air pollution control devices in order to comply with the emission standards. Construction activities associated with installing or modifying air pollution control equipment are expected and have the potential to generate significant adverse air quality impacts. Expected secondary NOx emissions of 248 pounds per day from construction activities would exceed the significance threshold of 100 pounds per day.

However, cumulative air quality impacts from the proposed rule, existing rules, and all other AQMP control measures considered together are not expected to be significant because implementation of all AQMP control measures is expected to result in net emission reductions of PM and overall air quality improvement. Construction is also temporary, ending by December 31, ~~2007~~ 2010. While PM emissions from construction may temporarily exceed construction significance thresholds, PM emission reductions from PR 1156 requirements would extend into the future. Further, air quality modeling performed for the 2003 AQMP indicated that the Basin would achieve all federal ambient air quality standards by the year 2010[3] (SCAQMD, 2003).

Hydrology and Water Quality

Water quality was analyzed in the NOP and found not be significant. No comments were received on the NOP during the 30-day comment period from January 21, 2005 to February 22, 2005.

The version of PR 1156 circulated with the NOP included an open storage pile enclosure exemption for materials with a moisture content greater than ten percent. The NOP stated the possible water consumption associated with the exemption was not known at the time and would be addressed in the Draft EA. However, between the release of the NOP and the development of ~~this~~ the Draft EA, the moisture content exemption was removed. The only requirement that may increase water usage is the rumble grate, truck washer and wheel washer requirement. Facility operators may decide to use water to suppress fugitive dust from storage piles or loading/unloading operations, but are not required to specifically use water. Operators may choose instead to use chemical dust suppressants or other means of control (i.e. covering, enclosing, three-sided enclosures, tarping, etc.) Based on the analysis presented in the NOP (water quality) and Chapter 4 of this document (water usage), the proposed project is not expected have significant averse hydrology and water quality impacts.

Potential Environmental Impacts Found Not To Be Significant

The Initial Study for PR 1156 includes an environmental checklist of approximately 17 environmental topics to be evaluated for potential adverse impacts from a proposed project. Review of the proposed project at the NOP/IS stage identified two topics, air quality and hydrology/water quality, for further review in the Draft EA. Where the Initial Study concluded that the project would have no significant direct or indirect adverse effects on the remaining environmental topics, no comments were received on the NOP/IS or at the public

[3] Additional time will be allowed to attain the new eight-hour ozone and PM2.5 standards.

meetings that changed this conclusion. The screening analysis concluded that the following environmental areas would not be significantly adversely affected by PR 1156:

- aesthetics
- agriculture resources
- biological resources
- cultural resources
- energy
- geology/soils
- hazards and hazardous materials
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid/hazardous waste
- transportation/traffic

Consistency

The Southern California Association of Governments (SCAG) and the SCAQMD have developed, with input from representatives of local government, the industry community, public health agencies, the United States Environmental Protection Agency (USEPA) - Region IX and the California Air Resources Board (CARB), guidance on how to assess consistency within the existing general development planning process in the Basin. Pursuant to the development and adoption of its Regional Comprehensive Plan Guide (RCPG), SCAG has developed an Intergovernmental Review Procedures Handbook (June 1, 1995). The SCAQMD also adopted criteria for assessing consistency with regional plans and the AQMP in its CEQA Air Quality Handbook. Analysis of the proposed project shows that it is consistent with the RCPG.

Summary Chapter 5 - Alternatives

Four feasible alternatives to the proposed rule are summarized in Table 1-1: Alternative A (No Project), Alternative B (Partial Enclosures), Alternative C (Full Enclosures), and Alternative D (Reduction from Baseline). A comparison of the potential air quality and hydrology/water quality impacts from each of the project alternatives with PR 1156 is given in Table 1-2. No other significant adverse impacts were identified for PR 1156 or any of the project alternatives. The proposed project and Alternatives B, C and D are significant for NOx from construction activities. No significant secondary construction emissions are anticipated from Alternative A because it is assumed PR 1156 would not be adopted. No significant operation adverse air quality impacts would be expected from operations in either the proposed project or alternatives. No other environmental topics were determined to be significant. The proposed project is considered to provide the best balance between emission reductions, the adverse air quality impacts due to construction and operation activities. Therefore, the proposed project is preferred over the project alternatives.

Alternative A or 'no project' means that PR 1156 would not be adopted and instead the operators would maintain their current operations without change and will continue to be subject to the following requirements:

- SCAQMD Rule 401 - Visible Emissions;
- SCAQMD Rule 404 - Particulate Matter - Concentration;
- SCAQMD Rule 405 - Particulate Matter - Weight;
- SCAQMD Rule 1112.1 - Emissions of Particulate Matter from Cement Kilns
- SCAQMD Regulation XIII – New Source Review;
- SCAQMD Regulation XXX – Title V Permits;
- Federal New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart F, *Standards of Performance for Portland Cement Plants*;
- Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63, Subpart LLL, NESHAP from the Portland Cement Manufacturing Industry

Alternative A, the 'no project' alternative, does not achieve the goals of the proposed project because it does not implement the portion of Control Measure BMC-08 to further reduce PM emissions from cement manufacturing operations. While no significant adverse secondary environmental impacts would result from the 'no project' alternative, it is not the environmentally superior alternative in accordance with CEQA Guidelines §15126.6(e)(2) because PM would continue to be emitted at current levels, thus, not improving air quality in the district.

Compared to PR 1156, Alternative B, the partial enclosure alternative, has a higher baghouse performance standard (0.03 gram PM per dry standard cubic meter), does not require additional control for crushers, and does not require full enclosure of open storage piles. Like the proposed project, Alternative B would produce significant adverse NOx emissions (108 pounds of NOx per day) during construction of three-sided enclosures. The effective dates for Alternative B requirements would be one to two years longer than those of the proposed project. Alternative B does not include Continuous Emission Monitoring System (CEMS), continuous opacity monitoring systems (COMS), baghouse leak detection systems (BLDS) or operation and maintenance (O&M) procedures. The proposed project is superior to Alternative B, since it would generate greater feasible PM emissions reductions on a shorter schedule.

Alternative C, the full enclosure alterative, would require a 0.005 gram PM per dry standard cubic meter baghouse performance standard, and that operators fully enclose conveyers, crushers and open storage piles. Alternative C would allow one additional year to comply with open storage pile control to allow for the construction required to enclose all open storage piles. Secondary NOx emissions of 367 pounds per day from construction would exceed the SCAQMD's NOx construction significance threshold of 100 pounds per day.

Alternative C would achieve the greatest emission reductions. Since the open storage piles would be fully enclosed operators would not be required to water open storage piles. Alternative C also requires that only chemical dust suppressants be used for dust control. The proposed project and Alternatives B and D may require additional watering which would generate additional criteria and toxic emissions from additional combustion required

to remove moisture added from watering for dust suppression. Therefore, Alternative C would be the environmentally superior and least toxic alternative. However, it is not clear if existing facilities would be able to meet the 0.005 gram per dry standard cubic meter baghouse performance standard for all baghouses. Facility operators have stated that enclosing all storage piles would prevent them from purchasing materials in bulk when available. Therefore, requiring all storage piles to be enclosed may adversely impact business decisions and operating activities at affected facilities.

Alternative D, reduction from baseline alternative, is the same as the proposed project except that operators would be allowed to reduce the overall facility baghouse baseline PM emissions by 50 percent instead of complying with individual baghouse performance standards. Facility operators requested this option in case their kiln or clinker baghouse could not meet the performance standards. Under this alternative, further reductions could be made at other baghouses to compensate for baghouses unable to meet required performance standards. This alternative would allow ~~the longest compliance time~~ a similar effective date to the proposed project (three to five years) to allow facility operators to optimize baghouses to obtain the 50 percent reduction from baseline. Secondary NOx emissions from construction would be equivalent to the proposed project, which is expected to exceed the NOx significance threshold. At the request of facility operators, this alternative does not include COMS/BLDS or documented O&M procedures. Since CEMS, COMS, BLDS and documented O&M procedures are not required, verifying compliance would be more difficult than verifying compliance for the proposed project and Alternative C. The proposed project is superior to this project alternative since compliance verification would be more effective~~is not as simple and the implementation schedule is longer~~.

Summary Chapter 6 - Other CEQA Topics

CEQA documents are required to address the potential for irreversible environmental changes, growth-inducing impacts and inconsistencies with regional plans. Consistent with the 2003 AQMP EIR, additional analysis of the proposed project confirms that it would not result in irreversible environmental changes or the irretrievable commitment of resources, foster economic or population growth or the construction of additional housing, or be inconsistent with regional plans.

Table 1-1
Summary of PR 1156 and Project Alternatives

Description	Proposed Project	Alternative A No Project	Alternative B Partial Enclosures	Alternative C Full Enclosures	Alternative D Reduction from Baseline
Baghouse standards – kilns/clinker cooler (d)(4), and other equipment (d)(6)	Baghouse performance standard of 0.01 grain/dscft PM for existing equipment and 0.005 grain/dscf for new equipment ~~or 99.95% collecting efficiency~~ with COMS/BLDS for top emitters and O&M procedures	Compliance with Rule 1112.1, 404 and 405	Baghouse performance standard of 0.03 grain/dscf without COMS/BLDS and O&M procedures	Baghouse performance standard of 0.005 grain/dscf with PM CEMS for top emitters and O&M procedures	Overall reduction 50% of baseline emissions without COMS/BLDS and O&M procedures
Process Equipment Loading, Unloading and Transferring (d)(2)(A) and (d)(2)(B)	Enclose loading/unloading process units and vent to baghouses; and cover existing conveyors	Same as project	Same as project	Enclose loading/unloading process units and vent to baghouses; and enclose existing conveyors	Same as project
Screening, Milling, Grinding, Blending, Drying, Heating, Mixing, Sacking, Palletizing, Packaging and Other Related Operations (d)(3)(B) and (C)	Enclose system and vent to baghouse	Compliance with Rule 403	Same as no project	Enclose system and vent to baghouse	Same as project
Crushing (d)(3)(B) and (C)	Enclose system and vent to baghouse; or wind screens with ~~fog generator~~ wet suppression	Compliance with Rule 403	Same as no project	Enclose system and vent to baghouse	Same as project

Table 1-1 (Cont.)
Summary of PR 1156 and Project Alternatives

Description	Proposed Project	Alternative A No Project	Alternative B Partial Enclosures	Alternative C Full Enclosures	Alternative D Reduction from Baseline
Active clinker piles ~~with High Emissivity~~ a) Control (d)(5)(B) b) Loading and Unloading (d)~~(2)(A)~~(5)(E)	a) Enclose active storage piles with a ~~silt content > 5% and~~ 4 acre area or a cumulative 12-month rolling average clinker loading and unloading (or processing) rate > ~~5~~80,000 ton/year b) Loading/unloading within enclosure	Compliance with Rule 403	a) Chemical stabilizer, or 3-sided barrier with 2 feet of freeboard, or 3-sided barrier with roof, or tarp entire surface b) Loading/unloading with dust suppressants	a) Enclose all active storage piles b) Loading/ unloading within enclosure	Same as project
Other active/ inactive piles a) Control (d)(5)(C) b) Loading and Unloading (d)~~(2)(C)~~(5)(E)	a) Chemical stabilizer, or 3-sided barrier with 2 feet of freeboard, or 3-sided barrier with roof, or tarp entire surface b) Loading/unloading with dust suppressants	Compliance with Rule 403	Same as project	a) Enclose all active storage piles b) Loading/ unloading within enclosure	Same as project
Chemical dust suppressant/ Watering	Water or chemical dust suppressants allowed for process and storage piles; chemical dust suppressants only for unpaved roads.	Compliance with Rule 403	Same as project	Chemical dust suppressants only	Same as project
Compliance dates	1~~.5~~ year~~s~~ to meet pulse jet baghouse and active storage pile enclosure requirements, ~~2.~~5 years to meet ~~reverse-air~~ non-pulse jet bag requirements, and 6 months for other requirements.	Compliance with Rule 403	~~3~~8 years to meet all requirements	2 years to enclose storage piles and 1 year to enclose crusher	Baghouse compliance phased over 3-5 years

Table 1-2
Comparison of Adverse Environmental Impacts of the Alternatives

Description	Proposed Project	Alternative A No Project	Alternative B Partial Enclosures	Alternative C Full Enclosures	Alternative D Reduction from Baseline
Air Quality Emission Reductions					
Baghouse standards – kilns/clinker cooler and other equipment	0.2 ton/day PM reduction by December 31, 20~~07~~10	None	None	0.3 ton/day PM reduction by December 31, 20~~07~~10	0.2 ton/day PM reduction within 5 years; ~~delays required control 5 years longer than proposed project~~
Process Equipment	0.5 ton/day PM reduction by December 31, 20~~07~~10	None	Same as proposed project within 3 years; delays required control 1 year longer than proposed project	0.7 ton/day PM reduction by December 31, 20~~07~~10	Same as proposed project
Storage Piles	0.04 ton/day PM reduction by December 31, 2006	None	0.015 tons/day PM reduction with 3 years; delays required control 2 years longer than proposed project	0.05 ton/day PM reduction within 2 years; delays required control 1 year longer than proposed project	Same as proposed project
Vehicle Traffic	1.5 ton/day PM reduction within six months of rule adoption	Same as proposed project	Same as proposed project	Same as proposed project	Same as proposed project
Total Emission Reductions, ton/day	~~2.2~~ 2.1		~~2.2~~ 2.1	~~2.5~~ 2.4	~~2.2~~ 2.1

Table 1-2 (Cont.)
Comparison of Adverse Environmental Impacts of the Alternatives

Description	**Proposed Project**	**Alternative A No Project**	**Alternative B Partial Enclosures**	**Alternative C Full Enclosures**	**Alternative D Reduction from Baseline**
Construction Emissions	Significant NOx emissions at 248 lb/day over one year	None	Significant NOx emissions at 175 lb/day over 3 years; would allow construction emission 2 years longer than proposed project.	Significant NOx emissions at 367 lb/day for 2 years would allow construction emission 1 year longer than proposed project.	Same as proposed project
Secondary Operational Emissions	No significant emissions	None	No significant emissions less than PR 1156	No significant emissions More than PR 1156	Same as proposed project
Air Quality Impacts Significant?	Yes, construction emissions	No	Yes, construction emissions	Yes, construction emissions	Yes, construction emissions
Hydrology/Water Quality Impacts Significant?	No	None	No	No	No

CHAPTER 2

PROJECT DESCRIPTION

PROJECT LOCATION

The SCAQMD has jurisdiction over an area of 10,473 square miles (referred to hereafter as the district), consisting of the four-county South Coast Air Basin and the Riverside County portions of the Salton Sea Air Basin (SSAB) and the Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The 6,745 square-mile Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB and MDAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of both Riverside County and the SSAB and is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 2-1).

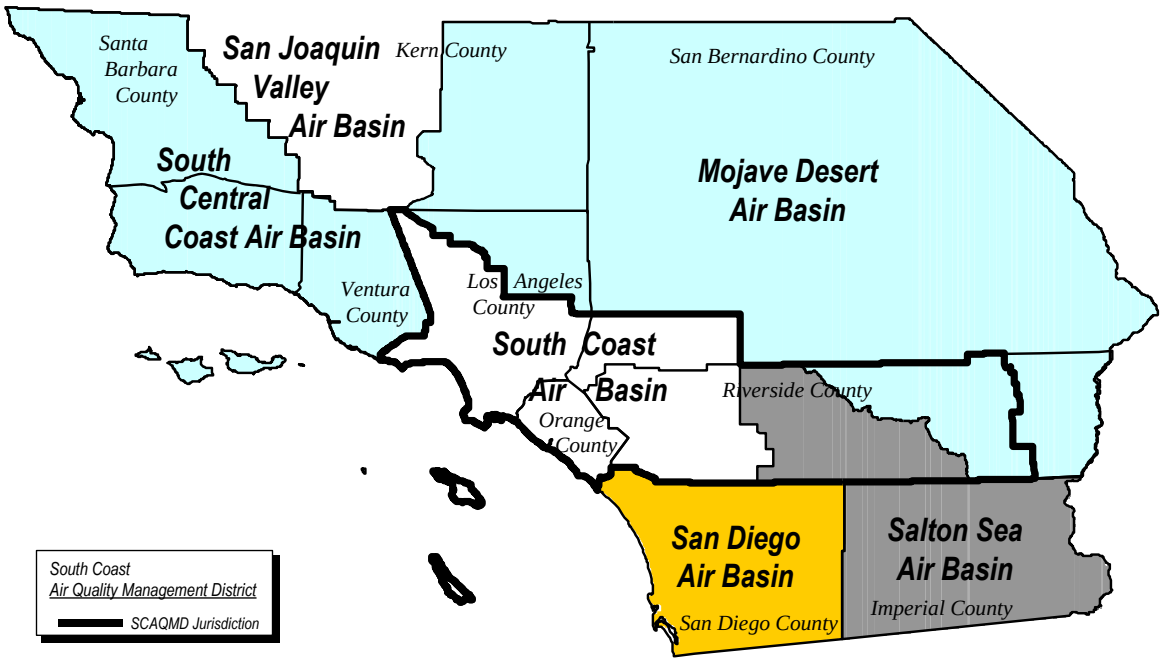

FIGURE 2-1
South Coast Air Quality Management District

BACKGROUND

PR 1156 would implement in part BCM-08 – Further Emission Reductions from Aggregate Operations (PM10), previously evaluated and discussed in the Final 2003 AQMP, dated August 2003, and Final Program Environmental Impact Report for 2003 AQMP (SCH. No. 2002081137), dated August 2003. The 2003 Control Measure BCM-08 estimated a total inventory of 1.4 tons per day as PM10 for all identified aggregate and cement manufacturing facilities, with a total anticipated emissions reduction of 0.7 ton per day PM10 by 2010[4]. The two cement manufacturing facilities subject to PR 1156 contribute approximately 25 percent of the emission inventory and reductions reported in Control Measure BCM-08. Additional PM10 emission reductions are needed to attain the ambient air quality standards for particulate matter. However, staff has found that the emission inventory and reductions in Control Measure BCM-08 are based on limited information and, therefore, are underestimated. As a part of the rule promulgation process, staff has completed facility surveys and has reviewed source test and monitoring data in order to prepare a more accurate emissions inventory.

If SCAQMD decides to pursue the MOU process with operators of the two affected facilities, it is expected that their PM control requirements will be similar to the PM control requirements in PR 1156 or alternatives presented in this ~~Draft~~ Final EA. If MOUs are used in place of PR 1156 to implement the portion of BCM-08 related by controlling PM emissions from cement manufacturing facilities, SCAQMD staff will rely upon this ~~Draft~~ Final EA as the CEQA document for the MOUs as applicable. This ~~Draft~~ Final EA can be used as the CEQA document for the MOUs, as long as, the scope and analysis of adverse environmental impacts from the MOUs do not exceed those associated with PR 1156 or the alternatives presented in this ~~Draft~~ Final EA. If the PM control requirements in the MOUs exceed the scope or generate additional or substantially more significant impacts compared to the adverse environmental impacts analyzed in this ~~Draft~~ Final EA, another CEQA document will be prepared as necessary that focus the analysis on the impacts not addressed in this ~~Draft~~ Final EA.

PROJECT OBJECTIVE

The primary objective of PR 1156 is to supplement or supercede PM emissions control requirements of Rules 403, 404, 405, and 1112.1 at the cement manufacturing facilities from operations:

- Establishing performance or emission standards that could be used to evaluate the performance of the control technologies;
- Improve or replace existing control technologies;
- Install new control technology; and
- Implement specific criteria to ensure that the facilities will operate control equipment at their peak performance.

[4] The emissions inventory and emissions reductions for aggregate and related operations were revised during the development of Rule 1157. The Final Staff Report for Rule 1157, dated December 3, 2004, estimated that the baseline emissions inventory for aggregate and related operations is 29 tons of PM10 per day, and that 18 tons per day of PM10 emissions would be reduced by Rule 1157.

These same objectives may be accomplished by MOUs with each of the two affected facilities, if facility-specific requirements are determined to be necessary.

MODIFICATIONS TO PR 1156 SINCE DRAFT EA WAS RELEASED

Staff worked closely with representatives of the impacted industry and resolved all key issues raised by the industry. The following is a list of the significant issues raised during the public comment period.

Compliance Options

Both facilities requested that the proposed optional alternative standard of 99.5% efficiency for baghouses and the proposed optional emission factors be removed from the rule. Both facilities indicated that they would not elect to comply with the alternative standards. Staff agreed to remove these compliance options.

Performance Standard

Staff initially proposed performance standards in terms of PM10. Both facilities indicated that the fraction of PM10 to PM emissions can vary for certain processes; and information on this fraction is not currently available for all of the processes at a cement manufacturing facility; and therefore an average fraction of PM10 to PM of 0.5 is only accurate to be used for developing an emission inventory but not for setting the PM10 performance standards for all processes at a cement manufacturing facility. Staff agreed that the performance standards should be expressed in terms of total particulate matter (PM) and not PM 10.

Enclosure of Storage Piles

The initial staff proposal set forth criteria for full enclosure of all open storage piles containing materials with a silt content of more than five percent and where loading and unloading activity amounts to more than 50,000 tons per year. Based on further evaluation of the costs of full enclosure, staff changed the proposal to require enclosure on material storage piles that pose a significant potential source of fugitive emissions. Therefore, full enclosure will only apply to clinker storage piles and only in the event that their cumulative storage area exceeded four acres, or the facility's cumulative 12-month rolling average loading/unloading or processing rate exceeded 80,000 tons per month.

Primary Crusher

Only one of the facilities has a primary crusher. This facility presented technical evidence that the staff proposal for enclosure of the existing primary crusher and venting to a baghouse control system would require an expensive redesign of the crushing system without significant additional emission reductions. Staff agreed and language was added to allow the operator to use wind fences on at least two sides of the primary crusher with one side facing the prevailing winds and wet suppression as a control for the primary crusher in lieu of the total enclosure and baghouse control system. Staff estimated that the wind fences and wet suppression would provide a reasonable level of control at reduced costs.

Overlap with Existing Rules

One facility argued that some of the proposed requirements in PR 1156 overlapped with, and in some cases exceeded, existing requirements of newly-adopted rule 1157 that affects

aggregate processing operations found at the cement manufacturing facility. Language has been added to the proposal to provide an exemption for equipment subject to Rule 1157 and Rule 1158 with the exception of the primary crusher, conveyors and certain raw material storage piles exclusive to cement manufacturing operations, where further controls were feasible.

REGULATORY BACKGROUND

There are three levels of regulatory requirements that apply to the aggregate and related industries: 1) federal requirements (i.e., U.S. Environmental Protection Agency or USEPA); 2) state (i.e., the California Air Resources Board (CARB) and other state agencies), and, 3) local (i.e., the SCAQMD and local governments). The following is an overview of federal, state and local regulatory programs that are applicable to the aggregate and related operations.

Federal Requirements

The following is a brief summary of federal requirements that apply to Portland cement manufacturing operations.

Standards of Performance for Portland Cement Manufacturing Industry

USEPA promulgated standards for various equipment and processes of Portland cement manufacturing facilities in the Code of Federal Regulations (40 CFR Part 60, Subpart F - Standards of Performance for Portland Cement Plants). In particular, Subpart F limits particulate matter emissions from kilns to 0.30 pounds and an opacity of 20 percent or less. Particulate emissions from clinker coolers must not be more than 0.10 pound per ton and less than 10 percent opacity. Subpart F also sets a limit of 10 percent opacity for fugitive emissions from all non-kiln/non-clinker cooler sources.

Federal National Emission Standards for Hazardous Air Pollutants (NESHAP)

USEPA adopted hazardous air pollutant (HAP) standards for equipment and processes at Portland cement manufacturing facilities in the 40 CFR, Part 63, Subpart LLL, *NESHAP from the Portland Cement Manufacturing Industry.* Emission limits are presented in Table 2-1 below. The NESHAP also contains temperature, activated carbon injection rate, and pressure drop/carrier fluid flow rate requirements for operators that are subject to the dioxin/furan emission limits. Performance test, monitoring requirements, such as operation and maintenance (O&M) procedures, baghouse leak detection systems (BLDS), and continuous opacity monitoring system (COMS) are also prescribed by the NESHAP.

Compliance Assurance Monitoring, 40 CFR Part 64

Compliance Assurance Monitoring, 40 CFR Part 64, specifies monitoring, recordkeeping, and reporting requirements for sources that are subject to emission standards identified in State Implementation Plans, use control equipment, and have pre-control emissions that are equal to or more than the major source threshold which in the district is 70 tons/yr for PM10.

State Requirements

CARB is responsible for improving outdoor air quality by controlling emissions from mobile sources (except where federal law preempts CARB's authority) and consumer products, developing fuel specifications, adopting statewide control measures for air toxics,

establishing gasoline vapor recovery standards and certifying vapor recovery systems, providing technical support to the districts, and overseeing local district compliance with State and federal law. According to the 2003 AQMP, CARB does not have any responsibility for controlling PM10 emissions at cement manufacturing facilities.

Table 2-1
NESHAP Emission Limits

Affected Source and Pollutant	Emission Limit for Existing Sources	Emission Limit for New Sources
NHW kiln and NHW in-line kiln/raw mill PM	0.30 lb/ton dry feed and opacity level no greater than 20 percent	0.30 lb/ton dry feed and opacity level no greater than 20 percent
NHW kiln and NHW in-line kiln/raw mill D/F	8.7×10^{-11} grain TEQ/dscf or 1.7×10^{-10} grain TEQ/dscf with PM control device operated at ≤ 400ºF	8.7×10^{-11} grain TEQ/dscf or 1.7×10^{-10} grain TEQ/dscf with PM control device operated at ≤ 400ºF
NHW kiln and NHW in-line kiln/raw mill THC	None	50 ppmvd (as propane)
Clinker cooler PM	0.10 lb/ton dry feed and opacity level no greater than 10 percent	0.10 lb/ton dry feed and opacity level no greater than 10 percent
Raw material dryer and material handling processes PM	10 percent opacity	10 percent opacity
Raw material dryer THC	None	50 ppmvd (as propane)

NHW – non-hazardous waste
PM – particulate matter
D/F – dioxins/furans
THC – total hydrocarbon
TEQ - toxic equivalency quantity
ppmvd – parts per million, volume, dry basis

Local Requirements

SCAQMD Rule Requirements

At present, SCAQMD does not have a source-specific rule directed at cement manufacturing facilities located in the district. Instead, these operations are required to comply with SCAQMD Rule 203 - Permit to Operate, Rule 401 – Visible Emissions, Rule 402 – Nuisance, Rule 403 – Fugitive Dust, Rule 404 – Particulate Matter-Concentration, and Rule 405 – Solid Particulate Matter – Weight.

Rule 401 – Visible Emissions

Rule 401 controls visible emissions from any air contaminants discharged into the atmosphere from any single source. All sources are restricted from discharging emissions for a period or periods of time more than three minutes in any one hour which is as dark as or darker than the shade designated No. 1 on a Ringelmann Chart, or of such opacity to obscure an observer's view to a degree equal or greater than smoke designated No. 1 on a Ringelmann Chart. Commercial charbroilers excluding those with control equipment or those that are chain-driven; equipment for melting, heating or holding asphalt or coal tar

pitch for on-site roof construction or repair; and pile-drivers are restricted from discharging emissions that are equivalent or exceed smoke designated No. 2 on a Ringelmann Chart or that obscure vision to a degree equal or greater than smoke designated No. 2 on a Ringelmann Chart for period or periods of three or four minutes per hour depending on the type of equipment.

Rule 402 - Nuisance

Rule 402 limits the discharge of any air contaminant or other material from any sources that causes public injury, detriment, nuisance or annoyance. The rule also restricts emissions that endanger the comfort, repose, health or safety of the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust

PM10 emissions from all human dust generating activities, including aggregate and related operations are currently regulated by Rule 403. Rule 403 presents dust control measures in a series of three tables. Rule 403 Table 1 presents best available control measures (BACM). BACM are the most stringent emission limitations or control techniques which are commercially available. Rule 403 Table 2 details dust control measures for large operations. Large facilities are those with active operations on property which contains 50 or more acres of disturbed surface area; or any earthmoving operation with a daily earth-moving or throughput volume of 3,850 cubic meters or more three times during the most recent 365-day period. Rule 403 Table 3 displays Contingency Control Measures for Large Operations. Rule 403 generally focuses on PM10 emissions from construction/demolition activities, disturbed surface areas, earth-moving activities, open storage piles, movements of motorized vehicles; and wind-driven fugitive dust.

Under Rule 403, aggregate and related operations are required to implement applicable actions in Table 2 and applicable actions in Table 3 when applicable performance standards cannot be met from Table 2 actions. Facilities that conduct large operations that do not implement measures in Tables 2 and 3 of Rule 403 are required to submit a fully executed Large Operation Notification Form (Form 204N) within seven days of qualifying as a large operation; maintain daily records to document the specific dust control actions taken; install and maintain project signage and identify a dust control supervisor; and notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation.

Rule 403.1 - Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources

Rule 403.1 establishes special requirements for Coachella Valley fugitive dust sources. The requirements are applicable to active operation, open storage piles or disturbed surface areas, and construction (earth-moving) activities that are not subject to local jurisdiction dust control ordinance requirements. Requirements include wind speed based operational restrictions; stabilization; control actions specified in Table 2 of Rule 403; restrictions on earth-moving activities; fugitive dust control plans; signage; wind monitoring; and recordkeeping.

Rule 404 - Particulate Matter- Concentration
Rule 404 regulates PM emissions from control exhausts based on concentration. Rule 404 includes a table which presents the maximum discharge rate of particulate matter allowed by process weight over the lesser of one complete cycle of operation or one hour.

Rule 405 - Solid Particulate Matter – Weight
Rule 405 regulates PM emissions from control exhausts based on weight criteria. Rule 405 includes a table which presents the maximum concentrations of particulate matter allowed in discharged gas by volume of gas discharged over the lesser of one complete cycle of operation or one hour.

Rule 1112.1 - Emissions of Particulate Matter from Cement Kilns
SCAQMD Rule 1112.1, Emissions of Particulate Matter from Cement Kilns, specifies the maximum allowable mass emissions of particulate matter for gray cement kilns and clinker coolers only. The maximum allowable mass limits are:

- 0.4 pound per ton of kiln feed for kiln feed rates less than 75 tons per hour, and
- 30 pounds per hour for kiln feed rates equal to or more than 75 tons per hour.

Gray cement kilns and clinker coolers located at California Portland Cement Company are subject to Rule 1112.1 and are exempt from the requirements of Rules 404 and 405. The white cement kilns and clinker coolers at Riverside Cement Company are exempt from Rule 1112.1, and, thus, are subject to the requirements in Rule 404 and Rule 405.

Local Dust Control Ordinances
The SCAQMD adopted the 2002 Coachella Valley State Implementation Plan (CVSIP) for PM10, which includes the most stringent measures analysis and appropriate control measures, in June 2002. The control measures in the CVSIP represent enhancements to existing local dust control ordinances, SCAQMD rules, and SIP commitments.

PROJECT DESCRIPTION

PR 1156 would implement a portion of control measure BCM-08 – Further Emission Reductions from Aggregate Operations (PM10), previously evaluated and discussed in the Final 2003 Air Quality Management Plan (August 2003) and Final Program Environmental Impact Report for 2003 Air Quality Management Plan (August 2003). PR 1156 specifies the most effective emission controls that would further control process and fugitive dust that would supercede the requirements set forth in Rules 403, 404, 405 and 1112.1, which are technologically feasible and cost-effective to reduce dust impacts from affected facilities on the surrounding communities.

Although discussions with stakeholders on many aspects on rule requirements (e.g., baghouse control efficiency, enclosure of stockpiles, test methods, etc.) are ongoing, and further revisions to the proposed rule or replacement of PR 1156 with MOUs may be forthcoming pending the completion of these discussions, the following subsections briefly summarize the main components of PR 1156 for the purpose of CEQA analysis. For the complete text of the proposed rule, please refer to Appendix B.

Proposed Rule 1156

Purpose

The purpose of PR 1156 is to further reduce particulate emissions from cement manufacturing facilities.

Applicability

PR 1156 applies to all operations and materials handling and transport at a cement manufacturing facility including but not limited to kiln and clinker cooler, material storage, crushing, drying, screening, milling, conveying, bulk loading and unloading system, internal roadways, materials transport, and track-out.

Definitions

This subdivision lists keywords related to cement manufacturing and defines them for clarity and to enhance enforceability. For example, chemical dust suppressants are defined as non-toxic chemical dust stabilizers which are used as a treatment material to reduce fugitive dust emissions.

Requirements

Operators of affected operations would be required to comply with the following requirements within six months after adoption unless otherwise stated.

1. **PR 1156 establishes the following visible emission requirements:**
   - No dust emissions exceeding 10 percent opacity, based on an average of 12 consecutive readings from any operation at the facility, shall be discharged to the atmosphere from any activity, except open storage piles, roadways and unpaved areas, using USEPA Opacity Test Method 9.
   - No fugitive dust emissions exceeding 20 percent opacity shall be discharged to the atmosphere from any storage pile, roadway or unpaved area, based on an average of 12 consecutive readings, or 50 percent opacity based on five individual consecutive readings using SCAQMD Opacity Test Method No. 9B.
   - No visible dust plume exceeding 100 feet in any direction from the facility boundaries shall be generated from any operations at the facility.

2. **Loading, Unloading and Transferring:**
   - Operators of affected existing operations would be required to conduct loading and unloading from trucks, railcars, or other modes of material transportation through an enclosed system that is vented to SCAQMD-permitted air pollution control equipment. If the system consists of a building, the enclosed building would be required to have openings with overlapping flaps, sliding doors or other equally effective devices, which are required to remain closed, except to allow trucks and railcars to enter and leave.
   - ~~Loading and unloading of materials from front-end loaders to haul trucks in the quarry area shall be conducted with dust suppressants to meet opacity requirements.~~

- Operators of affected existing operations would be required to cover or enclose all conveying systems and enclose all transfer points. ~~All new conveyors installed after rule adoption would be required to be enclosed.~~ The covered or enclosed structure would be required to vent to baghouses with access doors that allow routine inspection and maintenance.
- Operators of affected existing operations would be required to apply dust suppressants during material loading and unloading, activities, transferring activities, and at conveying system transfer points to dampen and stabilize materials and prevent visible emissions to meet opacity requirements.
- Operators of affected existing operations would be required to install and maintain dust curtains, shrouds, belt scrapers and gaskets along the belt conveying system to contain dust, prevent spillage and ~~provide a dust-tight sealed conveying system~~ and carryback to minimize visible emissions.
- Operators of affected existing operations would be required to use appropriate equipment including, but not limited to, stackers or chutes, as necessary, to minimize the height materials fall into storage bins, silos, hoppers or open stock piles to meet opacity requirements.
- ~~In lieu of meeting the performance standards required for baghouses the operator may elect to comply with the performance standards in Table 2-2:~~

~~Table 2-2~~
~~PM Emission Factor~~

~~Process~~	~~PM Emission Factor (lb/ton materials)~~
~~Primary limestone crushing vented to baghouse~~	~~0.001~~
~~Primary limestone screening vented to baghouse~~	~~0.00022~~
~~Secondary limestone crushing and screening vented to baghouse~~	~~0.00031~~
~~Limestone conveying vented to baghouse~~	~~0.000029~~
~~Raw mill vented to baghouse~~	~~0.006~~
~~Raw mill conveyor vented to baghouse~~	~~0.0016~~
~~Raw mill weight hopper vented to baghouse~~	~~0.0095~~
~~Raw mill air separator vented to baghouse~~	~~0.016~~
~~Finish mill vented to baghouse~~	~~0.004~~
~~Finish mill conveyor vented to baghouse~~	~~0.0012~~
~~Finish mill weight hopper vented to baghouse~~	~~0.0047~~
~~Finish mill air separator vented to baghouse~~	~~0.014~~
~~Raw material loading and unloading~~	~~0.001~~
~~Cement loading and unloading~~	~~0.0003~~

3. Crushing, Screening, Milling, Grinding, Blending, Drying, Heating, Mixing, Sacking, Palletizing, Packaging, and Other Related Operations

- Existing operators would be required to enclose ~~all operations including, but not limited to,~~ crushing, screening, drying, blending, ~~and~~ milling, grinding, heating, mixing, sacking, palletizing, packaging and other related operations. The enclosed system shall be vented to a baghouse that achieve an outlet concentration of 0.01 grain per dry standard cubic feet PM~~, or 99.95 percent overall control efficiency~~ or a BACT outlet concentration for new equipment after rule adoption of 0.005 grain per dry standard cubic feet PM; and maintain a baghouse ventilation and hood system that meets minimal capture velocity requirement specified in the applicable standards of theU.S. Industrial Ventilation Handbook, American Conference of Governmental Industrial Hygienists, at the time of installation. If modification to the baghouse ventilation and hood system is required to meet the applicable standard, the operators would be granted additional time up to December 31, 2006 to complete this process. Control equipment shall be operated during these operations.
- ~~Operators would be required to keep enclosed primary crushing equipment in a building or structure consisting of a solid roof, solid walls on two sides of the building with one side facing in the direction of the prevailing winds with flaps covering the remaining two sides to allow access for trucks to unload process materials.~~
- In lieu of the previous requirements, ~~Existing~~ existing primary crushing operations may use wind fences on at least two sides of the primary crusher with one side facing the prevailing winds~~,~~. The structure shall be equipped and operated with a wet suppression system. To implement this, the operator shall submit a permit modification application by six months after rule adoption for a primary crusher ~~in place of a solid roof, solid walls, flaps and baghouse, with an installed and operated fog suppression system permitted by SCAQMD~~.
- Operators would be required to apply dust suppressants ~~as necessary~~ to dampen and stabilize materials processed and prevent visible emissions generated ~~during all operations~~ in order to meet visible emission requirements.
- ~~In lieu of meeting the performance standards required for baghouses, operators may elect to comply with performance standards presented in Table 1-1.~~

4. Kilns and Clinker Coolers

Operators would be required to achieve an outlet concentration of 0.01 grain per dry standard cubic feet PM~~, or 99.95 percent overall control efficiency measured with an approved source test~~ by December 31, 2006, for pulse-jet baghouses and December 31, ~~2007~~ 2010, for ~~reverse-air~~ non-pulse jet baghouses. The operator would be required to install and maintain a baghouse ventilation and hood system that meets a minimum capture velocity requirement specified in the applicable standards of the U.S. Industrial Ventilation Handbook, American Conference of Governmental Industrial Hygienists, at the time of installation. If modification to the baghouse ventilation and hood system is required to meet the applicable standard, the operators would be granted additional time up to December 31, 2006 to complete this process. For kilns and clinker coolers installed after the rule adoption date, operators would be required to meet a~~n~~ BACT

outlet concentration of 0.005 grain per dry standard cubic feet PM. To show incremental progress toward the December 31, 2010 compliance date for non-pulse jet baghouses, the operator would required to submit to the Executive Officer a list of candidate baghouses for future modification or replacement by December 31, 2006. In addition, the operator would be required to submit a notification letter by December 31 of each year thereafter, starting in 2006, to demonstrate that the operator has completed at least 20 percent of the modification or replacement by 2006, 40 percent by 2007; 60 percent by 2008, 80 percent by 2009, and 100 percent by 2010. Operators would be required to meet the opacity requirements for kilns and clinker coolers.

5. Material Storage

- Operators of affected facilities that store raw material in silos, bins or hoppers would be required to vent all these silos, bins or hoppers to a baghouse that meets the baghouse and opacity requirements of the proposed rule. ~~Operators would not be allowed to store in open storage piles materials that are stored in silos, bins or hoppers at the time PR 1156 is adopted.~~
- By December 31, 2006, or no later than one calendar year after the following theshholds are exceeded, operators would be required to enclose active open piles of ~~materials with a silt content more than five percent and~~ clinker where the total area for open clinker storage at the facility is more than four acres or if the affected facility's cumulative 12-month rolling average loading and unloading ~~activity occurs at a~~ (or processing) rate of clinker is more than ~~50,000~~ 80,000 tons per ~~year~~ month. Enclosed storage structures would be required to have overlapping flaps, or sliding doors, or other equivalent devices, which are to be closed except to allow vehicles to enter or exit. Prior to ~~December 31, 2006~~ the operation date of the enclosed storage area, operators would be required apply chemical dust suppressants; install three-sided barriers or tarp open storage piles.
- For active storage piles that do not ~~have a silt content more than five percent nor where loading and unloading activity occurs at a rate of more than 50,000 tons per year~~ meet the requirements for clinker storage above, operators would be required to comply with one of the following within six months after PR 1156 is adopted:
  - Apply dust suppressants to stabilize the entire surface of the piles, except for areas of the pile that are actively disturbed during loading and unloading activities.
  - Install and maintain a three-sided barrier; or wind fences with one side facing the prevailing winds and with at least two feet of visible freeboard from the top of the storage pile to provide wind sheltering, maintain surface stabilization of the pile in a manner that meets opacity standards and does not cause or allow any dust plume that remains visible more than 100 feet in any direction, and store materials completely inside the three-sided structure at all times.
  - Install and maintain a three-sided barrier with roof or wind fences to provide wind sheltering, maintain the open-side of the storage pile stabilized in a manner that meets opacity standards and does not cause or allow any dust plume that remains visible more than 100 feet in any direction and store materials completely inside the three-sided structure at all times.

- Install and maintain a tarp over the entire surface area of the storage pile, in a manner that meets the performance standards for open storage pile opacity, and dust plumes, except for areas of the pile that are actively disturbed during loading and unloading activities. Operators are required to keep the tarps in place and provide cover at all times ~~including periods where the instantaneous wind speed exceeds 25 miles per hour~~.

- The operator would be required to ~~tarp~~ comply with one of the following for all inactive open storage piles:
  - Apply dust suppressants to stabilize the entire surface of the piles, except for areas of the pile that are actively disturbed during loading and unloading activities.
  - Install and maintain a three-sided barrier; or wind fences with one side facing the prevailing winds and with at least two feet of visible freeboard from the top of the storage pile to provide wind sheltering, maintain surface stabilization of the pile in a manner that meets opacity standards and does not cause or allow any dust plume that remains visible more than 100 feet in any direction, and materials must be stored completely inside the three-sided structure at all times.
  - Install and maintain a three-sided barrier with roof or wind fences to provide wind sheltering, maintain the open-side of the storage pile stabilized in a manner that meets opacity standards and does not cause or allow any dust plume that remains visible more than 100 feet in any direction and store materials must be stored completely inside the three-sided structure at all times.
  - Install and maintain a tarp over the entire surface area of the storage pile, in a manner that meets the performance standards for open storage pile opacity, and dust plumes, except for areas of the pile that are actively disturbed during loading and unloading activities. Operators are required to keep the tarps in place and provide cover at all times.

  ~~that would be tarped according to PR 1156 by 90 days after rule adoption and~~ The operator would be required to keep records to demonstrate status of inactivity.

- At the end of each work day in which loading and unloading activities were performed, the operator would be required to re-apply chemical dust suppressants or dust suppressants to stabilize the disturbed surface areas of the pile subject to the requirements for active open storage piles that do not ~~have a silt content more than five percent nor where loading and unloading activity occurs at a rate of more than 50,000 tons per year~~ meet the enclosure requirements for clinker open storage piles, and inactive open storage piles.. The operator may use dust suppressants where loading and unloading activities are expected to continue within 24 hours.

6. Air Pollution Control Device

- Operators of affected facilities would be required to install and maintain a baghouse system that has an outlet concentration of 0.01 grain per dry standard cubic feet PM for existing equipment; a~~n~~ BACT outlet concentration of 0.005

grain per dry standard cubic feet PM for equipment installed on and after PR 1156 is adopted~~; or a 99.95 percent collection efficiency~~.

- Operators of affected facilities would be required to install and maintain a baghouse ventilation and hood system that meets ~~a capture efficiency of at least 99.5 percent or~~ a minimal capture velocity requirement specified in the applicable standards of the U.S. Industrial Ventilation Handbook, American Conference of Governmental Industrial Hygienists, at the time of installation. If modification to the baghouse ventilation and hood system is required to meet the applicable standard, the operators would be granted additional time up to December 31, 2006 to complete this process.
- Operators would be required to meet requirements for air pollution control device requirements by December 21, 2006, for pulse-jet baghouses and by December 31, ~~2007~~2010, for ~~reverse-air~~ non-pulse jet baghouses.
- Operators would be required to show incremental progress towards the December 31, 2010 compliance date for non-pulse-jet baghouses. To demonstrate progress, the operator shall submit to the Executive Officer a list of candidate baghouses for future modification or replacement by December 31, 2006. In addition, the operator shall submit a notification letter by December 31 of each year thereafter, starting in 2006, to demonstrate that the operator has completed at least 20 percent of the modification or replacement by 2006; 40 percent by 2007; 60 percent by 2008, 80 percent by 2009; and 100 percent by 2010.

7. Internal Roadways and Areas

a) Unpaved Roadways and Areas

- ~~Operators of affected facilities would be required to apply chemical dust suppressants to stabilize the surface and comply with opacity limits.~~
- Operators of affected facilities would be required to apply chemical dust suppressants to stabilize the entire unpaved haul road surface in sufficient quantity at least twice a year; and post signs at the two ends stating that only haul trucks would be allowed to use these roads unless non-haul trucks are using the roads to travel to maintenance areas; and enforce a speed limit of 35 miles per hour or less to comply with opacity limits.
- For other unpaved roadways and areas, operators of affected operations would be required to apply chemical dust suppressants in sufficient quantity at least twice a year to stabilize the surface or apply a gravel pad containing one-inch or larger washed gravel to a depth of six inches; and enforce a speed limit of 15 miles per hour or less.

b) Paved Roads:

Operators of affected facilities would be required to sweep all internal paved roads at least once ~~a~~ each work day, or more frequently to comply with visible dust requirements. Sweeping frequency may be reduced on weekends, holidays, or days of measurable precipitation provided that the operator complies with the opacity limits. All sweepers purchased after rule adoption would need to be Rule 1186-certified sweepers.

8. Track-Out:

- Operators of affected facilities would be required to pave ~~at least~~ the closest 0.25 mile of road leading to each public roadway to prevent track-out and to comply with opacity limits.
- If necessary to comply with opacity limits, operators of affected facilities would be required to install a rumble grate, truck washer ~~and~~ or wheel washer and ensure that all trucks go through the rumble grate, truck washer or wheel washer such that the entire circumference of each wheel or truck is cleaned before leaving the facility.
- ~~Operators and truck drivers would be required to ensure that cement trucks leaving the facility have no accumulation of material on the wheels or external surfaces of the truck. Train operators shall ensure that cement car hatches are closed.~~ Truck drivers shall ensure that the cement truck hatches are closed and there is no track-out to prevent material spillage from trucks to public roadways and fugitive dust emissions during transport. The operator would be required to provide truck cleaning facilities. ~~For open-bed trucks loaded with materials, truck drivers would be required to ensure that loaded materials are leveled and maintained with at least six inches of freeboard. Operators would be required to stabilize the load by using dust suppressant as necessary to comply with opacity standards unless the driver tarps or sufficiently covers loads before open-bed trucks leave the facility. Signs would be required to ensure compliance with track-out requirements~~.
- Operators would be required to provide fugitive dust advisory flyers to any truck company accessing the facility at least once ~~a~~ each calendar year.

9. No Backsliding

- The operator shall operate and maintain all existing equipment according to permit conditions stated in the SCAQMD written permits approved by the Executive Officer prior to the rule adoption date at all times to prevent any backsliding from the current level of control.

Monitoring and Source Testing

The proposed rule would require monitoring and source testing requirements to verify compliance.

Recordkeeping Requirements

The proposed rule would require recordkeeping requirements to verify compliance.

Source Test Methods and Calculation

The proposed rule would require approved source test methods and calculations to be used in determining PM emission rates and collection efficiencies of baghouses.

Exemptions

- Operators are exempt from installing a three-sided barrier or enclosure or using test methods in the SCAQMD Rule 403 Implementation Handbook for the demonstration of surface stabilization for open storage piles where 90 percent of the pile's volume

contains materials that are larger than half inch, providing such piles meet the opacity and visual dust performance standards.

- The operator is exempt from using chemical dust suppressants on internal unpaved roads provided that the use of applicable chemical dust suppressants on specific unpaved roads violates the rules and/or regulations of the local Water Quality Control Board or other government agency provided the operator uses water in sufficient quantity and frequency to stabilize the road surface and the Executive Officer is notified in writing 30 days prior to the use of water.
- Haul trucks are not required to use designated haul trucks roads if they travel on unpaved roads complying with the requirements for chemical dust suppressant or gravel pad requirements for internal unpaved roadways and areas presented above; and comply with a speed limit requirement of 15 miles per hour or less to comply with the opacity limits.
- Operators are exempt from the use of chemical dust suppressants for internal unpaved roadways and areas ~~requirements~~ where the road is used less than a monthly average of twice a day by a designated vehicle at a speed limit less than 15 miles per hour.
- ~~Blasting operations shall be exempt from the opacity limits of 20 percent opacity discharged to the atmosphere from any storage pile, roadway or unpaved area, based on an average of 12 consecutive readings, or 50 percent opacity based on five individual consecutive readings using SCAQMD Opacity Test Method No. 9B.~~ Operators are exempt from the use of chemical dust suppressants on non-haul road unpaved areas during a period for demolition activities of no longer than six calendar months provided that the operator uses water in sufficient quantity and frequency to stabilize the unpaved areas, meets the opacity requirements at all times, and keeps sufficient records to demonstrate compliance.
- With the exception of primary crushing, open material storage piles, and covers and enclosures for conveying systems, the provisions of PR 1156 shall not apply to equipment or operations that are subject to Rule 1157 or Rule 1158 located at the cement manufacturing facilities, provided that there is no backsliding from the current level of control as stated in the permits approved by the Executive Officer prior to the rule adoption date or as required under Rule 1157 and Rule 1158, whichever is more stringent.

TECHNOLOGY REVIEW

The operations that generate particulate matter at a cement manufacturing plant are:

- Quarrying, crushing, screening, grinding, milling, and conveying of raw materials;
- Loading and unloading of raw materials to storage including open storage piles, bins, hoppers, or storage tanks;
- Clinker production and combustion of fuels in kilns and clinker coolers;
- Grinding and milling of clinker into cement;
- Loading and unloading and conveying of cement to and from the storage area;
- Product packaging or sacking.

Emissions generated from these operations can be subcategorized into 1) process emissions, and 2) fugitive emissions. Process emissions can be contained in an enclosure and vented to add-on control equipment. For example, the raw mills and finish mills at CPCC are located in a building where the emissions vent to a baghouse. Fugitive dust emissions cannot be contained but can be controlled. Examples of fugitive dust emissions are emissions generated from vehicle traffic traveling within the plant and track-out, or emissions from wind erosion, re-entrainment, and spillage.

An operation may generate both process and fugitive emissions. For example, process emissions from an open storage pile include 1) process emissions from loading and unloading activities; and 2) fugitive emissions due to wind erosion, re-entrainment, and vehicle movement within the area.

The following paragraphs provide 1) a description of the emission sources at each operation in a cement manufacturing facility; 2) a description of the control techniques applicable for each source and the control efficiency; and 3) methodology, equations and assumptions used in estimating emissions and emission reductions.

Quarry Operation

Emissions from quarry operations are due mainly to blasting; open storage piles; loading and unloading; wind blowing; and re-entrainment of settled dust by wind and mechanical disturbance, vehicle traffic, or machine movement.

Factors affecting emissions at the quarry site include stone size and distribution, surface moisture content, blasting technique, material blasted, size of blasted areas, blasting frequency, type of equipment and operating practices, and topographical and climatic factors.

Uncontrolled emission factors for blasting operations have not yet been developed.

Wet dust suppression (e.g. application of water, chemicals and/or foam watering) is a control technique for particulate emissions at the quarry sites.

Crushing, Screening, Blending, Grinding, Milling, Combusting of Fuels, and Pyroprocessing

Particulate emissions from these operations are due mainly to the process of crushing, screening, blending, grinding, milling, material conveying, material loading/unloading and combusting of fuels and pyroprocessing.

Fugitive dust sources in these areas are due mainly to wind, spillage, re-entrainment of settled dust by wind or traffic and machine movement.

Factors affecting emissions include stone type, stone size and distribution, moisture content, process throughput, crusher or screen type, operating practices, and topographical and climatic factors.

Control techniques for these operations are wet suppression and add-on control such as baghouse.

Storage and Handling

Emissions from material storage and handling includes emissions from loading and unloading of materials, wind erosion of materials from open storage pile, and traffic activity that causes ground material near the open storage pile to be crushed into airborne silt.

These emission sources are affected by material type, size and characteristic, moisture content, process throughput, type of storage (enclosed or covered or open), operating practices, and topographical and climatic factors.

Enclosing the open pile blocks the wind from re-entraining fugitive dust into the atmosphere. Coupling the enclosure with wet suppression by spraying at the opening of the enclosure eliminates nearly 95 percent of the fugitive dust emissions.
Wet suppression is useful mainly to reduce emissions from vehicle traffic and re-entrainment in the open storage pile area. Wet suppression typically has only a temporary effect on total emissions and the control efficiency depends upon variable parameters such as local climate conditions, source properties, duration of control effectiveness (i.e. as long as surface moisture is high enough to cause the fines to adhere to the larger rock particles), and frequency of applying wet suppression.

Conveying

Particulate emissions occur when materials are transferred between process operations. Wind erosion and spillage are the cause of fugitive emissions from open or partially enclosed conveyors. Materials are spilled off of the conveyors and become airborne by wind. Emissions are affected by material type, material size and characteristic, moisture content, process throughput, conveyor type and drop operation, operating practices, and topographical and climatic factors.

Enclosed conveyors and add-on control equipment such as baghouses at transfer points eliminate 95 percent of the emissions.

Wet suppression typically has only a temporary effect on reducing emissions and the control efficiency of wet suppression depends upon local climate conditions, source properties, duration of control effectiveness and frequency of applying wet suppression.

Material Loading and Unloading

Loading by endloaders, loading in stations, truck/trailer unloading, and railcar unloading are examples of material loading and unloading activities. Material type, material size and characteristic, material moisture content, process throughput, method of loading and unloading, operating practices, and topographical and climatic factors affect the emissions of loading and unloading.

Wet suppression, bottom loading, enclosed operation and vented to add-on control equipment (e.g., baghouses) are typical control practice for material loading and unloading activities.

Vehicular Traffic

Vehicular traffic traveling on roadways between locations at the facilities is a source of particulate emissions. Materials adhering to the vehicle tires and rims, the sides, and the bottom of the trucks or trailers fall onto the road, and are subsequently crushed into fine particles, and re-entrained into ambient air. Materials leaking from trucks/trailers, spillage from trucks, and accumulations on roadways are other emission sources.

Control techniques used for unpaved roadways are paving, dust suppression application, and route modifications. Control techniques for paved roads include utilizing street sweepers and dust suppression. Other control techniques are truck washing to clean outgoing trucks and trailers, truck load covers to reduce spillage and wind entrainment, rumble grates and wheel washers, and good housekeeping practices.

U.S. USEPA (USEPA) Source Tests for Cement Manufacturing Equipment

The USEPA has used a number of source test results at cement manufacturing facilities to develop AP-42 emission factors, documented in Chapter 11.6 and 11.12 of AP-42, for kilns, primary crushers, secondary crushers and screens, raw mills, finish mills and related equipment vented to baghouses. Attachment F provides information on these test results. The tests were conducted based on USEPA Source Test Method 5 and 201A. Table 2-~~3~~32 summarizes the concentrations of controlled PM measured in these source tests. The level of PM10 was estimated from the PM level assuming 50 percent of PM was PM10.

Table 2-~~3~~32
Source Test Results Underlying USEPA AP-42 Emission Factors

Source	AP-42 PM Emission Factor (pound/ton)	PM Level (grain/dry std cubic feet)	PM10 Level (grain/dry std cubic feet)
Kilns	0.03 (lbs/ton clinker)	0.002	0.001
Kilns	0.07 (lbs/ton clinker)	0.005	0.003
Raw mill	0.012	0.004	0.002
Raw mill feed belt	0.0031	0.0025	0.001
Raw mill weight hopper	0.019	0.015	0.007
Raw mill air separator	0.032	0.025	0.012
Finish mill	0.008	0.003	0.001
Finish mill feed belt	0.0024	0.0057	0.003
Finish mill weight hopper	0.0094	0.013	0.007
Finish mill air separator	0.028	0.025	0.012
Primary crushing	0.001	0.001	0.0005
Primary screening	0.00022	0.0002	0.0001
Secondary crushing/ screening	0.00031	0.0006	0.0003
Limestone transfer	0.000029	0.0016	0.0005

U.S. USEPA (USEPA) Environmental Technology Verification Program and Vendor Information

The USEPA conducts an Environmental Technology Verification (ETV) program for baghouse filtration products. Vendors submit baghouse filtration product samples to USEPA for testing. After USEPA verifies the performance (control efficiency) of these samples, it issues the vendors a verification report which becomes a valuable marketing tool for the vendors and a useful resource for users. Verification reports can be downloaded from USEPA website, www.epa.gov. Since 2001, USEPA has verified a total of 11 baghouse filtration products supplied by the following vendors:

Air Purator Corporation	Albany International
BASF Corporation	BHA Group, Inc.
BWF America, Inc.	Inspec Fibres
Menardi-Criswell	Polymer Group, Inc
Standard Filter Corp.	Tetratec
W.L. Gore	

Staff has contacted all the above vendors and received feedback from the vendors regarding the performance standard of their projects verified by EPA. Table 2-43 lists the performance standards achieved and verified by USEPA for the high efficiency filters from the vendors that responded to staff.

Table 2-43
High Efficiency Filtration Products

Vendor	PM10 Performance Standard (grain/dscf)
W.L. Gore	0.004
Menardi-Criswell	0.001
BHA Group, Inc	0.0005
BWF America, Inc	0.0004
Air Purator Corp.	0.0003
Tetratec/Donalson	0.001

In general, conventional filter media includes woven filter bags (fiberglass or polyester) that are used in reverse-air baghouses and felt filter bags that are used in pulse jet baghouses. Using conventional filter media, filtration occurs as a result of: 1) the formation of a primary dustcake (initial layer of dust) on the surface of the filters; and 2) the accumulation of dust particles within the depth of dustcake layer. The conventional filter media act solely as a support for the primary dustcake layer. The primary dustcake, however, is usually lost during the cleaning cycle and must be reestablished. Without the presence of the primary dustcake, dust particles will bleed through the conventional filters during the cleaning cycle resulting in intermittent emissions called "puffing."

High efficiency filters are based on the concept of surface filtration, which include expanded polytetrafluoroethylene (ePTFE) membranes, or PTFE finishes, bonded to the surface of

conventional media. The ePTFE membranes or finishes can be bonded on either woven fiberglass or woven fabrics or felts. This layer of membrane reduces the need for primary dustcake and thus eliminates intermittent "puffing" emissions. The collecting efficiency of a conventional fiberglass filter is about 99.9 percent and 99.993 percent for fiberglass conventional filter coated with ePTFE (Polizzi, 1999; Polizzi, 2001; Martin, 2004; Laskaris, 2002).

A hypothetical example of the significance in emission reductions achieved by switching from conventional filters to high efficiency filters is illustrated in Table 2-~~5~~4. For this example, it is assumed that a hypothetical facility currently vents a process to a baghouse equipped with conventional filters that achieve 99.9 percent control. The PM10 emissions remaining after the baghouse are assumed to be to one ton per day. By retrofitting the baghouse with high efficiency filters that achieve 99.95 percent efficiency, operators of the hypothetical facility can substantially reduce their facility PM10 emissions to 0.5 ton per day (50 percent reduction); and with 99.993 percent control efficiency, they can lower their PM10 emissions to 0.07 ton per day (93 percent reduction).

Table 2-~~5~~4
Collecting Efficiency Versus Emission Reduction

	Control Efficiency	PM10 Emissions (tons per day)
Conventional Filter	99.9%	1
High Efficiency Filter	99.95%	0.5
High Efficiency Filter	99.993%	0.07

Other Technical Information

Other valuable information related to baghouse performance is listed below:

- The opacity limit of five percent to 10 percent is specified in operating permits for many cement manufacturing facilities in California and other states such as Iowa, Indiana and South Dakota.
- The opacity limit of 10 percent is currently required by NESHAP.
- The European Commission for the cement industry in Europe has specified a Best Available Control Standard of 0.008 grain per dry standard square foot to 0.012 grain per dry standard square foot for dust (European Commission, 1999). Assuming 50 percent of dust is PM10, a comparable standard for PM10 is then approximately 0.004 grain per dry standard square foot to 0.006 grain per dry standard square foot.
- The Pollution Prevention Directorate Environmental Canada preliminarily recommended a standard of 0.006 grain per dry standard square foot or 0.08 pound of PM per ton of clinker for kilns and 10 percent opacity for all operations (Canada, 2004). Assuming 50 percent of the PM is PM10, the comparable standard for PM10 is then 0.04 pound per ton of clinker.
- Operating data at several cement manufacturing plants show emissions of less than 0.005 grain per dry standard square foot. For example, a cement kiln at Wietersdorf in

Austria achieved from four to seven milligram per normal dry square meter (Grabmeyer, 2001).[5] In addition, a cement kiln at Lafarge Martres, Ciments d'Origny, Cimpor Souselas, Juracime Cement achieved less than 10 milligram per normal square meter (Laskaris, 2002).

Recommended Performance Standards for Baghouse Applications

Based on the above information demonstrates that there are many improvements in the filtration products which can help to increase the collecting efficiency of a baghouse to as high as 99.99 percent and reduce the outlet concentration of a baghouse to as low as 0.0003 grain per dry standard cubic feet. To allow for some operational flexibility, staff recommends the following performance standards for PR 1156:

- For kilns and clinker coolers:
  - An outlet emission level of ~~0.005~~ 0.01 grain per dry standard cubic ~~feet~~foot for existing kilns and clinker coolers and 0.005 grains per dry standard cubic foot for new kilns and clinker coolers~~; or~~
  - ~~0.05 lb/ton clinker for kilns and clinker coolers~~

- For other processes vented to baghouses:
  - An outlet emission level of ~~0.005~~ 0.01 grain per dry standard cubic ~~feet~~ foot for existing equipment and 0.005 grain per dry standard cubic foot for new equipment;
  - ~~99.95 percent collecting efficiency for baghouses; or~~
  - ~~USEPA AP-42 emission factor in lb/ton of materials transferred or processed for other process equipment~~

- For hood and ventilation systems:
  - ~~99.5 percent capture efficiency; or~~
  - ~~m~~Meet the requirements specified in U.S. Industrial Ventilation Handbook (Martin, 1998) (Industrial, 1986)

- A 10 percent opacity level for all equipment operating with baghouses.

Open Storage Piles and Conveying System

Emissions from open storage piles or open conveying systems are affected by many factors such as material type, size and characteristics, moisture content, process throughput, operating practices, topographical and climatic factors.

Wet suppression, either by the application of water, chemicals and/or foam watering is currently used at the facilities. Wet suppression, if properly applied, can be quite effective. There a number of factors; however, that may impact the effectiveness of wet suppression, for example, the control effectiveness of wet suppression (i.e. the length of time surface moisture is high enough to cause the fines to adhere to the larger rock particles) depends upon variables that are changeable such as local climate conditions and source properties, variables that are not easy to verify such as frequency of applying wet suppression or

[5] Conversion 1 milligram/normal cubed meter = 0.0004 grain per dry standard square foot for dust.

operator practices. Wet suppression is useful for reducing emissions that cannot be contained such as emissions from vehicle traffic on unpaved roads and re-entrainment. Even with these fugitive emissions, wet suppression typically has only a temporary effect, and its control efficiency changes depending on local conditions.

Enclosing open piles and conveying system blocks the wind and provides permanent control and containment. Its control efficiency is guaranteed, easy to verify, and does not depend on factors such as climate conditions and operator practices. Coupling the enclosure with wet suppression by spraying at the opening of the enclosure eliminates nearly 95 percent of the emissions.

Enclosed conveying systems and domes for raw materials and products are installed and maintained at many cement manufacturing facilities in California such as:

- California Portland Cement in Mohave, Kern County, has a limestone enclosed storage and reclaim system;
- Lehigh Southwest Cement in Tehachapi, Kern County, has a covered quarry conveying system vented to baghouses and an enclosed storage area for five-acres of raw materials;
- National Cement in Lebec, Kern County, has 2.5 miles of covered conveyors and enclosed storage areas for raw materials and products;
- Southdown California Cement (CEMEX) in Victorville, San Bernardino County, has a primary crusher enclosed and vented to a baghouse, and a permit to construct requiring all outside conveyors to be covered;
- TXI Riverside Cement at Oro Grande, San Bernardino County, has an SCAQMD Permit to Construct to have all conveyors transporting materials from quarry to crushers covered; and
- In addition, Rule 1158 adopted in 1999, has required enclosed storage and enclosed conveying system for facilities that handle and use coke, coal and sulfur in the Basin.

The 1999 staff report for Rule 1158 cited several dome vendors such as Dome Systems, Plas-Steel, and Klimke & Wright LTD. Staff has contacted four additional representative vendors who manufacture and supply concrete, steel or aluminum domes for cement manufacturing facilities. Their applications are summarized in Table 2-~~6~~5. Additional detail regarding dome applications can be found at the vendor's websites.

Many vendors currently provide enclosed conveyors to the cement industry. The staff report for Rule 1158 cited several vendors who supply total enclosed conveyors[6]. Staff has contacted three additional vendors for quotes including Fiberdome; Mertec Engineering which represents Cambelt International Corporation, Kollman, SGCO; and Applied Conveyor Technology which represents Martin Engineering.

[6] These vendors supplied 1,600-foot covered conveying system for Metropolitan Stevedore, 300-foot covered conveying system for Aimcor, 390-foot covered conveying system for ARCO, 755-foot covered conveying system for Aimcor Main Barn, 1230-foot covered conveying system for ARCO Great Lake, 830-foot covered conveying system for Oxbow, and 875-foot covered conveying system for Chevron.

Table 2-~~6~~5
Dome Application for Open Storage Piles

Vendor	Dome Application
Dometec	• Clinker concrete dome for Ash Grove Cement in Arkansas; • Clinker concrete dome for Essroc Materials in Michigan; • Gypsum, fly ash, and many cement storage domes.
Temcor	• Limestone aluminum storage dome for California Portland Cement in Mojave California; • Limestone and cement dome for Lehigh Portland Cement and St. Lawrence Cement in Maryland; • Sand dome for Junction City in Georgia; and • Many other coal and cement storage domes
Consevatek	• Cement and limestone aluminum domes for cement plants in Texas and Kansas.
Geometrica	• Clinker dome in Canada; • Gravel and copper ore domes in Mexico and Chile; • Coal and limestone aluminum and steel domes in Taiwan, Thailand, Chile and Mexico.

As demonstrated above, enclosed storage piles and conveying systems are achieved-in-practice, however because the costs of enclosed storage piles are high, PR 1156 does not require total enclosures for all existing storage piles, and instead PR 1156 includes the following:

- Enclosed conveyors;
- Enclosed storage piles of materials that meet certain emissivity criteria;
- For the remaining open piles, apply wet suppression or enclose in a three-sided enclosure with at least two feet of freeboard.

Other Control Technologies for Fugitive Emissions

The technical handbook (Martin, 1998), OSHA Guidelines (OSHA, 1987), and the staff reports for Rule 403, Rule 1158, and Rule 1157 discuss additional measures to control measures for fugitive dust emissions such as rumble grates, wheel washers, conveyor skirting, dust curtains, transferring chutes, use of shrouds or enclosures for crushers, screens, bucket elevators, feeders, screw conveyors, pneumatic conveyors, dryers, road paving, reducing traffic speed and volume. It is possible that these fugitive dust control measures could be applied at the affected cement manufacturing facilities.

CHAPTER 3

EXISTING SETTING

Introduction
Air Quality
Hydrology and Water Quality

INTRODUCTION

In order to determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the project's impacts against the backdrop of the environment as it exists at the time the NOP/IS is published. The CEQA Guidelines define "environment" as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance" (CEQA Guidelines §15360; see also Public Resources Code §21060.5). Furthermore, a CEQA document must include a description of the physical environment in the vicinity of the project, as it exists at the time the notice of preparation is published, from both a local and regional perspective (CEQA Guidelines §15125). Therefore, the "environment" or "existing setting" against which a project's impacts are compared consists of the immediate, contemporaneous physical conditions at and around the project site (Remy, et al; 1996).

The following sections summarize the existing setting for air quality and water usage which are the only environmental areas that were determined to be potentially adversely affected by PR 1156 in the Initial Study. An overview of air quality in the district is given below. A more detailed discussion of current and projected future air quality in the district, with and without additional control measures can be found in the 2003 Final Program EIR for the 2003 AQMP (Chapters 3 and 4). The Final Program EIR for the 2003 AQMP contains more comprehensive information on existing and projected environmental settings for all environmental areas discussed in this chapter. Copies of the above-referenced documents are available from the SCAQMD's Public Information Center by calling (909) 396-2039.

AIR QUALITY

Criteria Pollutants

It is the responsibility of the SCAQMD 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 (NO2), sulfur dioxide (SO2), particulate matter less than 10 microns (PM10), particulate matter less than 2.5 microns (PM2.5), 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 and in the case of PM10 and SO2, far more stringent. California has also established standards for sulfates, visibility reducing particles, 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 SCAQMD monitors levels of various criteria pollutants at 34 monitoring stations. The 2004 air quality data from SCAQMD's monitoring stations are presented in Table 3-2.

Table 3-1
State and Federal Ambient Air Quality Standards

AIR POLLUTANT	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
	CONCENTRATION, AVERAGING TIME		
Carbon Monoxide (CO)	20 ppm, 1-hour average > 9.0 ppm, 8-hour average >	35 ppm, 1-hour average > 9.5 ppm, 8-hour average >=	(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; and, (d) Possible increased risk to fetuses.
Ozone (O_3)	0.09 ppm, 1-hour average >	0.12 ppm, 1-hour average > 0.08 ppm, 8-hour average >	(a) Short-term exposures: 1) Pulmonary function decrements and localized lung edema in humans and animals; and, 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; and, (d) Property damage.
Nitrogen Dioxide (NO_2)	0.25 ppm, 1-hour average >	0.0534 ppm, AAM >	(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; and, (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm, 1-hour average > 0.04 ppm, 24-hour average >	0.03 ppm, AAM > 0.14 ppm, 24-hour average > 0.50 ppm, 3-hour average >	(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 µg/m^3, AAM > 50 µg/m^3, 24-hour average >	50 µg/m^3, AAM > 150 µg/m^3, 24-hour average >	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and, (b) Excess seasonal declines in pulmonary function, especially in children.
Suspended Particulate Matter (PM2.5)	12 µg/m^3, AAM >	15 µg/m^3, AAM > 65 µg/m^3, 24-hour average >	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and, (c) Decreased lung functions and premature death.
Lead	1.5 µg/m^3, 30-day average >=	1.5 µg/m^3, calendar quarterly average >	(a) Increased body burden; and, (b) Impairment of blood formation and nerve conduction.

KEY:
ppm = parts per million parts of air, by volume
µg/m^3 = micrograms per cubic meter
AAM = Annual Arithmetic Mean
AGM = Annual Geometric Mean

Table 3-1 (concluded)
State and Federal Ambient Air Quality Standards

AIR POLLUTANT	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
	CONCENTRATION, AVERAGING TIME		
Sulfates (SOx)	25 µg/m^3, 24-hour average >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and, (f) Property damage.
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 percent, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent.
Hydrogen Sulfide	0.03 ppm, 1-hour average >=		Odor annoyance.
Vinyl Chloride	0.010 ppm, 24-hour average >=		Known carcinogen.

KEY:
ppm = parts per million parts of air, by volume
µg/m^3 = micrograms per cubic meter
AAM = Annual Arithmetic Mean
AGM = Annual Geometric Mean

Carbon Monoxide

CO is a colorless, odorless gas formed by the incomplete combustion of fuels. CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for carbon monoxide is intended to protect persons whose medical condition already compromises their circulatory systems' ability to deliver oxygen. These medical conditions include certain heart ailments, chronic lung diseases, and anemia. Persons with these conditions have reduced exercise capacity even when exposed to relatively low levels of CO. Fetuses are at risk because their blood has an even greater affinity to bind with CO. Smokers are also at risk from ambient CO levels because smoking increases the background level of CO in their blood.

CO was monitored at 25 locations in the district in 2004 and no locations exceeded the federal and state eight-hour CO standards. The highest eight-hour average CO concentration of the year (6.7 ppm) was 71 percent of the federal standard and it was measured at Source/Receptor Area No. 12, South Central Los Angeles County (Station No. 084).

Ozone

Unlike primary criteria pollutants that are emitted directly from an emissions source, ozone is a secondary pollutant. It is formed in the atmosphere through a photochemical reaction of VOC, NOx, oxygen, and other hydrocarbon materials with sunlight. As a precursor to ozone, VOC contributes to regional air quality impacts.

Table 3-2
2004 Air Quality Data – South Coast Air Quality Management District

CARBON MONOXIDE (CO)						
					No. Days Standard Exceeded[a]	
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. (ppm, 1-hour)	Max. Conc. (ppm, 8-hour)	Federal ≥ 9.5 ppm, 8-hour	State > 9.0 ppm, 8-hour
LOS ANGELES COUNTY (Co)						
1	Central Los Angeles	361	4	3.2	0	0
2	Northwest Coast Los Angeles Co	360	4	2.3	0	0
3	Southwest Coast Los Angeles Co1	90*	6*	4.4*	0*	0*
3	Southwest Coast Los Angeles Co2	260*	4*	3.0	0*	0*
4	South Coast Los Angeles Co1	366	4	3.4	0	0
4	South Coast Los Angeles Co2	--	--	--	--	--
6	West San Fernando Valley	366	5	3.5	0	0
7	East San Fernando Valley	366	5	3.7	0	0
8	West San Fernando Valley	361	7	3.4	0	0
9	East San Gabriel Valley 1	366	3	2.0	0	0
9	East San Gabriel Valley 2	361	2	2.0	0	0
10	Pomona/Walnut Valley	366	4	3.1	0	0
11	South San Gabriel Valley	366	5	3.6	0	0
12	South Central Los Angeles Co	366	10	6.7	0	0
13	Santa Clarita Valley	363	5	3.7	0	0
ORANGE COUNTY						
16	North Orange County	364	7	4.0	0	0
17	Central Orange County	366	5	4.1	0	0
18	North Coastal Orange County	366	5	4.1	0	0
19	Saddleback Valley	366	2	1.6	0	0
RIVERSIDE COUNTY						
22	Norco/Corona	--	--	--	--	--
23	Metropolitan Riverside County 1	364	4	3.0	0	0
23	Metropolitan Riverside County 2	366	4	2.1	0	0
24	Perris Valley	--	--	--	--	--
25	Lake Elsinore	353	2	0.9	0	0
29	Banning Airport	--	--	--	--	--
30	Coachella Valley 1**	366	2	1.0	0	0
30	Coachella Valley 2**	--	--	--	--	--
SAN BERNARDINO COUNTY						
32	NW San Bernardino Valley	366	3	2.1	0	0
33	SW San Bernardino Valley	--	--	--	--	--
34	Central San Bernardino Valley 1	313*	3*	2.1*	0*	0*
34	Central San Bernardino Valley 2	366	4	3.3	0	0
35	East San Bernardino Valley	--	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--	--
38	East San Bernardino Mountains	--	--	--	--	--
	DISTRICT MAXIMUM		10	6.7	0	0
	SOUTH COAST AIR BASIN		10	6.7	0	0

KEY:
ppm = parts per million parts of air, by volume
-- = Pollutant not monitored
* Less than 12 full months of data. May not be representative.
** Salton Sea Air Basin

a) The federal 1-hour standard (1-hour average CO > 35 ppm) and state 1-hour standard (1-hour average CO > 20 ppm) were not exceeded.

Table 3-2 (Continued)
2004 Air Quality Data – South Coast Air Quality Management District

OZONE (O_3)										
							No. Days Standard Exceeded			
							Federal		State[b]	
Source Rec. Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. (ppm, 1-hr)	Max. Conc. (ppm, 8-hr)	Fourth Highest Conc. (ppm, 8-hr)	Health Advisory ≥ 0.15 ppm, 1-hr	> 0.12 ppm, 1-hr	> 0.08 ppm, 8-hr	> 0.09 ppm, 1-hr	> 0.07 ppm, 1-hr
LOS ANGELES (LA) COUNTY (Co)										
1	Central LA	366	0.110	0.092	0.079	0	0	1	7	7
2	NW Coast LA Co	366	0.107	0.089	0.078	0	0	1	5	6
3	SW Coast LA Co1	90*	0.069*	0.060*	0.056*	0*	0*	0*	0*	0*
3	SW Coast LA Co2	262*	0.120*	0.100	0.086*	0*	0*	4*	4*	13*
4	South Coast LA Co1	366	0.090	0.075	0.071	0	0	0	0	0
4	South Coast LA Co2	--	--	--	--	--	--	--	--	
6	W San Fernando Valley	366	0.131	0.116	0.102	0	2	29	54	65
7	E San Fernando Valley	366	0.137	0.109	0.089	0	2	7	27	37
8	W San Fernando Valley	365	0.130	0.103	0.093	0	1	9	27	31
9	E San Gabriel Valley 1	366	0.134	0.104	0.094	0	2	10	28	26
9	E San Gabriel Valley 2	366	0.134	0.108	0.095	0	4	16	42	35
10	Pomona/Walnut Valley	366	0.131	0.102	0.097	0	4	13	31	25
11	S San Gabriel Valley	366	0.104	0.084	0.080	0	0	0	7	7
12	South Central LA Co	366	0.084	0.072	0.065	0	0	0	0	0
13	Santa Clarita Valley	360	0.158	0.133	0.108	1	13	52	69	81
ORANGE (OR) COUNTY (Co)										
16	North OR Co	364	0.099	0.080	0.078	0	0	0	6	6
17	Central OR Co	366	0.120	0.097	0.088	0	0	6	35	35
18	North Coastal OR Co	366	0.104	0.087	0.076	0	0	1	5	5
19	Saddleback Valley	366	0.116	0.089	0.086	0	0	2	20	20
RIVERSIDE (RV) COUNTY (Co)										
22	Norco/Corona	--	--	--	--	--	--	--	--	--
23	Metropolitan RV Co 1	366	0.141	0.117	0.112	0	8	35	75	75
23	Metropolitan RV Co 2	--	--	--	--	--	--	--	--	--
24	Perris Valley	365	0.128	0.103	0.097	0	2	19	47	47
25	Lake Elsinore	353	0.130	0.116	0.103	0	2	21	51	51
29	Banning Airport	349	0.156	0.116	0.112	1	7	40	69	69
30	Coachella Valley 1**	366	0.125	0.108	0.099	0	1	31	55	55
30	Coachella Valley 2**	366	0.111	0.102	0.098	0	0	18	51	51
SAN BERNARDINO (SB) COUNTY										
32	Northwest SB Valley	366	0.138	0.105	0.103	0	2	18	31	31
33	Southwest SB Valley	--	--	--	--	--	--	--	--	--
34	Central SB Valley 1	366	0.149	0.123	0.112	0	7	28	54	54
34	Central SB Valley 2	366	0.157	0.130	0.113	1	9	38	58	58
35	East SB Valley	366	0.160	0.137	0.122	1	12	53	76	76
37	Central SB Mountains	364	0.163	0.145	0.124	1	9	66	96	96
38	East SB Mountains	--	--	--	--	--	--	--	--	--
DISTRICT MAXIMUM			0.163	0.145	0.124	1	13	66	96	96
SOUTH COAST AIR BASIN			0.163	0.148	0.124	4	28	90	148	148

KEY:
ppm = parts per million parts of air, by volume
-- = Pollutant not monitored
* Less than 12 full months of data. May not be representative.
** Salton Sea Air Basin

b) On April 28, 2005, ARB has approved revising the California ozone standard to establish a new 8-hr standard of 0.07 ppm. The new 8-hr standard is expected to take effect by December 2005.

Table 3-2 (Continued)
2004 Air Quality Data – South Coast Air Quality Management District

NITROGEN DIOXIDE (NO_2)				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. (ppm, 1-hour[c])	Annual Average[c] AAM Conc. (ppm)
LOS ANGELES COUNTY				
1	Central Los Angeles	359	0.16	0.0328
2	Northwest Coast Los Angeles County	355	0.09	0.0198
3	Southwest Coast Los Angeles County1	89*	0.08*	0.0310*
3	Southwest Coast Los Angeles County2	230*	0.09*	0.0136*
4	South Coast Los Angeles County1	356	0.12	0.0280
4	South Coast Los Angeles County2	--	--	--
6	West San Fernando Valley	365	0.08	0.0214
7	East San Fernando Valley	356	0.12	0.0332
8	West San Fernando Valley	355	0.12	0.0270
9	East San Gabriel Valley 1	351	0.10	0.0204
9	East San Gabriel Valley 2	353	0.12	0.0240
10	Pomona/Walnut Valley	364	0.11	0.0314
11	South San Gabriel Valley	353	0.12	0.0305
12	South Central Los Angeles County	362	0.10	0.0301
13	Santa Clarita Valley	358	0.09	0.0204
ORANGE COUNTY				
16	North Orange County	341	0.12	0.0252
17	Central Orange County	361	0.12	0.0199
18	North Coastal Orange County	357	0.10	0.0151
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riverside County 1	363	0.09	0.0172
23	Metropolitan Riverside County 2	--	--	--
24	Perris Valley	--	--	--
25	Lake Elsinore	339	0.06	0.0151
29	Banning Airport	334	0.08	0.0165
30	Coachella Valley 1**	353	0.07	0.0130
30	Coachella Valley 2**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	365	0.11	0.0305
33	Southwest San Bernardino Valley	--	--	--
34	Central San Bernardino Valley 1	346	0.06	0.0273
34	Central San Bernardino Valley 2	363	0.12	0.0261
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			0.16	0.0332
SOUTH COAST AIR BASIN			0.16	0.0332

KEY:

ppm = parts per million parts of air, by volume	* Less than 12 full months of data. May not be representative.
AAM = Annual Arithmetic Mean	** Salton Sea Air Basin
-- = Pollutant not monitored	

c) The state standard is 1-hour average NO_2> 0.25ppm. The federal standard is annual arithmetic mean NO_2> 0.0534 ppm. No location exceeded the standards.

Table 3-2 (Continued)
2004 Air Quality Data – South Coast Air Quality Management District

SULFUR DIOXIDE (SO_2)				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Maximum Concentration[d] (ppm, 1-hour)	Maximum Concentration[d] (ppm, 24-hour)
LOS ANGELES COUNTY				
1	Central Los Angeles	364	0.08	0.0015
2	Northwest Coast Los Angeles County	--	--	--
3	Southwest Coast Los Angeles County1	89*	0.03*	0.004*
3	Southwest Coast Los Angeles County2	261*	0.02*	0.007*
4	South Coast Los Angeles County1	361	0.04	0.012
4	South Coast Los Angeles County2	--	--	--
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	348	0.02	0.010
8	West San Fernando Valley	--	--	--
9	East San Gabriel Valley 1	--	--	--
9	East San Gabriel Valley 2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	--	--	--
12	South Central Los Angeles County	--	--	--
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange County	--	--	--
17	Central Orange County	--	--	--
18	North Coastal Orange County	364	0.03	0.008
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riverside County 1	331	0.02	0.015
23	Metropolitan Riverside County 2	--	--	--
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley 1**	--	--	--
30	Coachella Valley 2**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	--	--	--
33	Southwest San Bernardino Valley	--	--	--
34	Central San Bernardino Valley 1	360	0.01	--
34	Central San Bernardino Valley 2	--	--	0.006
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
	DISTRICT MAXIMUM		0.08	0.015
	SOUTH COAST AIR BASIN		0.08	0.015

KEY:
ppm = parts per million parts of air, by volume
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
* Less than 12 full months of data. May not be representative.
** Salton Sea Air Basin

d) The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 24-hour average > 0.14 ppm, and 3-hour average > 0.50 ppm. No location exceeded SO_2 standards.

Table 3-2 (Continued)
2004 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM10 [e),]						
				No. (%) Samples Exceeding Standard		
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. (µg/m^3, 24-hour)	Federal > 150 µg/m^3, 24-hour	State > 50 µg/m^3, 24-hour	Annual Average[h)] AAM Conc. (µg/m^3)
LOS ANGELES COUNTY (Co)						
1	Central Los Angeles	61	72	0	5(8.2)	32.7
2	NW Coast Los Angeles County	--	--	--	--	--
3	SW Coast Los Angeles County1	15*	52*	0*	2(13.3)*	30.9*
3	SW Coast Los Angeles County2	37*	47*	0*	0*	25.1
4	South Coast Los Angeles County1	60	72	0	4(6.7)	33.1
4	South Coast Los Angeles County2	59	83	0	12)20.3)	38.1
6	West San Fernando Valley	--	--	--	--	--
7	East San Fernando Valley	60	74	0	7(11.7)	37.5
8	West San Fernando Valley	--	--	--	--	--
9	East San Gabriel Valley 1	55	83	0	8(14.5)	35.4
9	East San Gabriel Valley 2	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--
11	South San Gabriel Valley	--	--	--	--	--
12	South Central Los Angeles County	--	--	--	--	--
13	Santa Clarita Valley	60	54	0	2.(3.3)	28.1
ORANGE COUNTY						
16	North Orange County	--	--	--	--	--
17	Central Orange County	61	74	0	7(11.5)	34.1
18	North Coastal Orange County	--	--	--	--	--
19	Saddleback Valley	57	47	0	0	23.7
RIVERSIDE COUNTY						
22	Norco/Corona	57	76	0	11(19.3)	38.0
23	Metropolitan Riverside County 1	119	137	0	72(60.5)	55.5
23	Metropolitan Riverside County 2	--	--	--	--	--
24	Perris Valley	59	83	0	15(25.4)	41.4
25	Lake Elsinore	--	--	--	--	--
29	Banning Airport	61	82	0	7(11.5)	29.3
30	Coachella Valley 1**	59	79	0	2(3.4)	26.4
30	Coachella Valley 2**	118+	83+	0+	23(19.5)+	39.3+
SAN BERNARDINO COUNTY-						
32	NW San Bernardino Valley	--	--	--	--	--
33	SW San Bernardino Valley	58	93	0	17(29.3)	42.8
34	Central San Bernardino Valley 1	61	106	0	29(47.5)	47.7
34	Central San Bernardino Valley 2	58	118	0	28(48.3)	48.6
35	East San Bernardino Valley	60	88	0	20(33.3)	38.6
37	Central San Bernardino Mountains	57	52	0	1(1.8)	26.4
38	East San Bernardino Mountains	--	--	--	--	--
	DISTRICT MAXIMUM		137	0	72	55.5
	SOUTH COAST AIR BASIN		137	0	81	55.5

KEY:

µg/m^3 = micrograms per cubic meter -- = Pollutant not monitored

AAM = Annual Arithmetic Mean ** Salton Sea Air Basin

e) PM10 samples were collected every six days at all sites except for Station Numbers 4144 and 4157 where samples were collected every three days.

h) Federal PM10 standard is annual average (AAM) > 50 µg/ m^3. State standard is annual average (AAM) > 20 µg/ m^3 (changed from AGM > 20 µg/ m^3, effective July 5, 2003)

\+ The data for the samples collected on high-wind day (161 µg/ m^3 on 10/09/04 was excluded in accordance with USEPA's Natural Event Policy.

Table 3-2 (Continued)
2004 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM2.5 [f]					
				No. (%) Samples Exceeding Standard	Annual Averages[i]
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. (µg/m^3, 24-hour)	Federal > 65 µg/m^3, 24-hour	AAM Conc. (µg/m^3)
LOS ANGELES COUNTY					
1	Central Los Angeles	318	75.0	2(0.6)	19.6
2	Northwest Coast Los Angeles County	--	--	--	--
3	Southwest Coast Los Angeles Co1	--	--	--	--
3	Southwest Coast Los Angeles Co2	--	--	--	--
4	South Coast Los Angeles County1	323	66.6	1(0.3)	17.6
4	South Coast Los Angeles County2	327	59.7	0	16.6
6	West San Fernando Valley	106	56.2	0	15.6
7	East San Fernando Valley	109	60.1	0	19.2
8	West San Fernando Valley	113	59.4	0	16.6
9	East San Gabriel Valley 1	279	75.6	1(0.4)	18.4
9	East San Gabriel Valley 2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	108	60.7	0	19.9
12	South Central Los Angeles County	115	55.8	0	18.5
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange County	--	--	--	--
17	Central Orange County	319	58.9	0	16.8
18	North Coastal Orange County	--	--	--	--
19	Saddleback Valley	111	49.4	0	12.1
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riverside County 1	342	91.7	5(1.5)	22.1
23	Metropolitan Riverside County 2	110	93.8	2(1.8)	20.8
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley 1**	112	27.1	0	9.0
30	Coachella Valley 2**	110	28.5	0	10.7
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	--	--	--	--
33	Southwest San Bernardino Valley	112	86.1	2(1.8)	20.9
34	Central San Bernardino Valley1	104	71.4	1(1.0)	20.0
34	Central San Bernardino Valley2	106	93.4	4(3.8)	22.0
35	East San Bernardino Valley	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--
38	East San Bernardino Mountains	52	28.6	0	9.5
DISTRICT MAXIMUM			93.8	5	22.1
SOUTH COAST AIR BASIN			93.8	7	22.1

KEY:
µg/m^3 = micrograms per cubic meter
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
** Salton Sea Air Basin

e) PM2.5 samples were collected every three days at all sites except for Station Numbers 060, 072, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every six days.
i) Federal PM2.5 Standard is annual average (AAM) 50 µg/ m^3. State standard is annual average (AAM) > 12 µg/ m^3 (state standard was established on July 5, 2003).

Table 3-2 (Continued)
2004 Air Quality Data – South Coast Air Quality Management District

TOTAL SUSPENDED PARTICULATES TSP [g]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. (µg/m^3, 24-hour)	Annual Average AAM Conc. (µg/m^3)
LOS ANGELES COUNTY (Co)				
1	Central Los Angeles	62	115	66.4
2	Northwest Coast Los Angeles Co	59	79	46.8
3	Southwest Coast Los Angeles Co1	15*	71*	50.5*
3	Southwest Coast Los Angeles Co2	45*	77*	43.8*
4	South Coast Los Angeles Co1	62	103	59.1
4	South Coast Los Angeles Co2	59	112	64.2
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	--	--	--
8	West San Fernando Valley	58	95	49.5
9	East San Gabriel Valley 1	59	126	75.2
9	East San Gabriel Valley 2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	55	140	73.0
12	South Central Los Angeles Co	58	128	78.6
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange County	--	--	--
17	Central Orange County	--	--	--
18	North Coastal Orange County	--	--	--
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riverside County 1	60	199	100.5
23	Metropolitan Riverside County 2	59	244	81.9
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley 1**	--	--	--
30	Coachella Valley 2**	--	--	--
SAN BERNARDINO COUNTY				
32	NW San Bernardino Valley	55	127	63.5
33	SW San Bernardino Valley	--	--	--
34	Central San Bernardino Valley 1	59	235	113.4
34	Central San Bernardino Valley 2	58	179	92.7
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			244	113.4
SOUTH COAST AIR BASIN			244	113.4

KEY:
µg/m^3 = micrograms per cubic meter
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
** Salton Sea Air Basin

g) Total suspended particulates, lead, and sulfates were determined from samples collected every six days by the high volume sampler method on glass fiber filter media.

Table 3-2 (Concluded)
2004 Air Quality Data – South Coast Air Quality Management District

Source Receptor Area No.	Location of Air Monitoring Station	LEAD[g)] Max. Monthly Average Conc.[j)] (µg/m^3)	LEAD[g)] Max. Quarterly Average Conc.[j)] (µg/m^3)	SULFATES (SOx)[g)] Max. Conc. (µg/m^3, 24-hour)	SULFATES (SOx)[g)] No. (%) Samples Exceeding State Standard ≥ 25 µg/m^3, 24-hour
LOS ANGELES COUNTY (Co)					
1	Central Los Angeles	0.03	0.03	12.7	0
2	Northwest Coast Los Angeles Co	--	--	11.4	0
3	Southwest Coast Los Angeles Co1	0.01	0.01	13.1	0
3	Southwest Coast Los Angeles Co2	0.01	0.01	14.3	0
4	South Coast Los Angeles Co1	0.02	0.01	15.9	0
4	South Coast Los Angeles Co2	0.02	0.01	16.4	0
6	West San Fernando Valley	--	--	--	--
7	East San Fernando Valley	--	--	--	--
8	West San Fernando Valley	--	--	11.2	0
9	East San Gabriel Valley 1	--	--	10.6	0
9	East San Gabriel Valley 2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	0.03	0.02	12.4	0
12	South Central Los Angeles Co	0.03	0.03	14.7	0
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange County	--	--	--	--
17	Central Orange County	--	--	--	--
18	North Coastal Orange County	--	--	--	--
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riverside County 1	0.02	0.01	9.8	0
23	Metropolitan Riverside County 2	0.01	0.01	9.1	0
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley 1**	--	--	--	--
30	Coachella Valley 2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	0.02	0.01	9.8	0
33	SW San Bernardino Valley	--	--	9.1	--
34	Central San Bernardino Valley 1	--	--	--	0
34	Central San Bernardino Valley 2	0.02	0.01	--	0
35	East San Bernardino Valley	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--
38	East San Bernardino Mountains			--	--
DISTRICT MAXIMUM		0.03	0.03	16.4	0
SOUTH COAST AIR BASIN		0.03	0.03	16.4	0

KEY:
µg/m^3 = micrograms per cubic meter
** Salton Sea Air Basin
-- = Pollutant not monitored

g) Total suspended particulates, lead, and sulfate were determined from samples collected every six days by the high volume sampler method on glass fiber filter media.

j) The federal standard (quarterly average lead > 1.5 µg/m^3) and the state standard (monthly average lead ≥ 1.5 µg/m^3). No locations exceed lead standards. The maximum monthly and quarter lead concentrations at special monitoring sites immediately downwind of stationary lead sources were 0.59 µg/m^3 and 0.30 µg/m^3, both recorded at Southeast Los Angeles County.

Ozone is a deep lung irritant, causing the passages to become inflamed and swollen. Exposure to ozone produces alterations in respiration, the most characteristic of which is shallow, rapid breathing and a decrease in pulmonary performance. Ozone reduces the respiratory system's ability to fight infection and to remove foreign particles. People who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis are more sensitive to ozone's effects. In severe cases, ozone is capable of causing death from pulmonary edema. Early studies suggested that long-term exposure to ozone results in adverse effects on morphology and function of the lung and acceleration of lung-tumor formation and aging. Ozone exposure also increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetylcholine, and allergens.

Recent studies have shown that asthmatic children in southern California are particularly susceptible to the adverse effects of air pollution. In an ongoing long-term study of nearly 3,700 children in 12 communities across southern California, asthmatics had more frequent bouts of bronchitis and chronic phlegm than non-asthmatics. Other studies have linked air pollution with an increase in asthmatics' acute symptoms and emergency room visits and a decrease in their lung function. Asthma is a serious public health concern across the country since reported cases have risen dramatically during the last decade. Asthma is the number one cause of school absences, the leading cause of children's visits to emergency rooms and the cause of more than 5,000 deaths a year. Low-income and uninsured residents are particularly at risk because they do not have access to preventive and ongoing medical care that can control asthma and instead receive treatment only during acute asthma attacks in emergency rooms.

The national ozone ambient air quality standard is exceeded far more frequently in the SCAQMD's jurisdiction than almost every other area in the United States[7]. In the past few years, ozone air quality has been the cleanest on record in terms of maximum concentration and number of days exceeding the standards and episode levels. Ozone levels were monitored at 29 locations in 2004. Maximum one-hour average and eight-hour average ozone concentrations in 2004 (0.163 ppm and 0.145 ppm) were 136 percent and 181 percent of the federal one-hour and eight-hour standards, respectively. Ozone concentrations exceeded the one-hour state standard at all, but three of the monitored locations in 2004.

In 1997, the USEPA promulgated a new national ambient air quality standard for ozone. Soon thereafter, a court decision ordered that the USEPA could not enforce the new standard until adequate justification for the new standard was provided. The USEPA appealed the decision to the Supreme Court. On February 27, 2001, the Supreme Court upheld USEPA's authority and methods to establish clean air standards. The Supreme Court, however, ordered USEPA to revise its implementation plan for the new ozone standard. Meanwhile, the California Air Resources Board (CARB) and local air districts continue to collect technical information in order to prepare for an eventual State Implementation Plan (SIP) to reduce unhealthful levels of ozone in areas violating the new federal standard. California has previously developed a SIP for the current ozone standard, which has been approved by USEPA for the South Coast Air Basin.

[7] It should be noted that in 1999 and 2000 Houston, Texas exceeded the federal ozone standards on more occasions than the district and reported the highest ozone concentrations in the nation.

Nitrogen Dioxide

NO2 is a brownish gas that is formed in the atmosphere through a rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. NO and NO2 are collectively referred to as NOx. NO2 can cause health effects in sensitive population groups such as children and people with chronic lung diseases. It can cause respiratory irritation and constriction of the airways, making breathing more difficult. Asthmatics are especially sensitive to these effects. People with asthma and chronic bronchitis may also experience headaches, wheezing and chest tightness at high ambient levels of NO2. NO2 is suspected to reduce resistance to infection, especially in young children.

By 1991, exceedances of the federal standard were limited to one location in Los Angeles County. The Basin was the only area in the United States classified as nonattainment for the federal NO2 standard under the 1990 Clean Air Act Amendments. No location in the area of SCAQMD's jurisdiction has exceeded the federal standard since 1992 and the South Coast Air Basin was designated attainment for the national standard in 1998. In 2004, 25 stations monitored NO2 levels in the district and the maximum annual arithmetic mean (AAM) was measured at 0.0332 ppm which represents 62 percent of the federal standard (the federal standard is an AAM of NO2 greater than 0.0534 ppm). The more stringent one-hour state standard (0.25 ppm) was not exceeded in year 2004. Despite declining NOx emissions over the last decade, further NOx emissions reductions are necessary to ensure no further exceedances of the NO2 standard and because NOx emissions are PM10 and ozone precursors.

Sulfur Dioxide

SO2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children. In 2003, eight locations monitored SO2 levels and neither the state nor the federal standards were exceeded. Though SO2 concentrations have been reduced to levels well below state and federal standards, further reductions in emissions of SO2 are needed because it is a precursor for sulfates, PM10, and PM2.5.

Particulate Matter (PM10)

PM10 is defined as suspended particulate matter measuring 10 microns or less in diameter and includes a complex mixture of man-made and natural substances including sulfates, nitrates, metals, elemental carbon, sea salt, soil, organics and other materials. PM10 may have adverse health impacts because these microscopic particles are able to penetrate deeply into the respiratory system. In some cases, the particulates themselves may cause actual damage to the alveoli of the lungs or they may contain adsorbed substances that are injurious. Children can experience a decline in lung function and an increase in respiratory symptoms from PM10 exposure. People with influenza, chronic respiratory disease and cardiovascular disease can be at risk of aggravated illness from exposure to fine particles. Increases in death rates have been statistically linked to corresponding increases in PM10 levels.

In 2003, PM10 was monitored at 21 locations in the district. There were no exceedances of the federal 24-hour standard (150 μg/m3), while the state 24-hour standard (50 μg/m3) was exceeded at 19 monitored locations. The federal standard (AAM greater than 50 μg/m3) was exceeded in one location.

Particulate Matter (PM2.5)

In 1997, the USEPA promulgated a new national ambient air quality standard for PM2.5, particulate matter 2.5 microns or less in diameter. The PM2.5 standard is a subset of PM10 such that it complements existing national and state ambient air quality standards that target the full range of inhalable PM10. In addition to the health effects for PM10, additional effects from exposure to PM2.5 may result in increased hospital admissions and emergency room visits for heart and lung disease, increased respiratory symptoms and disease, decreased lung functions, and premature death.

The SCAQMD began regular monitoring of PM2.5 in 1999. In 2004, concentrations of PM2.5 were monitored at 19 locations throughout the district. The federal 24-hour standard (65 $\mu g/m^3$) was exceeded at 8 locations. The federal standard (AAM greater than 15 $\mu g/m^3$) was exceeded in 15 locations, and the state standard (AAM greater than 12 $\mu g/m^3$) was exceeded in 16 locations.

Lead

Lead concentrations once exceeded the state and national ambient air quality standards by a wide margin, but have not exceeded state or federal standards at any regular monitoring station since 1982. Though special monitoring sites immediately downwind of lead sources recorded very localized violations of the state standard in 1994, no violations were recorded at these stations since that time.

Sulfates

Sulfates or SOx are a group of chemical compounds containing the sulfate group, which is a sulfur atom with four oxygen atoms attached. Though not exceeded in 1993, 1996, 1997, and 1998, the 24-hour state sulfate standard (25 $\mu g/m^3$) was exceeded at three locations in 1994 and one location in 1995, 1999, 2000 and 2001. There are no federal air quality standards for sulfate.

Visibility Reducing Particles

Since deterioration of visibility is one of the most obvious manifestations of air pollution and plays a major role in the public's perception of air quality, the state of California has adopted a standard for visibility or visual range. Until 1989, the standard was based on visibility estimates made by human observers. The standard was changed to require measurement of visual range using instruments that measure light scattering and absorption by suspended particles.

Volatile Organic Compounds

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because limiting VOC emissions reduces the rate of photochemical reactions that contribute to the formation of ozone. They are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or

known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Non-Criteria Pollutant Emissions

Although the SCAQMD's primary mandate is attaining the State and National Ambient Air Quality Standards for criteria pollutants within the district, SCAQMD also has a general responsibility pursuant to the Health and Safety Code §41700 to control emissions of air contaminants and prevent endangerment to public health. As a result, over the last few years the SCAQMD has regulated pollutants other than criteria pollutants such as TACs, greenhouse gases and stratospheric ozone depleting compounds. The SCAQMD has developed a number of rules to control non-criteria pollutants from both new and existing sources. These rules originated through state directives, CAA requirements, or the SCAQMD rulemaking process.

In addition to promulgating non-criteria pollutant rules, the SCAQMD has been evaluating AQMP control measures as well as existing rules to determine whether or not they would affect, either positively or negatively, emissions of non-criteria pollutants. For example, rules in which VOC components of coating materials are replaced by a non-photochemically reactive chlorinated substance would reduce the impacts resulting from ozone formation, but could increase emissions of toxic compounds or other substances that may have adverse impacts on human health.

The following sections summarize the existing setting for the two major categories of non-criteria pollutants: compounds that contribute to ozone depletion and global warming, and TACs.

Ozone Depletion and Global Warming

The SCAQMD adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the AQMP.

In March of 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- phase out the use and corresponding emissions of chlorofluorocarbons (CFCs), methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons (HCFCs) by the year 2000;
- develop recycling regulations for HCFCs;
- develop an emissions inventory and control strategy for methyl bromide; and
- support the adoption of a California greenhouse gas emission reduction goal.

In support of these polices, the SCAQMD Governing Board has adopted several rules to reduce ozone depleting compounds. Several other rules concurrently reduce global warming gases and criteria pollutants.

On March 17, 2000, the SCAQMD Governing Board approved "An Air Toxics Control Plan for the Next Ten Years." The Air Toxics Control Plan identifies potential strategies to reduce toxic levels in the Basin over the ten years following adoption. To the extent the

strategies are implemented by the relative agencies, the plan will improve public health by reducing health risks associated with both mobile and stationary sources. Exposure to toxic air contaminants (TACs) can increase the risk of contracting cancer or result in other deleterious health effects which target such systems as cardiovascular, reproductive, hematological, or nervous. The health effects may be through short-term, high-level or "acute" exposure or long-term, low-level or "chronic" exposure.

An Addendum to the Air Toxics Control Plan (ATCP) was approved by the Board in April 2004. This addendum provided a status of the various mobile and stationary source strategies in the original ATCP, revised projection based on what has been accomplished, provided new inventory information to reflect updates from the 2003 AQMP, and summarized measures identified in the Cummulative Impacts Reduction Strategy and the 2003 AQMP.

Toxic Air Contaminants

Historically, the SCAQMD has regulated criteria air pollutants using either a technology-based or an emissions limit approach. The technology-based approach defines specific control technologies that may be installed to reduce pollutant emissions. The emission limit approach establishes an emission limit, and allows industry to use any emission control equipment, as long as the emission requirements are met. The regulation of toxic air contaminants (TACs) requires a similar regulatory approach as explained 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 (AB) 1807, 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. CARB has adopted a regulation designating all 188 federal hazardous air pollutants (HAPs) as TACs.

ATCMs are developed by CARB and implemented by the SCAQMD and other air districts through the adoption of regulations of equal or greater stringency. Generally, the ATCMs reduce emissions to achieve exposure levels below a determined health threshold. If no such threshold levels are determined, emissions are reduced to the lowest level achievable through the best available control technology unless it is determined that an alternative level of emission reduction is adequate to protect public health.

Under California state law, a federal National Emission Standard for Hazardous Air Pollutants (NESHAP) automatically becomes a state ATCM, unless CARB has already adopted an ATCM for the source category. Once a NESHAP becomes an ATCM, CARB and the air pollution control or air quality management district have certain responsibilities related to adoption or implementation and enforcement of the NESHAP/ATCM.

Control of TACs under the Air Toxics "Hot Spots" Act

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB2588) 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 the emissions. Facilities are phased into the AB2588 program based on their emissions of criteria pollutants or their occurrence on lists of toxic emitters compiled by the SCAQMD. Phase I consists of facilities that emit over 25 tons per year of any criteria pollutant and facilities present on the

SCAQMD's toxics list. Phase I facilities entered the program by reporting their air TAC emissions for calendar year 1989. Phase II consists of facilities that emit between 10 and 25 tons per year of any criteria pollutant, and submitted air toxic inventory reports for calendar year 1990 emissions. Phase III consists of certain designated types of facilities which emit less than 10 tons per year of any criteria pollutant, and submitted inventory reports for calendar year 1991 emissions. Inventory reports are required to be updated every four years under the state law.

In October 1992, the SCAQMD Governing Board adopted public notification procedures for Phase I and II facilities. These procedures specify that AB2588 facilities must provide public notice when exceeding the following risk levels:

- Maximum Individual Cancer Risk: greater than 10 in 1 million (10×10^{-6})
- Total Hazard Index: greater than 1.0 for TACs except lead, or > 0.5 for lead

Public notice is to be provided by letters mailed to all addresses and all parents of children attending school in the impacted area. In addition, facilities must hold a public meeting and provide copies of the facility risk assessment in all school libraries and a public library in the impacted area.

The SCAQMD continues to complete its review of the health risk assessments submitted to date and may require revision and resubmission as appropriate before final approval. Notification will be required from facilities with a significant risk under the AB2588 program based on their initial approved health risk assessments and will continue on an ongoing basis as additional and subsequent health risk assessments are reviewed and approved.

Control of TACs with Risk Reduction Audits and Plans

Senate Bill (SB) 1731, enacted in 1992 and codified at Health and Safety Code §44390 et seq., amended AB2588 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. SCAQMD Rule 1402 - Control of Toxic Air Contaminants from Existing Sources, was adopted on April 8, 1994, to implement the requirements of SB1731.

In addition to the TAC rules adopted by SCAQMD under authority of AB1807 and SB1731, the SCAQMD has adopted source-specific TAC rules, based on the specific level of TAC emitted and the needs of the area. These rules are similar to the state's ATCMs because they are source-specific and only address emissions and risk from specific compounds and operations.

Cancer Risks from Toxic Air Contaminants

New and modified sources of toxic air contaminants in the SCAQMD are subject to Rule 1401 - New Source Review of Toxic Air Contaminants and Rule 212 - Standards for Approving Permits. Rule 212 requires notification of the SCAQMD's intent to grant a permit to construct a significant project, defined as a new or modified permit unit located within 1000 feet of a school (a state law requirement under AB3205), a new or modified permit unit posing a maximum individual cancer risk of one in one million (1×10^{-6}) or greater, or a new or modified facility with criteria pollutant emissions exceeding specified daily maximums. Distribution of notice is required to all addresses within a 1/4-mile radius, or other area deemed appropriate by the SCAQMD. Rule 1401 currently controls emissions

of carcinogenic and non-carcinogenic (health effects other than cancer) air contaminants from new, modified and relocated sources by specifying limits on cancer risk and hazard index (explained further below), respectively.

Health Effects

One of the primary health risks of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because it is currently believed by many scientists that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of causing cancer. It is currently estimated that about one in four deaths in the United States is attributable to cancer. About two percent of cancer deaths in the United States may be attributable to environmental pollution (Doll and Peto 1981). The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods.

Non-Cancer Health Risks from Toxic Air Contaminants

Unlike carcinogens, for most noncarcinogens it is believed that there is a threshold level of exposure to the compound below which it will not pose a health risk. The California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment develops Reference Exposure Levels (RELs) for TACs which are health-conservative estimates of the levels of exposure at or below which health effects are not expected. The noncancer health risk due to exposure to a TAC is assessed by comparing the estimated level of exposure to the REL. The comparison is expressed as the ratio of the estimated exposure level to the REL, called the hazard index (HI).

The Cement Products Industry[8]

There are two Portland cement manufacturing facilities in the Basin, California Portland Cement Company (CPCC) and TXI Riverside Cement Company (TXI). CPCC manufactures gray cement, and TXI manufactures white cement and produces gray cement from clinkers delivered to the facility by railcar. The production of Portland cement is a four step process which includes:

1) Raw materials acquisition;
2) Preparation of raw materials into raw mix;
3) Pyroprocessing of raw mix to make clinkers; and
4) Grinding and milling of clinkers into cement.

Raw Materials Acquisition

Raw materials for manufacturing cement include calcium, silica, alumina and iron. Calcium is the element of highest concentration, and iron is raw material for gray cement but not used for white cement. These raw materials are obtained from minerals such as limestone for calcium; sand for silica; shale and clay for alumina and silica. CPCC obtains limestone from the quarry located on site. Other raw materials are delivered to CPCC by truck or rail car. All raw materials are delivered to TXI by truck or rail car.

[8] USEPA, 1995A. *Compilation of Air Pollutant Emission Factors, 5th Edition, Volume I: Stationary Points and Area Sources*, AP-42
CPCC, 2004. *Information Submitted by California Portland Cement Company Responding to AQMD 2004 Survey*, March – July 2004

Preparation of Raw Materials into Raw Mix

Preparing the raw mix includes crushing, milling, blending and storage. Primary, secondary and tertiary crushers are used to crush the raw materials until they are about ¾ inch or smaller in size. Raw materials are then conveyed to rock storage silos. Belt conveyors are typically used for this transport. From the rock storage silos, the raw materials are conveyed to roller mills or ball mills where they are blended and pulverized into a very fine powder. Pneumatic conveyors are typically used to transport the fine raw mix to homogenizing silos where they are again thoroughly blended and stored until it is fed to the kilns.

Pyroprocessing of Raw Mix

Pyroprocessing is the chemical and physical process of transforming the fine raw mix into clinkers. Pyroprocessing occurs in a rotary kiln and includes three steps:

- Evaporating free water and dehydrating to form oxides of silicon, aluminum, and iron. This process occurs in a drying and preheating zone of the rotary kiln at temperatures of about 212 ºF – 800 ºF;
- Calcining of calcium carbonates (CaCO3) to form calcium oxides (CaO) and carbon dioxide (CO2). This process occurs in the calcining zone of the rotary kiln at temperatures of about 1,100 ºF – 1,800 ºF; and
- Chemical reacting, melting and restructuring of materials occur between CaO, silica, alumina and iron to form clinker which is a solid material ranging in size from one inch – two inch diameter and contains four major compounds: tricalcium silicate (approximately 50 percent by weight), dicalcium silicate (approximately 25 percent by weight), tricalcium aluminate (approximately 10 percent by weight) and tetracalcium aluminoferrite (approximately 10 percent by weight). The process of forming clinker occurs in the "burning" zone of the rotary kiln at temperatures of about 2,200ºF – 2,700 ºF.

The pyroprocessing process at CPCC and TXI is called a "long dry process" consisting solely of a simple long rotary kiln. CPCC operates two rotary kilns in parallel; each is about 18 feet in diameter and 500 feet in length, to produce grey clinker. TXI operates two rotary kilns in parallel; each is about 12 feet in diameter and 200 feet in length for white clinker. The kiln is slightly inclined and rotates on its longitudinal axis. Raw materials are fed into the upper end of the kiln while fuels are burned in the lower end. As the kiln rotates, the raw materials move slowly from the upper end to the lower end, and the combustion gases move in countercurrent direction. The residence time of raw materials in a gray cement kiln is about two hours – three hours, whereas for white cement kiln, it is about eight hours. The hot clinker, which exits at about 2,000 ºF from the kiln, is quickly cooled in the clinker cooler and is conveyed to storage. Clinker is water reactive and must be stored such that it is protected from moisture. If clinker gets wet, it will hydrate and set into concrete. Heat used in the kiln is supplied through the combustion of different fuels such as coal, coke, oil, natural gas, and even tires. The combustion gases are vented to baghouse where dusts are collected. Dust is returned to the process or recycled if it meets certain criteria, or is discarded to landfills.

Grinding and Milling Clinkers into Cement

Grinding and milling clinkers into cement is the last step of the manufacturing process. Up to five percent of gypsum is added to the clinker during grinding to control the setting time of cement. Other specialty chemicals are also added at this stage. After grinding and

milling into fine powder, the cement is pneumatically conveyed to the product silos. The product is either sold in bulk or is bagged.

Baseline Inventory of Affected Sources

As previously discussed, PR 1156 would affect two facilities CPCC and TXI. The facilities currently employ a variety of control technologies to reduce process and fugitive dust emissions. Table 3-3 provides a list of control techniques currently employed at CPCC and TXI.

Table 3-3
Existing Control Techniques Employed at CPCC and TXI

Source	Control Techniques
Kilns Clinker Coolers	• Baghouses
Crushing Grinding Screening Milling Blending Drying Other Processes	• Enclosed and Vented to Baghouses • Wet Suppression
Storage Bins Hoppers Tanks Piles	• Enclosed and Vented to Baghouses (excluding open piles) • Wet Suppression
Loading Unloading	• Enclosed Truck/Railcar Unloading and Vented to Baghouses • Wet Suppression • Techniques to Reduce Freefall Distances (e.g. Stacker)
Conveying	• Enclosed and Vented to Baghouses • Wet Suppression • Techniques to Reduce Freefall Distances (e.g. Stack Conveyor)
Vehicle Traffic Roadways	• Route Modification (e.g. Paving, Adding Gravel/Slag to Dirt Road) • Dust Suppression Application (Water With /Without Surfactants) • Soil Stabilization • Vehicle Restrictions (e.g. Limit Speed, Limit Number of Vehicles) • Prevention and Street Sweeping • Truck Wash • Covers and Leak Resistant Bottoms On Trucks
Wind Erosion	• Enclosure or Wet Suppression
Spillage	• Housekeeping, Leveling of Loads, Tarping

As shown in Table 3-3, most of the process equipment at CPCC and TXI are enclosed and vented to baghouses. Operators at CPCC and TXI use a variety of control techniques including wet suppression, street sweeping, truck washing and enforce vehicle speed limits to reduce fugitive emissions. However, additional PM10 emission reductions are feasible and necessary to continue making progress in attaining all state and federal PM ambient air quality standards.

To establish appropriate baseline performance/emission standards and to identify further improvements in the existing control technologies, staff has conducted a review of technical papers, the USEPA website, and consulted with various PM control technology vendors.

Inventory of Baghouses at CPCC and TXI Riverside Cement

Many of the operations at CPCC and TXI are enclosed and vented to baghouses. Table 3-4 provides an inventory of 237 baghouses at these two facilities. The top 10 largest baghouses at CPCC and TXI are the baghouses controlling emissions from kilns, clinker coolers, finish mills, and raw mills. The baghouses are either reverse air clean or pulse jet. The typical bag materials include conventional woven fiberglass or Nomex for high temperature applications (425ºF – 500ºF) and polyester or Dacron for low temperature applications (200ºF – 300ºF).

Baghouse Applications

SCAQMD Source Tests for Kilns and Clinker Coolers

SCAQMD has source tested the kiln and clinker baghouses at CPCC and TXI from 1991-1999. These source tests were conducted using SCAQMD Source Test Method 5.1, 5.2, 5.3, and USEPA Method 201A. Table 3-5 summarizes the average and the lowest achieved level for PM.

Table 3-4
Existing Inventory of Baghouses

California Portland Cement

Source	No of Baghouses	No of Bags	Bag Type
Kilns	2	2,352	Fiberglass
Clinker Coolers	2	1,216	Nomex
Finish Grinding	2	660	Polyester
Raw Mat Grinding, Sacking	30	200-500	Polyester
Kiln Feed, Product Handling	34	100-200	1-Nomex, 33-Polyester
Rock Storage Area, Rock and Clinker Transfer	55	<100	2-Nomex, 53-Polyester
Unknown	10	-	-
Total	135		

Table 3-4 (Cont.)
Existing Inventory of Baghouses

TXI Riverside Cement

Source	No of Baghouses	No of Bags	Bag Type
Finish Mills – Gray Cement	3	1,200-1,700	Polyester
Finish Mill – Gray Cement Raw Mill – White Cement	2	700-900	Dacron
Raw Mill - White Cement, Clinker Hopper	2	600	GoreTex
White Kilns/Clinker Coolers	2	480	Fiberglass
Feed Silos, Packing Area, Finish Mills	6	200-500	Polyester, Dacron
White Clinker Transfer Area	16	100-200	Polyester, Dacron
Rock Storage Area, Rock Silos, Clinker Silos, and Conveying System	30	<100	GoreTex, Polyester, Dacron
Unknown	41		
Total	102		

Table 3-5
Source Test Results for Kilns and Clinker Coolers

California Portland Cement

Test Description	Source	PM Level
Average of 10 tests	Kiln	0.01 gr/dscf
		0.26 lb/ton clinker
Average of 8 tests	Clinker Cooler	0.01 gr/dscf
		0.07 lb/ton clinker
Best Achieved Levels (96, 95, 93, 91 Tests)	Clinker Cooler	0.003 – 0.004 gr/dscf
Best Achieved Levels (95, 93, 91 Tests)	Kiln	0.003 - 0.005 gr/dscf

TXI Riverside Cement

Test Description	Source	PM Level
Average of 6 tests	Kiln/Clinker Cooler	0.02 gr/dscf
		0.55 lb/ton clinker
Best Achieved Level (93 Test)	Kiln/Clinker Cooler	0.0055 gr/dscf

The Most Recent 2005 AQMD Source Tests for Kilns, Clinker Coolers and Finish Mills at CPCC and TXI

On May 25th and June 9th, 2005, to gather additional information for PR1156, an SCAQMD source testing team source tested the kiln and clinker cooler baghouses at CPCC under two conditions 1) Under normal operating conditions where the kilns were operated with the waste heat boilers on line to recover heat from the exhaust gases, and 2)under a unique condition where the kilns were operated without the waste heat boilers.
The results of the most recent source tests are presented in Table 3-6.

Table 3-6
Most Recent 2005 Source Test Results at CPCC

Source	PM Level
Kiln at Normal Operating Conditions Operating With Waste Heat Boiler (Tested on June 9th)	0.0036 gr/dscf (Run #1)
	0.0049 gr/dscf (Run #2)
Kiln at Normal Operating Conditions Operating Without Waste Heat Boiler (Tested on May 25th)	0.0065 gr/dscf (Run #1)
	0.0074 gr/dscf (Run #2)

On June 2nd and June 7th, 2005, SCAQMD staff also source tested the white kiln/clinker cooler baghouse at TXI and the grey mill air separator. The results of the most recent source tests are presented in Table 3-7.

Table 3-7
Most Recent 2005 Source Test Results at TXI

Source	PM Level
Kiln/Clinker Cooler at Normal Operating Conditions (Tested on June 2nd)	0.0037 gr/dscf (Run #1)
	0.0063 gr/dscf (Run #2)
Finishing Mill #2 Air Separator at Normal Operating Conditions (Tested on June 7th)	0.0027 gr/dscf (Run #1)
	Run #2 was not valid due to cyclonic flow conditions

The most recent 2005 source test results at CPCC and TXI show that a level of 0.01 gr/dscf or less can be achieved even with conventional filter technology. These most recent test results are supported by the test results from U.S. EPA in Table 2-3.

Existing Emissions Inventory

Annual Emission Reports

The two RECLAIM/Title V facilities operating within the SCAQMD's geographic jurisdiction that are subject to PR 1156 are CPCC and TXI. The total PM emissions reported by these two facilities are 0.36 ton per day as shown in their Annual Emission Reports and reflected in the Control Measure BCM-08 of the 2003 Air Quality Management Plan. Fugitive emissions from open storage piles and vehicle traffic were not required to be calculated and therefore were not reported.

July 2004 Survey & January 2005 Public Workshop

In order to collect current information on 1) process equipment, 2) control equipment, 3) open storage piles, and 4) vehicle traffic at these two facilities, staff visited the two facilities and conducted a survey interview on March 2004. Staff held the Public Workshop in January 2005.

PR 1156 Estimates of Emission Inventory and Reductions

Based on the information received through the July 2004 Survey, staff completed the projected emission inventory and emission reductions. Staff's estimates were individually distributed to the facilities for review and comments in January 2005. Since the affected facilities have declared their throughputs confidential only emission estimation methodology is provided in this ~~Draft~~ Final EA. Actual emission calculations would divulge the confidential throughput information. Source tests used to estimate emissions from kilns and clinker coolers were only available for PM. Since PM10 data were not available, the inventory was developed for PM. Table 3-~~6~~8 provides a summary of emission estimates.

Table 3-~~6~~8
PR 1156 Existing Particulate Matter Emission Inventory

Equipment/Process	PM Inventory (ton/day)
Kilns and Clinker Coolers[a]	0.4
Other Processes[a]	0.5[b] - ~~0.6~~ 0.7[c]
Open Piles	0.07
Vehicle Traffic	3
Total	4

Source: ~~Personal communication based on confidential information from Minh Pham to James Koizumi on July 20, 2005~~.SCAQMD, Draft Staff Report Proposed Rule 1156 Further Reduction of Particulate Emissions from Cement Manufacturing Facilities, October 4, 2005.

a) Recent source tests conducted in 2005 at TXI and CPCC by SCAQMD staff showed that the proposed limit of 0.01 grain/dscf and 50% reduction can be achieved with high efficiency coated filters. Operators at TXI conducted source testing for their kiln #1, #2 grey finish mill, and #2 raw mill baghouses; operators at CPCC conducted source testing for their D4-1 and D4-2 finish mill baghouses; and SCAQMD staff conducted source testing for the kiln #1 baghouse at CPCC, the #2 white cement kiln and the #2 grey cement finishing mill air separator at TXI. Since these source tests do not reflect all equipment at TXI and CPCC, the emission inventory was not estimated using the results in these source tests.

b) Assuming that the current control efficiency for baghouses is 99%, the PM inventory for other process equipment, except kilns and clinker coolers, would be 0.5 ton per day.

c) Assuming that the current control efficiency for baghouses is 95%, and future control efficiency for baghouses is 99.5%, the PM inventory for other process equipment, except kilns and clinker coolers would be 0.7 ton per day.

HYDROLOGY AND WATER QUALITY

Water Quality

The U.S. USEPA is the federal agency responsible for water quality management and administration of the federal Clean Water Act (CWA). The U.S. USEPA has delegated most of the administration of the CWA in California to the California State Water Resources Control Board (SWRCB). The SWRCB was established through the California Porter-Cologne Water Quality Act of 1969 and is the primary State agency responsible for water quality management issues in California. Much of the responsibility for implementation of the SWRCB's policies is delegated to the nine Regional Water Quality Control Boards (RWQCBs). Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) to regulate discharges into "navigable waters" of the United States. The U.S. USEPA authorized the SWRCB to issue NPDES permits in the State of California in 1974. The NPDES permit establishes discharge pollutant thresholds and operational conditions for industrial facilities and wastewater treatment plants. For point source discharges (e.g., wastewater treatment facilities), the RWQCBs prepare specific effluent limitations for constituents of concern such as toxic substances, total suspended

solids (TSS), bio-chemical oxygen demand (BOD), and organic compounds. The limitations are based on the Basin Plan objectives and are tailored to the specific receiving waters, allowing some discharges, for instance deep water outfalls in the Pacific Ocean, more flexibility with certain constituents due to the ability of the receiving waters to accommodate the effluent without significant impact.

Non-point source NPDES permits are also required for municipalities and unincorporated communities of populations greater than 100,000 to control urban stormwater runoff. These municipal permits include Storm Water Management Plans (SWMPs). A key part of the SWMP is the development of Best Management Practices (BMPs) to reduce pollutant loads. Certain businesses and projects within the jurisdictions of these municipalities are required to prepare Storm Water Pollution Prevention Plans (SWPPPs) which establish the appropriate BMPs to gain coverage under the municipal permit. On October 29, 1999, the U.S. USEPA finalized the Storm Water Phase II rule which requires smaller urban communities with a population less than 100,000 to acquire individual storm water discharge permits. The Phase II rule also requires construction activities on one to five acres to be permitted for storm water discharges. Individual storm water NPDES permits are required for specific industrial activities and for construction sites greater than five acres. State-wide general storm water NPDES permits have been developed to expedite discharge applications. They include the State-wide industrial permit and the State-wide construction permit. A prospective applicant may apply for coverage under one of these permits and receive Waste Discharge Requirements (WDRs) from the appropriate RWQCB. WDRs establish the permit conditions for individual dischargers. Phase II of the stormwater permit program, when promulgated, will require permits for construction sites of one to five acres.

Section 303(d) of the CWA requires the SWRCB to list impaired water bodies in the State and determine total maximum daily loads (TMDLs) for pollutants or other stressors impacting water quality. The California 303(d) list was completed in March of 1999. TMDLs have yet to be determined for most of the identified impaired water bodies, although a priority schedule has been developed to complete the process in the region within 13 years. The RWQCBs will be responsible for ensuring that total discharges do not exceed TMDLs for individual water bodies as well as for entire watersheds.

The RWQCBs also coordinate the State Water Quality Certification program, or Section 401 of the CWA. Under Section 401, states have the authority to review any federal permit or license that will result in a discharge or disruption to wetlands and other waters under state jurisdiction, to ensure that the actions will be consistent with the state's water quality requirements. This program is most often associated with Section 404 of the CWA which obligates the U.S. Army Corps of Engineers to issue permits for the movement of dredge and fill material into and from "waters of the United States."

Water quality of regional surface water and groundwater resources is affected by point source and non-point source discharges occurring throughout individual watersheds. Regulated point sources, such as wastewater treatment effluent discharges, usually involve a single discharge into receiving waters. Non-point sources involve diffuse and non-specific runoff that enters receiving waters through storm drains or from unimproved natural landscaping. Common non-point sources include urban runoff, agriculture runoff, resource extraction (on-going and historical), and natural drainage. Within the regional Basin Plans, the RWQCBs establish water quality objectives for surface water and groundwater resources and designate beneficial uses for each identified waterbody.

California Water Code, Division 7, Chapter 5.6 established a comprehensive program within the SWRCB to protect the existing and future beneficial uses of California's enclosed bays and estuaries. The Bay Protection and Toxic Cleanup Plan (BPTCP) has provided a new focus on the SWRCB and the RWQCBs efforts to control pollution of the State's bays and estuaries by establishing a program to identify toxic hot spots and plan for their cleanup. In June 1999, the SWRCB published a list of known toxic hot spots in estuaries, bays, and coastal waters.

Other state-wide programs run by the SWRCB to monitor water quality include the California State Mussel Watch Program and the Toxic Substances Monitoring Program. The Department of Fish and Game collects water and sediment samples for the SWRCB for both these programs and provides extensive state-wide water quality data reports annually. In addition, the RWQCBs conduct water sampling for Water Quality Assessments required by the CWA and for specific priority areas under restoration programs such as the Santa Monica Bay Restoration Program.

Water Supply

Local sources of water account for approximately 26 percent of the total volume consumed annually in the Southern California Association of Governments (SCAG) area. Local sources include surface water runoff and groundwater.

The largest surface water sources in the region are the Colorado, the Santa Ana, and the Santa Clara River systems. Major groundwater basins in the region include the Central, Raymond, San Fernando, and San Gabriel basins (Los Angeles County); the Upper Santa Ana Valley Basin system (San Bernardino and Riverside counties); the Coastal Plain Basin (Orange County); and the Coachella Valley Basin (Riverside County).

Local water resources are fully developed and are expected to remain relatively stable in the future on a region-wide basis. However, local water supplies may decline in certain localized areas and increase in others. Several groundwater basins in the region are threatened by overdraft conditions, increasing levels of salinity, and contamination by agricultural land to urban development, thereby reducing the land surface available for groundwater recharge. Increasing demand for groundwater may also be limited by water quality, since levels of salinity in sources currently used for irrigation could be unacceptably high for domestic use without treatment.

Metropolitan Water District of Southern California's (MWD's) available supplies are diverse and include State Water Project (SWP) deliveries, Colorado River deliveries (according to Federal apportionments and guidelines), water transfers and exchanges, storage and groundwater banking programs, and State and Federal initiatives (such as the California Water Use Plan for the Colorado River and Delta Improvements) (MWD, 2002).

The demand forecasts and supply capabilities have been compared over the next 20 years and under varying hydrologic conditions. These comparisons determine the supplies that can be reasonably relied upon to meet projected supplemental demands and to provide resource reserves that can provide a margin of safety to mitigate against uncertainties in demand projections and risks in implementing supply programs (MWD, 2002).

In summary, this analysis finds that current practices allow MWD to bring water supplies on-line at least ten years in advance of demand with a very high degree of reliability. If all imported water supply programs and local projects proceed as planned, with no change in demand projections, reliability could be assured beyond twenty years (MWD, 2002).

Groundwater

Groundwater provides most of the region's local (i.e., non-imported) supply of fresh water. Many cities within the area augment imported water supplies with groundwater from underlying groundwater basins. Groundwater basins are recharged through local precipitation and through imported water applied through injection wells or percolation ponds. Groundwater basins in California are generally not managed by overseeing authorities which allows overlying property owners to extract water to the extent that other users are not impaired. However, through court decisions, several basins in the South Coast area have become adjudicated. Adjudicated groundwater basins are managed through a watermaster assigned by the court. The watermaster manages the distribution of extracted water and is responsible for maintaining water quality.

Recent efforts to store recycled water and surplus water in groundwater basins for use during drought periods have proven successful. These conjunctive use projects, in place of surface reservoirs, promise to play a major role in future water management planning.

The general quality of groundwater in the district has degraded substantially from historic levels. Much of the degradation reflects land uses. Fertilizers and pesticides typically used on agricultural lands can infiltrate and degrade groundwater. Septic systems and leaking underground storage tanks can also impact groundwater quality. Urban runoff has been proven to be a significant source of pollutants. Pollutants in urban runoff include urban debris, suspended solids, bacteria, viruses, heavy metals, pesticides, petroleum hydrocarbons, and other organic compounds. In addition, when increased withdrawals from groundwater basins exceed safe yields, salt water intrusion from the ocean further degrades groundwater quality. Conversely, as impervious surfaces in urban areas increase, the rate of natural surface recharge declines.

Surface Runoff

Surface runoff augments groundwater and surface water supplies. However, the regional demand far surpasses the potential natural recharge capacity. The arid climate, summer drought, and increased urbanization contribute to the inadequate natural recharge. Urban and agricultural runoff can contain pollutants, which decrease the quality of local water supplies. Runoff captured in storage reservoirs varies widely from year to year depending on local precipitation, averaging 130,000 acre-feet per year within the MWD service area. Within the desert regions, the amount is considerably less, given the low annual rainfall and the relatively few surface reservoirs

Water Demand

Estimating total water use in the district is difficult because the boundaries of supplemental water purveyors' service areas bear little relation to the boundaries of the district and there are dozens of individual water retailers within the district. Water demand in California can generally be divided between urban, agricultural, and environmental uses. In the SCAG area, 74 percent of potable water is provided from imported sources. Annual water demand fluctuates in relation to available supplies. During prolonged periods of drought, water demand can be reduced significantly through conservation measures.

Increases in California's water demand are due primarily to the increases in population. According the DWR Bulletin 160-98, urban water demand will increase by about 3.2 million acre-feet in average years. However, agricultural water demand is forecast to be reduced by 2.3 million acre-feet (one acre-foot equals approximately 325,850 gallons) by 2020 due to anticipated increases in water use efficiency and reductions in irrigated agricultural acreage. Environmental water demand will increase only slightly by 2020. Measures to ensure an adequate water supply include conservation programs, recycling, and increased storage facilities (SCAG, 2001).

The MWD monitors demographics in its service area using official SCAG and San Diego Association of Governments (SANDAG) growth projections. In the service area of (MWD), the population increased approximately seven percent from 1995 through 2000. This is an increase of about 211,000 people per year over the five-year period. Based on official SCAG and SANDAG growth projections, the population in MWD service area is expected to be 21.3 million people by 2020, reflecting an annual increase of 223,000 per year (MWD, 2002).

In 1998, 3.5 million acre-feet of water was used in the MWD service area. Of this total, 3.2 million acre-feet (91 percent) were used for municipal and industrial purposes (M&I), and 0.3 million acre-feet (nine percent) were used for agricultural purposes. Due to urbanization and market factors, including the price of water, agricultural water use has declined as the relative share of M&I water use has increased over time. Agricultural water use has declined from 14 percent in 1980 to 8.3 percent in 1997 (MWD, 2002).

Based on official SCAG and SANDAG growth projections, total water use is expected to grow from a projected 3.8 million acre-feet in 2000 to 4.8 million acre-feet in 2020. All water demand projections reflect demands under normal weather conditions. The water demand forecasts account for projected implementation of California's conservation best management practices (BMPs), water savings resulting from plumbing codes, and savings due to price effects. Per capita water demand in MWD's service area has decreased significantly since the 1980s, but is expected to remain relatively constant as rising affluence and growth in hot and dry areas dampen the effects of intense conservation efforts (MWD, 2002).

Nonresidential water use represents about 25 percent of the total Municipal and Industrial (M&I) demand in the MWD's service area. The nonresidential sector represents water that is used by businesses, services, government, institutions (such as hospitals and schools), and industrial (or manufacturing) establishments. Within the commercial/institutional category, the top water users include schools, hospitals, hotels, amusement parks, colleges, laundries, and restaurants. In southern California, the major industrial users include electronics, aircraft, petroleum refining, beverages, food processing, and other industries that use water as a major component of the manufacturing process (MWD, 2002).

CHAPTER 4

ENVIRONMENTAL IMPACTS

INTRODUCTION

The state CEQA Guidelines require environmental documents to identify significant environmental effects that may result from a proposed project [CEQA Guidelines §15126.2(a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited to, the resources involved; physical changes; alterations of ecological systems; health and safety problems caused by physical changes; and other aspects of the resource base, including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible [CEQA Guidelines §15126.4].

State CEQA Guidelines indicate that the degree of specificity required in a CEQA document depends on the type of project being proposed [CEQA Guidelines §15146]. The detail of the environmental analysis for certain types of projects cannot be as great as for others. For example, the environmental document for projects, such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan, should focus on the secondary effects that can be expected to follow from the adoption or amendment, but the analysis need not be as detailed as the analysis of the specific construction projects that might follow. As a result, this ~~Draft~~ Final EA analyzes impacts on a regional level and impacts on the level of individual industries or individual facilities only where feasible.

The categories of environmental impacts to be studied in a CEQA document are established by CEQA [Public Resources Code, §21000 et seq.], and the CEQA Guidelines, as promulgated by the State of California Secretary of Resources. Under the state CEQA Guidelines, there are approximately 17 environmental categories in which potential adverse impacts from a project are evaluated. Projects are evaluated against the environmental categories in an Environmental Checklist and those environmental categories that may be adversely affected by the proposed project are further analyzed in the appropriate CEQA document.

POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Pursuant to CEQA, an Initial Study, including an environmental checklist, was prepared for this project (see Appendix D). Of the 17 potential environmental impact categories, only two (air quality and hazards) were identified as being potentially adversely affected by the proposed project. No comment letters were received on the Initial Study.

The two environmental impact areas that were identified as potentially significant in the Initial Study are further evaluated in detail in this EA. The environmental impact analysis for each environmental topic incorporates a "worst-case" approach. This approach entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method ensures that all potential effects of the proposed project are documented for the decision-makers and the public.

Accordingly, the following analyses use a conservative "worst-case" approach for analyzing the potentially significant adverse environmental impacts associated with the implementation of the proposed project.

Air Quality

Significance Criteria

To determine whether or not air quality impacts from adopting and implementing the proposed rule are significant, impacts will be evaluated and compared to the following criteria. If impacts exceed any of the following criteria, they will be considered significant. All feasible mitigation measures will be identified and implemented to reduce significant impacts to the maximum extent feasible. The proposed project will be considered to have significant adverse air quality impacts if any one of the thresholds in Table 4-1 are equaled or exceeded.

Emission Inventory and Reductions

Table 4-2 provides a summary of existing and proposed control technology and control efficiency for each source category at CPCC and TXI and provides an estimate for potential additional emission reductions.

A PM emissions inventory was developed from information obtained through the 2004 survey, USEPA AP-42 emission factors, and source tests. Emission factors are presented in Appendix C, Table C-3. A summary of source test values are presented in Table 3-5 in Chapter 3. Detailed emission estimates are not presented, since both facilities have declared their process throughputs confidential. A summary of the PM emissions inventory is presented in Table 4-3.

The overall emission reduction of two pounds per day presented in Table 4-3, reflects the lowest potential additional reductions (50 percent) from Table 4-2 that could be achieved with proposed future control technology.

Direct and Indirect Air Quality Impacts

In addition to the control technologies identified in Table 4-3, the PM emission standards are expected to be achieved by new or modified air pollution control devices or techniques at both CPCC and TXI. Specifically, the following components of PR 1156 can be attributed to creating a direct air quality benefit (i.e., in this case, a reduction of PM emissions):

- Enclosing loading and unloading
- Covering all conveying systems and enclosing all transfer points
- Application of dust suppressants during material loading and unloading to storage piles
- Installing and maintaining dust curtains, shrouds, and gaskets along belt conveying systems
- Use of stackers or chutes, as necessary, to minimize the height materials fall.

- Enclosing all crushing, screening, drying, blending and milling, grinding, drying, heating, mixing, sacking, palletizing, packaging, and other related operations and venting them to baghouses.; Operators may install wind fences with a ~~fog~~ wet suppression system ~~may be used~~ in lieu of enclosing crushers.

Table 4-1
Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
Oxides of nitrogen (NOx)	100 lbs/day	55 lbs/day
Volatile organic compound (VOC)	75 lbs/day	55 lbs/day
Particulate matter less than 10 microns in size (PM10)	150 lbs/day	150 lbs/day
Sulfur Oxide (SOx)	150 lbs/day	150 lbs/day
Carbon monoxide (CO)	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants and Odor Thresholds		
Toxic air contaminants (TACs) (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment) Hazard Index ≥ 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants[(a)]		
NO_2 1-hour average annual average	In attainment; significant if project causes or contributes to an exceedance of any standard: 0.25 parts per million (state) 0.053 parts per million (federal)	
PM10 24-hour average annual geometric average annual arithmetic mean	 10.4 ug/m^3 (recommended for construction)[(b)] 2.5 ug/m^3 (operation) 1.0 ug/m^3 20 ug/m^3	
Sulfate 24-hour average	 1 ug/m^3	
CO 1-hour average 8-hour average	In attainment; significant if project causes or contributes to an exceedances of any standard: 20 parts per million (state) 9.0 parts per million (state/federal)	

(a) Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
(b) Ambient air quality threshold based on SCAQMD Rule 403.
ug/m3 = microgram per cubic meter; mg/m3 = milligram per cubic meter.

Table 4-2
Emission Reductions Estimates

Source	Existing Control Technology	Existing Control Efficiency	Proposed Control Technology	Proposed Control Efficiency	Additional Emission Reduction
Kiln/Clinker Cooler	Baghouses with conventional filters	95%-99%	Baghouses with high efficiency filters	99.5%	50%-90%
Primary Crusher (Feed Stream)	Water spray	Up to 50%	Wind fence and fog system	Up to 80%	Up to 60%
Primary Crusher (Product Stream)	Baghouse with conventional filters	95%-99%	Baghouse with high efficiency filters	99.5%	50%-90%
Conveyors	Partially covered conveyers	Up to 80%	Covered existing conveyors, new enclosed conveyors	Up to 99.5%	Up to 98%
Other Crushers, Screens, Mills, and Others	Baghouses with conventional filters	95%-99%	Baghouses with high efficiency filters	99.5%	50%-90%
Raw Materials and Products Storage (Silos, Bins, Hoppers, Tanks)	Baghouses with conventional filters	95%-99%	Baghouses with high efficiency filters	99.5%	50%-90%
High Emissive Storage Piles	Watering or partially enclosed open piles	Up to 50%	Full enclosure	95% or more	90%
Other Open Storage Piles	Watering or partially enclosed open piles	Up to 50%	Partially enclosed, chemical stabilizer, or tarp	Up to 80%	Up to 60%
Vehicle traffic roadways and areas	Watering, chemical stabilizer, and cleanup	Up to 50%	Sweeping, chemical stabilizer, and increase facility cleanup	Up to 80%	Up to 60%

Source: ~~Personal communication based on confidential information from Minh Pham to James Koizumi on July 20, 2005.~~SCAQMD, Draft Staff Report Proposed Rule 1156 Further Reduction of Particulate Emissions from Cement Manufacturing Facilities, October 4, 2005.

Table 4-3
PM Emission Inventory and Emission Reductions

Equipment/Process	PM Inventory (ton/day)	PM Emission Reduction (ton/day)
Kilns and Clinker Coolers[a]	0.4	0.2
Other Processes[*]	0.5[b] - ~~0.6~~ 0.7[c]	0.3[b] - 0.5[c]
Open Piles[a]	0.07	0.04
Vehicle Traffic	3	1.5
Total	4	2

Source: ~~Personal communication based on confidential information from Minh Pham to James Koizumi on July 20, 2005.~~SCAQMD, Draft Staff Report Proposed Rule 1156 Further Reduction of Particulate Emissions from Cement Manufacturing Facilities, October 4, 2005.

Includes primary crusher activities; conveyors; and other crushers, screen, mill, etc.

d) Recent source tests conducted in 2005 at TXI and CPCC by SCAQMD staff showed that the proposed limit of 0.01 grain/dscf and 50% reduction can be achieved with high efficiency coated filters. Operators at TXI conducted source testing for their kiln #1, #2 grey finish mill, and #2 raw mill baghouses; operators at CPCC conducted source testing for their D4-1 and D4-2 finish mill baghouses; and SCAQMD staff conducted source testing for the kiln #1 baghouse at CPCC, the #2 white cement kiln and the #2 grey cement finishing mill air separator at TXI. Since these source tests do not reflect all equipment at TXI and CPCC, the emission inventory was not estimated using the results in these source tests.

e) Assuming that the current control efficiency for baghouses is 99%, and the future control efficiency for baghouses is 99.5%, the PM inventory for other process equipment, except kilns and clinker coolers, would be 0.5 ton per day and the PM emission reduction would be 0.3 ton per day.

f) Assuming that the current control efficiency for baghouses is 95%, and future control efficiency for baghouses is 99.5%, the PM inventory for other process equipment, except kilns and clinker coolers would be 0.7 ton per day. The PM emission reduction would be 0.5 ton per day, excluding the emission reductions from secondary crushers, screens, and associated belt conveying system.

- Use of dust suppressants during crushing, screening, drying, blending and milling blending, drying, heating, mixing, sacking, palletizing, packaging**,** operations
- Limiting kilns and clinker cooler outlet concentrations to 0.01 grains/dscf PM ~~or 99.95 percent overall control efficiency~~
- Vent silos, bins and hoppers to baghouses
- Enclose large, active clinker storage piles with high emissivity
- Apply chemical dust suppressants to material, enclose material in a three-sided barrier or tarp material for all other active or inactive storage piles
- Application of chemical dust suppressants to unpaved haul roads
- Application of chemical dust suppressant or wash gravel to all other unpaved roads
- Sweeping of paved roads once a day
- Pave closest 0.25 mile of roads leading to public roadways
- Installation and use of rumble grates, truck washers and wheel washers to reduce track-out, if necessary to meet visual requirements
- Prevent material spillage from trucks to public roadways and fugitive dust during transport

In addition, to comply with PR 1156, the project can generate an indirect adverse air quality impact because of construction activities related to the installation, or modification of air pollution control equipment, and through ongoing daily operations related to the air pollution control equipment. During the installation/modification phases, emissions will be generated by onsite construction equipment and by offsite vehicles used for worker commuting. After construction activities are completed, emissions may be generated by the offsite vehicles used to haul away material collected by the air pollution control equipment.

Assumptions Based on Incremental Number of Add-on Pollution Control Equipment

To estimate the "worst-case" construction- and operational-related emissions associated with the implementation of PR 1156, the following assumptions were made. Appendix C presents calculation assumptions used to estimate indirect construction- and operational-related air quality impacts. Of the two facilities in the district affected by PR1156, the following general assumptions were made:

- Both facilities have most of their conveyors covered. The preliminary Staff Report for 1156 estimated that approximately 1,300 feet of open conveyors would need to be retrofitted or have covers repaired. Based on discussions with both facilities during site visits covers can be added or repaired with electric lifts or manually. Rough terrain forklifts and diesel fueled delivery truck trips would be required.
- Most transfer points at both facilities are also covered. The Draft Staff Report for PR 1156 estimates that an additional 10 transfer points at each facility would need to be covered. Rough terrain forklifts and diesel fueled delivery truck trips would be required.
- One facility would be required to control an existing primary crusher. Operators at the facility propose to use windscreens and a ~~fog~~ wet suppression machine to control particulate emissions from the crusher. Rough terrain forklifts and diesel fueled delivery truck trips would be required.
- Reconstruction or replacement of existing baghouse systems are not expected to be needed to satisfy PR 1156 requirements. Facilities may need to replace existing filters with coated or high efficiency filter bags.
- For "worst-case" construction calculations, within six months after the date of rule adoption, both facilities are expected to control some storage piles either within ~~domes~~ enclosure storage areas, silos or closed-top three-sided enclosures. Subsequent to the release of the Draft EA, PR 1156 was modified to remove the general open storage pile requirement for storage piles with a silt content greater than five percent and where the loading and unloading activity occurs at a cumulative rate of more than 50,000 tons per year. This provision was replaced with a requirement to store clinker in a enclosed area if the total area for clinker storage is greater than four acres, or if the cumulative 12-month rolling average is more than 80,000 tons per month by December 31, 2006 or no later than one calendar year from the date these thresholds are exceed. Based on throughput, under the original requirements it was ~~is~~ assumed that each facility would install one full enclosure and one three-sided barrier. Under the current requirements no facility would need to enclose existing clinker areas. Operators at CPCC already store clinker in a three-sided enclosure. TXI does not currently meet the area or production thresholds to need to enclose

clinker storage areas. Since the Governing Board may not choose to adopt the current version of PR 1156, and the analysis for the original requirements generate more conservative secondary emission; no changes in the assumptions would have been to the construction estimates. The three-sided barrier at CPCC would use material and equipment currently related to removal of overburden, which is the material that cannot be used for the manufacture of cement. Since this equipment is currently used to remove the overburden and instead would be used to build the three-side barrier from the overburden, no new adverse impacts would be generated by building the three-sided barrier at CPCC. Construction of these enclosures would require rough terrain forklifts, cranes, tractors/loaders/backhoes, generator sets, and diesel fueled delivery trucks.

- In general, no or limited construction emissions from grading are anticipated because the areas where construction would occur are already graded and paved. Further, because of space limitations, when installing domes or covered three-sided enclosures, it is assumed that these structures would be built around the existing storage piles (i.e., the storage piles will not be moved or disturbed during the building of these structures).
- ~~Due to planning requirements, it is not anticipated that any of the domes will be built prior to January 2006. Therefore, to derive the peak~~ Peak construction-related emissions~~, the construction activities~~ are expected to occur over a 12-month period for the "worst-case" analysis scenario.
- One facility currently controls fugitive dust from internal unpaved roads with chemical stabilizers. Therefore, emissions associated with chemical stabilizers will be considered apart of the baseline emissions and not emission reductions from the proposed project; and therefore, were included in the peak daily construction emission totals that were compared to the significance thresholds. All active internal roads at the other facility are paved. Emissions associated with applying chemical stabilizers are considered to be part of the project and were included in the peak daily construction emission totals that were compared to significance thresholds.
- Because requirements of PR 1156 must be met by December 31, 2006, the "worst-case" construction emissions were estimated by assuming that construction at both facilities would occur simultaneously. As stated above, to provide a conservative analysis no changes to the enclosure assumptions have been made.

Construction Emission Impacts

Construction-related emissions can be distinguished as either onsite or offsite. Onsite emissions generated during construction principally consist of exhaust emissions (NOx, SOx, CO, VOC, and PM10) from heavy-duty construction equipment operation and fugitive dust (as PM10) from disturbed soil. Offsite emissions during the construction phase normally consist of exhaust emissions and entrained paved road dust (as PM10) from worker commute trips, material delivery trips, and haul truck material removal trips to and from the construction site.

PROJECT-SPECIFIC IMPACT: The implementation of the proposed rule will trigger construction activities associated with the covering of the remaining open conveyors and transfer points and storage pile fugitive dust controls. Construction activities associated

with PR 1156 would result in emissions of VOC, NOx, SOx, CO and PM10. Significance determinations are based on the maximum daily emissions during the construction period for both facilities affected by the proposed project ending on December 31, ~~2007~~ 2010, which provides a worst-case analysis of the anticipated construction emissions. Construction activities will consist of completing projects necessary to reduce process and fugitive PM10 emissions. Construction emissions are expected from the following equipment and processes:

- Construction Equipment (i.e., fork lifts, cranes, dump trucks, backhoes, welders, etc)
- Equipment Delivery and On-site Travel
- Heavy Diesel Trucks
- Construction Workers Commuting
- Fugitive Dust Associated with Site Construction Activities
- Fugitive Dust Associated with Travel on Unpaved/Paved Roads

Existing Facilities

Construction of Full Enclosures

~~PR 1156 (d)(5)(B) would require operators to enclose storage piles of materials with a silt content of greater than five percent and where loading and unloading activity exceeding 50,000 tons per year. Staff estimates that only one storage pile at each facility would be fully enclosed. Staff estimates that these enclosures would be approximately one acre in size. The types and amounts of equipment estimated to be needed to build the domes are presented in Table 4-4.~~ Subsequent to the release and circulation of the Draft EA for PR 1156, the requirement for enclosing storage piles was modified. The original proposed rule required operators to enclose any active open piles of materials with a silt content more than five percent and where loading and unloading activity occurs at a rate of more than 50,000 tons per year. PR 1156 has been modified to require operators to enclose active clinker piles if the total area is more than four acres or if the affected facility's cumulative 12-month rolling average loading/unloading or processing rate of clinker is more than 80,000 tons per month by December 31, 2006, or no later than one calendar year from the date these thresholds are exceeded.

Original Analysis in the Draft EA

The Draft EA estimated that one storage pile at each facility would require a one acre concrete dome enclosure. Currently, neither facility would be required to build an enclosure. Operators at CPCC have already enclosed clinker in a building. TXI does not have clinker piles that are either greater than four acres in size or have a cumulative 12-month rolling average loading/unloading rate of clinker (or processing rate of clinker) that is more than 80,000 tons per month. The analysis for the original version of the PR 1156 resulted in NOx concentration emission for 248 pounds per day, which exceeds the NOx construction significance thresholds of 100 pounds per day.

Analysis of PR 1156 Modification

Even if only the three-sided enclosures and miscellaneous construction is completed (delivery truck and forklift emissions from installing conveyor covers, transfer point control, replacing baghouse filters, enclosing a primary crushers and adding a wet suppression

system, etc.), the NOx emissions from the current proposed project (81 pounds of NOx per day for three-sided enclosures + 67 pounds of NOx per day for miscellaneous construction = 148 pounds of NOx per day) would still be greater than the significance threshold of 100 pounds of NOx per day (Table 4-6). Therefore, the analysis of version of PR 1156 as modified would not require changing any conclusions of the Draft EA, and the project would still be significant for NOx from construction activities.

However, to be conservative, and because the Governing Board could still adopt the original storage pile enclosure requirements or any of the alternatives evaluated in the EA, NOx emissions from construction (248 pounds per day) were kept consistent with those circulated in the Draft EA for public review and comment. This is greater than the significance threshold for construction-related NOx emissions is 100 pounds per day. Therefore, the proposed project would be significant for NOx construction emissions.

Analysis of Possible Future Construction - Not Apart of Proposed Project

Representatives of TXI have stated that production of gray clinker may increase to be either greater than four acres in size or have a cumulative 12-month rolling average loading/unloading rate of clinker (or processing rate of clinker) that is more than 80,000 tons per month. Since the increase at TXI will occur after the date PR 1156 would be adopted, and is a business decision unrelated to PR 1156, the construction of the future enclosure that may be required at that time is not a consequence of adopting PR 1156.

However, future increases in the size of the clinker storage pile could be subject to PR 1156. Because future operations may require installation of a storage structure for clinker to comply with PR 1156, to be complete, the following qualitative analysis of the enclosure of a clinker storage area TXI is presented as follows: representatives of TXI have stated that if the future increased clinker storage requires an enclosure; operators would construct a steel-sided building rather than a concrete dome. The construction of a steel-sided building would require less construction activities and equipment. Steel posts could be used to anchor the building rather than the excavation required to anchor the concrete dome. While the current proposal requires more area to be enclosed four acres versus the estimated one acre as analyzed pursuant to the earlier version of PR 1156, additional equipment is not expected. Construction is estimated for a peak day of construction. Based on a survy of small construction sites (five acres or less) the peak day construction equipment and activities would not increase, but the overall time to build the larger enclosure would be lengthened. According to the construction analysis in the Draft EA (Table 4-5), NOx emissions from a single enclosure (49.8 pounds per day from Table 4-5) and other construction (81 pounds per day from three-sided enclosures, and 67 pounds per day from miscellaneous construction) would be significant (49.8 + 81 + 67 = 198 lb/day is greater than the significance threshold of 100 lb/day). Therefore, enclosing the clinker storage area at TXI and the construction of three-sided enclosures along with miscellaneous construction would generate less adverse air quality impacts than the language used to develop the Draft EA. This is still less than the construction emissions estimate for the original requirements of PR 1156 and does not change the conclusions presented in the Draft EA. As stated earlier, because the Governing Board could still adoped the original storage pile enclosure requirements or any of the alternatives evaluated in the EA, NOx emissions from

construction (248 pounds per day) were kept consistent with those circulated in the Draft EA for public review and comment. This is greater than the significance threshold for construction-related NOx emissions is 100 pounds per day. Therefore, the proposed project would be significant for NOx construction emissions.

Conclusion for Construction of Full Enclosures

Emissions from building a full enclosure are presented in Table 4-5. Maximum daily emissions from building both full enclosures simultaneously are presented in Table 4-6. PR 1156 would result in NOx concentration emission for 248 pounds per day, which exceeds the NOx construction significance thresholds of 100 pounds per day. No other criteria construction emissions would exceed significance thresholds. Detailed emission calculations are presented in Appendix C, Tables C-4 and C-5.

Construction of Three-sided Barriers

PR 1156 (d)(5)(C) would require operators to stabilize storage piles of materials with a silt content of five percent or less, or loading and unloading activity of 50,000 tons per year or less. Stabilization may include three-sided barriers, wind fences, and tarps. TXI contracted a consultant to evaluate the storage piles at their facility.

Operators at CPCC may tarp the inactive area of piles with silt contents of five percent or less, or where loading and unloading activity occurs at a rate 50,000 tons per year or less, which would meet the proposed requirements of (d)(5)(c)(iv). TXI may install three-sided barriers with either two feet of visible freeboard or a roof to comply with PR 1156. It was assumed that affected facilities would build concrete tilt-up three-sided enclosures. Enclosures built out of steel may generate fewer emissions. In addition, three-sided enclosures at TXI may be built out from existing structures, which would also generate fewer emissions. A list of equipment types and amounts that would be necessary to build the three-sided barrier is presented in Table 4-4. Emissions from constructing the three-sided enclosure are presented in Table 4-5 and 4-6 and detailed in Appendix C, Tables C-4, C-6, and C-7. CPCC has one three sided enclosure currently in use, which would meet the proposed requirements of (d)(5)(c)(ii).

Operators at CPCC may build a 2,000-foot long, 20-foot height, and 60-foot wide barrier around their additive storage area. The barrier would be built with overburden (waste) rock from the quarry. Currently the waste rock is extracted from the quarry and placed in a waste rock storage area approximately one mile from the quarry. The waste rock is then sold and hauled off-site.

Table 4-4
Estimated "Worse-Case" Construction Equipment

Excavation for Dome or Three sided Enclosure	Construction of a Full Enclosure	Construction of a Three-sided – Concrete Pouring	Construction of a Three-sided – Tilt-up of Panels	Construction of Conveyor Covers, Dust Curtains, Shrouds, Gaskets, Stackers, Chutes, Screening and Crushing Operations
1 – Excavator	2 – Cranes	1 – Rough terrain fork lifts	1 – Crane	
1 – Tractor, loader, or backhoe	1 – Rough terrain fork lifts	2 – Cement mixers	1 – Generator set	2 – Rough terrain fork lifts
	2 – Standard fork lifts	2 – Electric welders		2 – Standard fork lift
	2 – Cement mixers	1 – Generator set		
	2 – Electric welders			
	1 – Generator set			

Table 4-5
Estimated "Worst-Case" Daily Air Quality Emissions from Construction of Different Types of Control Technology to Comply with PR 1156

Sources	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Construction of a Full Enclosure					
Phase I - Excavation Emissions	13.6	2.3	21.0	2.6	2.0
Phase II - Dome Construction Emissions	24.4	5.7	49.8	3.9	2.9
Peak Daily Dome Construction Emissions	**24.4**	**5.7**	**49.8**	**3.9**	**2.9**
Construction of a Three-Sided Enclosure					
Phase I - Excavation Emissions	13.6	2.3	21.0	2.6	2.0
Phase II - Concrete Pouring Emissions	12	2.5	19.6	1.1	1.2
Phase III - Panel Tilt-up Emissions	10.7	2.3	27	1.5	1.0
Peak Daily Three-Sided Enclosure Emissions	**13.6**	**2.5**	**27.0**	**2.6**	**2.0**
Peak Daily Miscellaneous Construction Emissions	**14.6**	**3.7**	**33.5**	**2.2**	**2.2**

Construction of a full enclosure consists of two non-overlapping phases: excavation for the footer and building the dome. Emissions for constructing a dome are more conservative than for construction a building; therefore, these emissions are more conservative than the current version of PR 1156, which may require the construction of an enclosed clinker storage area instead of the original requirements for enclosure of highly emissive storage pile comprise of any material. Since the Governing Board may adopted either proposal or any alternative, no changes to this table has been made.

Peak daily dome construction emissions – the maximum emissions from either of the two non-overlapping phases.

Construction of a three-sided enclosure consists of three non-overlapping phases: excavation for the footer, concrete pouring into the forms, and panel tilt-up. Tilt-up walls were assumed for "worst-case emissions," if cast-in-place walls are used cranes are not needed.

Peak daily three-sided enclosure emissions – the maximum emissions from any of the three non-overlapping phases.

Peak daily miscellaneous construction emissions – delivery truck and forklift emissions from installing conveyor covers, transfer point control, replacing baghouse filters, enclosing a primary crusher and adding a ~~fog~~ wet suppression system, etc. at one facility.

Table 4-6
Total Estimated "Worst-Case" Daily Air Quality Emissions from Construction of Control Technology to Comply with PR 1156

Sources	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Construction of Two Full Enclosures	48.8	11.4	99.6	7.8	5.8
Construction of Three Three-Sided Enclosures	40.8	7.5	81.0	7.8	6.0
Miscellaneous Construction	29.2	7.4	67	4.4	4.4
Maximum Daily Emissions	**119**	**26**	**248**	**20**	**16**
Significance Threshold	550	75	100	150	150
Exceed Significance?	No	No	Yes	No	No

Construction of two domes – construction of one dome at each affected facility. The current version of PR 1156 would not require the construction of any domes because CPCC has already enclosed clinker piles and the production at TXI is below the requirements for enclosure. However, since the emission for two full enclosures is more conservative no change has been made to this table.
Construction of three three-sided enclosures – construction of three three-sided enclosure at TXI. CPCC is expected to build a barrier from overburden rock from their mining operations. Emissions from the CPCC barrier are the same as the emissions currently used to sell the overburden rock; therefore, are not included.
Miscellaneous construction emission from both facilities.

The waste rock barrier would be built with the same off-road equipment that is currently used to extract the waste rock from the quarry and place it in a storage site one mile from the quarry. Construction of the barrier would temporarily reduce the length of on-site truck trips, since the barrier would be built one-half mile closer to the quarry than the waste rock storage site. In addition, off-site waste rock haul trips would be eliminated while the barrier is built since the rock would be used for the barrier instead of being sold. Therefore, building the rock barrier around the additive storage area would temporarily reduce diesel exhaust and fugitive dust criteria emissions from the reduction of truck trips. No credit would be taken for these temporary criteria emission reductions in either the emissions inventory or as mitigation.

Based on discussions with affected facility operators, it is unlikely operators would build three-sided enclosures for inactive storage piles.

Miscellaneous Construction

Replacing Filter Bags

As stated in the Areas of Controversies section in Chapter 1, existing baghouses at the affected facilities may already be compliance with the 0.01 grain per dry standard cubic meter standard. Even if existing baghouses do not meet the standard, it is believed that the existing filter bags would be replaced with high efficiency filter bags and that no new baghouse systems would be required. Replacing the filter bags may generate minor emissions that are apart of the miscellaneous construction emission in Table 4-5 and detailed in Appendix C, Table C-8.

Construction for silos, bins and hoppers

PR 1156 would require that raw materials and products stored in a silo, bin or hopper be vented to a baghouse with an outlet emission level of 0.01 grain per dry standard square foot ~~or a collection efficiency of 99.95 percent~~. The baghouse ventilation system would be required to have ~~a capture efficiency of at least 99.5 percent or~~ the minimum capture velocity requirement specified in the US Industrial Ventilation Handbook. Construction of new structures is not expected to meet the silo, bin and hopper requirements. Minor construction may be required to install overlapping flaps, sliding doors or other equivalent devices. Minor emissions are estimated as part of the miscellaneous construction emission in Table 4-5 and detailed in Appendix C, Table C-8.

Construction for Loading and Unloading Systems

Operators would be required to conduct material loading and unloading to and from trucks, railcars, or other modes of transportation through an enclosed system that is vented to SCAQMD permitted air pollution control equipment. If the enclosure is a building, the building would require overlapping flaps, sliding doors or other equivalent devices approved by the Executive Officer, which would be required to remain closed except to allow vehicles to enter or exit. Construction of new structures is not expected to meet the loading and unloading requirements. Minor construction may be required to install overlapping flaps, sliding doors or other equivalent devices. Minor emissions are estimated as part of the miscellaneous construction emission in Table 4-5 and detailed in Appendix C, Table C-8.

Construction of Conveyor Covers

PR 1156 would require that operators cover all conveyors and transfer points. Almost all of the conveyors at both CPCC and TXI are covered or partially covered. Both companies have stated that all conveyors can be covered with minimal construction. Minor emissions would be generated by forklifts and delivery trucks to the facilities. Minor emissions are estimated as part of the miscellaneous construction emission in Table 4-5 and detailed in Appendix C, Table C-8.

Construction of Dust Curtains, Shrouds, Gaskets, and Stackers or Chutes

PR 1156 would require that operators install dust curtains, shrouds, gaskets, and stackers or chutes. Minor emissions would be generated by forklifts and delivery trucks to the facilities. Minor emissions are estimated as part of the miscellaneous construction emission in Table 4-5 and detailed in Appendix C, Table C-8.

Construction of Misting and Water Irrigation Systems

CPCC and TXI are assumed to have misting or dust suppression for operations as part of compliance with Rule 403. Construction for additional misting, water irrigation systems, chemical dust suppressant systems for dust suppressants at transfer points in process equipment, paved roads and/or storage piles would consist of installing nozzles, piping, pumps and electronic instrumentation. This equipment would be attached to existing structures or support structures would be built to support the equipment. Neither, heavy construction equipment nor earthmoving operations are expected to be used to install misting water irrigation systems, chemical dust suppressant systems for dust suppression;

therefore, construction of misting and water irrigation systems and chemical dust suppressant systems is not expected to generate construction emissions.

Construction of Dust Control for Screening, and Crushing, Milling, Griding, Blending, Drying, Heating, Mixing, Sacking, Palletizing, Packaging, and Other Related Operations

PR 1156 would require baghouses for loading, unloading, transferring, crushing, milling, grinding, blending, drying, heating, mixing, sacking, palletizing, packaging, kilns, clicker coolers, and material storage. The baghouses would be required to have an outlet emission level of 0.01 grain per dry standard square foot ~~or a collection efficiency of 99.95 percent~~. The baghouse ventilation system would be required to have ~~a capture efficiency of at least 99.5 percent or~~ the minimum capture velocity requirement specified in the US Industrial Ventilation Handbook. ~~PR 1156 would allow affected facilities to meet emission factors in Table 1-1 in lieu of meeting the baghouse standards for loading, unloading, transferring, crushing, and milling operations.~~ PR 1156 also provides windscreens and ~~fog~~ wet suppression ~~machines~~ systems as an alternative control option to enclosing and venting the feedstream of a primer crusher to a baghouse.

Based on discussions with CPCC and TXI existing enclosed sources are vented to baghouses. Operators at both CPCC and TXI have stated that existing processes that are currently controlled by baghouses may need to have existing filters replaced to comply with PR 1156 standards, but the baghouse systems themselves would not need to be replaced or rebuilt.

Construction of enclosures and baghouses for enclosures would be required for existing open operations. An open primary crusher is the only existing open operation that would need to be controlled. The primary crusher would need to be enclosed and vented to a baghouse or enclosed by wind fences with a roof and ~~fog~~ wet suppression system. Operators at one facility have stated that they would use wind fences with a roof and fog suppression system. Minor emissions would be generated by forklifts and delivery trucks to the facility. Minor emissions are estimated as part of the miscellaneous construction emission in Table 4-5 and detailed in Appendix C, Table C-8.

Construction of Rumble Grates and Wheel Washers

Rule 403 contains track-out requirements that require facilities with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material to install a rumble grate or wheel washer, or pave or use washed gravel to stabilize unpaved roads connecting to public roadways by January 1, 2005. PR 1156 would require that operators install rumble grates and wheel washers, if opacity limits required by the proposed rule cannot be met without them.

SCAQMD staff contacted one vender who can install rumble grates and wheel washers over the paved road without disturbing the road or requiring earthmoving operations. Since it is less expensive it is assumed that affected facilities would choose this option. Emissions from facilities that install rumble grates and wheel washers over a paved road without

disturbing the road or requiring earthmoving operations are considered negligible and do not contribute to construction emission impacts.

Construction Worker Trips
Using a 1.0 average vehicle ridership occupancy, the employee labor force would be 20 workers for each facility. Workers would generate approximately two vehicle trips per day. An estimated 20 mile round trip each day per vehicle (two start-ups per day) was assumed.

Construction at New Facilities
PR 1156 does not require construction of new cement manufacturing facilities, but in the event new cement manufacturing facilities are built, emissions from new facilities subject to PR 1156 would be lower than emission from new facilities not subject to PR 1156, because new facilities would have to apply BACT as well as comply with PR 1156 requirements. After adoption of PR 1156, any construction of new cement manufacturing facilities would occur for reasons unrelated to PR 1156. Like any new land used project, a new cement manufacturing facility would likely be subject to CEQA by the local land use agency and, therefore, would be required to undergo its own CEQA analysis. Therefore, this analysis does not include impacts from new facilities.

Conclusion
Table 4-6 presents the total daily construction emissions from construction worker trips and use of equipment. The calculations demonstrate that the construction has total daily construction emissions that would generate NOx emissions (248 pounds per day) that exceed the SCAQMD's CEQA air quality thresholds for construction emission significance of 100 pounds per day of NOx. Therefore, air quality impacts from construction emissions are considered to be significant. However, while emissions from construction are significant, the emissions are also temporary. While construction would occur between the date the rule is adopted until December 31, ~~2007~~ 2010, emissions would only be significant between the date of rule adoption and December 31, 2006, while the domes and three-side enclosures would be built. Appendix B contains the spreadsheets with the results and assumptions used by the SCAQMD for this analysis.

PROJECT-SPECIFIC MITIGATION: Mitigation measures are required to minimize the significant air quality impacts associated with the construction phase of the proposed project. Mitigation measures focus on the construction emissions of CO, VOC, NOx, and PM10 emissions. Therefore, feasible mitigation measures to reduce emissions associated with construction activities at the affected facilities are necessary to control emissions from heavy construction equipment and worker travel. The following mitigation measures would reduce construction emissions at the affected facilities, but not to less than significant levels:

On-Road Mobile Sources

A-1 Develop a "Construction Traffic Emission Management Plan" for the proposed project. The plan shall include measures to minimize emissions from vehicles, including but not limited to: scheduling truck deliveries to avoid peak hour traffic conditions, and consolidating truck deliveries. In addition trucks are prohibited

from idling in excess of five minutes by state law (California Code of Regulations Title 13, Chapter 10, Article 1, Section 2485).

Off-Road Mobile Sources

A-2 Suspend the use of all construction equipment during first-stage smog alerts.

A-3 Prohibit trucks from idling longer than five minutes.

A-4 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

A-5 Maintain construction equipment by conducting regular tune-ups and retard diesel engine timing.

A-6 Use electric welders to avoid emissions from gas or diesel welders in portions of the project sites where electricity is available.

A-7 Use on-site electricity rather than temporary power generators in portions of the project sites where electricity is available.

A-8 Diesel powered construction equipment shall use low sulfur diesel, as defined in SCAQMD Rule 431.2, to the maximum extent feasible.

A-9 Prior to use in construction, the project applicant will evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for significant periods. Retrofit technologies such as particulate traps, selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., will be evaluated. These technologies will be required if they are certified by CARB and/or USEPA and are commercially available and can feasibly be retrofitted onto construction equipment.

REMAINING AIR QUALITY IMPACTS: The air quality analysis concluded that significant adverse air quality impacts could be created by the proposed rule because the construction activities will produce emissions that would exceed the SCAQMD's significance thresholds of 100 pounds per day of NOx. Therefore, it is concluded that PR 1156 has the potential to generate significant adverse construction air quality impacts that cannot be mitigated to less than significant levels. As a result, a Statement of Findings and a Statement of Overriding Considerations will be prepared for the Governing Board's consideration and approval prior to the public hearings for the proposed rule.

CUMULATIVE AIR QUALITY IMPACTS: In general, the preceding analysis concluded that air quality impacts from any construction activities would be significant from implementing the proposed project because the SCAQMD's significance thresholds for NOx would be exceeded. However, the construction activities are temporary and would cease by the final compliance date in PR 1156 (December 31, ~~2007~~ 2010). It should be noted, however, that the air quality analysis is a conservative, "worst-case" analysis so the actual impacts are not expected to be as great as estimated here. Since project-specific NOx construction emissions exceed the applicable construction significance threshold NOx construction emission are considered to be cumulatively considerable pursuant to CEQA Guidelines §15065(a)(3).

CUMULATIVE IMPACT MITIGATION: Mitigation measures are required to minimize the significant air quality impacts associated with the construction phase of the proposed

project. The cumulative impact mitigation measures would be the same as the project-specific mitigation measures.

Operational Emission Impacts

PROJECT-SPECIFIC IMPACT: The objective of the proposed project is to further control the quantities of PM emissions at concrete manufacturing facilities. The benefits of full implementation of PR 1156 are the decrease of fugitive PM emissions by two tons per day. Implementation is expected to be achieved by replacing existing baghouse filters with high efficiency filters, covering the remaining conveyors and transfer points, enclosing storage piles, applying chemical suppressants to unpaved roads, sweeping paved roads and housekeeping.

Sweeper and Water Trucks

Operational air quality impacts can occur from emissions from trucks that are used to apply water/chemical dust suppressants or sweepers used to reduce fugitive dust emissions. Under Rule 403 operators at affected facilities are now required to control dust from internal unpaved roads and prevent and remove dust from internal paved roads. Currently, one facility operator has paved all of the facilities active internal roads and uses watering trucks to control dust from those paved roads. The other facility uses chemical dust suppressants to control dust on internal unpaved roads and sweeper trucks to control dust from internal paved roads. PR 1156 specifies the use of chemical dust suppressants on internal unpaved roads; and sweeping of internal paved roads at least once a day. Chemical dust suppressants often require water to reactivate them; however, the frequency of water application is typically less than using water alone for dust suppression.

Operators at the facility that does not currently sweep internal paved roads would be required to sweep those roads daily. Sweeping the paved roads would replace the daily watering. It is assumed that the sweeping trucks would generate the same amount of emissions as watering trucks. Since, no increase in emissions is expected from implementation of the sweeping requirement; no adverse air quality impacts from sweeper trucks are expected. Water quality and usage impacts are discussed in the Hydrology and Water Quality analysis.

Chemical Stabilizers

Chemical dust suppressants are typically applied quarterly and watered daily. Operators at one of the two affected facilities already applies chemical dust suppressants to their internal dirt roads. Operators at the other facility have paved all roads that would not be exempt from application of dust suppressants (i.e., infrequently used roads). Therefore, both affected facilities would already comply with the proposed requirements for chemical stabilization of unpaved roads. Additional on-site trips would not occur; therefore, no new on-site operational emissions would be generated by the proposed project.

Chemical dust suppressants are used at one facility to control emissions from open clinker piles. Operators at both facilities may choose to apply chemical dust suppressants to storage piles or transfer points. Chemical dust suppressants would only need to be applied once a

month to inactive portions of piles (PR 1156 Staff Report). It was assumed that only a third of the storage piles would be disturbed each day. Based on these assumptions, approximately nine trucks delivering chemical dust suppressants could be required per day. Delivery truck trips would contribute to operational emissions. Emissions from chemical dust suppressant truck trips are presented in Table 4-7. Detailed emission calculations can be found in Appendix C, Tables C10 through C13.

Table 4-7
Emissions from Additional Delivery Truck Trips

Delivery Truck	CO	VOC	NOx	SOx	PM10
Delivery Truck Emission Factors, lb/mile	0.00631	0.00140	0.04154	0.00040	0.00077
Delivery Truck Total Emissions, lb/day	2.27	0.50	14.95	0.15	0.28

SCAQMD, Heavy-heavy-duty On-road Vehicles (Scenario Years 2005 – 2025) http://www.aqmd.gov/ceqa/handbook/onroad/onroadHHDT05_25.xls
Assumed nine 40-mile round trips.

Conclusion
Table 4-8 presents the total increase in operational criteria emissions anticipated from PR 1156 requirements. A small increase in emissions are expected from additional chemical dust suppressant delivery truck trips. These criteria emissions are below the operational criteria significance thresholds. Therefore, operational emissions are expected to be less than significant.

Table 4-8
Total Secondary Criteria Emission Impacts from Operational Requirements in PR 1156

Description	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM lb/day
Delivery Truck Trips	2.27	0.50	14.95	0.15	0.28
Significance Threshold	550	55	55	150	150
Significant?	No	No	No	No	No

PROJECT-SPECIFIC MITIGATION: Since there are no significant adverse air quality impacts during the operational phase of the proposed project, no mitigation measures are required.

REMAINING AIR QUALITY IMPACTS: Since project-specific operational emissions do not exceed any relevant operational significance thresholds, remaining operational air quality impacts are also not significant.

CUMULATIVE AIR QUALITY IMPACTS: Because project-specific operational air quality impacts do not exceed any relevant operational significance thresholds in Table 4-1,

operational air quality impacts are considered less than cumulatively considerable pursuant to CEQA Guidelines §15130(a)(3). Therefore, cumulative operational air quality impacts are less than significant.

CUMULATIVE IMPACT MITIGATION: No mitigation measures are required, because cumulative air quality adverse impacts are not significant.

Hydrology and Water Quality

PR 1156 potentially adversely impacts two categories of hydrology and water quality: water quality impacts from chemical stabilizer requirements and increased demand water used to suppress fugitive dust. Water quality issues were evaluated in the NOP and determined not to be significant (see Appendix D). The determination of insignificance was supported by the fact that chemical stabilizers are defined as non-toxic and are already used to reduce fugitive dust emissions under Rule 403. Previous environmental analyses prepared by the SCAQMD concluded that nontoxic chemical stabilizers are available. PR 1156 defines chemical dust suppressants as non-toxic. PR 1156 also states that chemical dust suppressants must not be used if prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. Further, it is the responsibility of the users to ensure that any chemical dust suppressant they use is not prohibited for use by any applicable law and meets all applicable specifications required by any federal, state or local water agency. Therefore, any potential adverse impacts from using any chemical dust suppressant would be insignificant. Currently, one facility operator already uses chemical dust stabilizers to suppress dust from unpaved roads and the other facility operator uses chemical dust stabilizers on their clinker piles.

Water usage was the only hydrology and water quality impact that was left to be evaluated in this ~~Draft~~ Final EA. Increased water use may occur because of dust suppressant requirements in PR 1156. Facilities are required to install rumble grates, truck washers and wheel washers if necessary to comply with opacity limits.

The open storage pile moisture content exemption was removed from the proposed rule. Since both facilities currently use water to stabilize additive piles to comply with Rule 403, PR 1156 is not expected to increase the use of water to stabilize storage piles. Facilities may increase the amount of water used to ensure that the active areas of storage piles that are not fully enclosed do not exceed visibility requirements. However, since PR 1156 requires that operators apply chemical stabilizers, build three-sided barriers or tarp at least the inactive portions of all storage piles, the amount of water needed may decrease, because only the active portions of the storage piles may need to be stabilized with water.

Subsequent to the release and circulation of the Draft EA for PR 1156, the requirement for enclosing storage piles was modified. The original proposed rule required operators to enclose any active open piles of materials with a silt content more than five percent and where loading and unloading activity occurs at a rate of more than 50,000 tons per year. PR 1156 has been modified to require operators to enclose active clinker piles if the total area is

more than four acres or if the affected facility's cumulative 12-month rolling average loading/unloading or processing rate of clinker is more than 80,000 tons per month by December 31, 2006, or no later than one calendar year from the date these thresholds are exceeded.

This modification to PR 1156 is not expected to affect the conclusions presented in the Draft EA regarding potential hydrology and water quality impacts from implementing PR 1156. As stated above, since both affected facilities currently use water to stabilize active storage piles to comply with Rule 403, no additional water would be required by altering the enclosure requirements. In addition, because any enclosure requirement should reduce water demand to stabilize storage piles, the requirements for PR 1156 may reduce the amount of water used. However, since facilities would not expect to fully enclose any storage piles under the current requirements of PR 1156, as previous expected under the original requirements; the amount of water reduction may not be as great. The amount of reduction of water use was not quantified in the Draft EA, and is not quantified for the modification to PR 1156. Based on the above discussion, no change in conclusions from the Draft EA is expected from the modifications to PR 1156.

Significance Criteria

SCAQMD's water usage significance threshold is 5,000,000 gallons per day.

PROJECT SPECIFIC IMPACTS: If necessary to comply with the limits in pargraph (d)(1), of the rule, truck washers and wheel washers may need to be installed, which could increase demand for water; however, operators at both facilities have indicated that the proposed visibility requirements can be met with the required paved road and other track-out requirements; therefore, rumble grates, truck washers and wheel washers are not expected to be needed. However, as a "worst-case," staff estimated the daily amount of water required to wash the wheels of all trucks leaving both affected facilities. Approximately 20,967 gallons of water would be required daily if wheel washers were used to clean the wheels of all trucks leaving both affected facilities. In addition, it is assumed that 348 gallons of water per day would be used during open storage pile loading and unloading operations. Detailed calculations can be found in Appendix C, Tables C-11 and C-12. This amount of water (21,315 gallons of water) is below the 5,000,000 gallons of water per day significance threshold. Therefore, the increase in water usage associated with PR 1156 would not be significant.

Additional water use from wheel washers remains the only increase in water usage from the revised PR 1156. Therefore, no change in project specific impacts or significance is expected.

PROJECT SPECIFIC MITIGATION MEASURES: None required.

REMAINING IMPACTS: Since Hydrology and Water Quality impacts are not significant, no adverse impacts remain.

CUMULATIVE IMPACT: There are no provisions of PR 1156 that result in either project-specific or cumulative Hydrology and Water Quality impacts. Since the proposed project is not expected to create significant adverse project-specific adverse impacts.

CUMULATIVE IMPACT MITIGATION: None required.

POTENTIAL ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

While all the environmental topics required to be analyzed under CEQA were reviewed to determine if the proposed rule would create significant impacts, the screening analysis concluded that the following environmental areas would not be significantly adversely affected by PR 1156: aesthetics, agriculture resources, biological resources, cultural resources, energy, geology/soils, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid/hazardous waste and transportation/traffic. These topics were not analyzed in further detail in this environmental assessment, however, a brief discussion of each is provided below.

Aesthetics

PR 1156 is a new rule proposed to reduce PM from existing operations at cement manufacturing facilities. The expected options for compliance are various types of add-on control equipment or changes to emissions control techniques as discussed in Chapter 2 of this document. Specifically, implementation of PR 1156 may involve the construction of new buildings, additional lighting as needed, and other structures related to the installation of air pollution control equipment. The affected new and/or modified units, depending upon their locations within each facility, could potentially be visible to areas outside of each facility, though; they are expected to be about the same size profile as existing equipment or storage piles. The lighting is expected to be consistent with existing lighting at the cement manufacturing facilities and the addition of any new lights is not expected to create light and glare impacts to areas adjacent to the facilities due to the industrial nature of the cement manufacturing facilities. Further, any installation of new or replacement of existing add-on control equipment at the existing facilities, either inside or outside the existing structures, would not appreciably change the visual profile of the entire facility. Thus, the general appearance of the affected new and/or modified units is not expected to differ significantly from other cement manufacturing units such that no significant impacts to aesthetics are expected.

The result of installing and utilizing the control equipment would prevent visible dust which can obstruct or distort view of scenic resources. Additionally there are few, if any scenic vistas or views located near either affected facility.

In addition, the construction activities are not expected to adversely impact views and aesthetics since most of the heavy equipment and activities are expected to occur within each facility and are not expected to be visible to areas outside each facility. The majority of the construction equipment is expected to be low in height and not visible to the surrounding area due to existing fencing along the property lines and existing structures currently within the facilities that would buffer the views of the construction activities.

Further, the construction activities are expected to be temporary in nature and will cease following completion of the equipment installations.

Overall, PR 1156 is not expected to result in a substantial adverse effect on any scenic vistas, substantially degrade the existing visual character or quality of any site and its surroundings, or create new sources of substantial light or glare which would adversely affect day or nighttime views of an area.

Revisions to PR 1156 would eliminate the need for facilities to enclose any storage piles; therefore, would reduce the amount and duration of construction at facilities. PR 1156 is still expected to reduce PM emissions, and; therefore, would benefit aesthetics. Therefore, PR 1156 would still not be significant for aesthetics.

Agriculture Resources

All construction and operational activities that would occur as a result of the proposed project are expected to occur within the confines of the existing two cement manufacturing facilities. The proposed project would be consistent with the heavy industrial zoning for cement manufacturing facilities,. and there are no agricultural resources or operations on or near the affected facilities. Implementation of PR 1156 would not result in any new construction of buildings or other structures that would convert farmland to non-agricultural use or conflict with zoning for agricultural use or a Williamson Act contract. There are no provisions in the proposed rule that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements will be altered by the proposed project.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. Therefore, no adverse impacts are expected to agricultural resources.

Biological Resources

PR 1156 would only apply to equipment or processes located within the confines of the two existing, cement manufacturing facilities in industrial areas, which have already been greatly disturbed. In general, these areas currently do not support riparian habitat, federally protected wetlands, or migratory corridors. Additionally, special status plants, animals, or natural communities are not expected to be found within close proximity to the affected facilities. Therefore, the proposed project would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely in the SCAQMD's jurisdiction. Further, a conclusion of the 2003 AQMP EIR was that population growth in the region would have greater adverse effects on plant species and wildlife dispersal or migration corridors in the basin than SCAQMD regulatory activities (e.g., air quality control measures or regulations). The current and expected future land use development to accommodate population growth is primarily due to economic considerations or local government planning decisions.

There are no provisions in the proposed rule that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local

governments and no land use or planning requirements will be altered by the proposed project. PR 1156 would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. The PM emissions are expected to decrease with the adoption of PR 1156, which will provide a health benefit to plant, animal species as well as the human residents in the district.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. The PM emissions are still expected to decrease by two tons per day with the adoption of PR 1156, which will provide a health benefit to plant, animal species as well as the human residents in the district. Therefore, no adverse impacts are expected to biological resources.

Cultural Resources

There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. Since construction-related activities associated with the implementation of PR 1156 are expected to be confined within the footprint of the two affected cement manufacturing facilities, no impacts to historical resources will occur as a result of this project. Consequently, the proposed project has little or no potential to disturb cultural resources. Instead, disturbance of cultural resources would most likely occur during site preparation and would be addressed at that time. Therefore, PR 1156 has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred outside a formal cemeteries. Further, PR 1156 is not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the district.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. Therefore, no adverse impacts are expected to cultural resources.

Energy

Because add-on control equipment is expected to be used to comply with the provisions of PR 1156, some additional electricity may be required during both the construction and operational phases of the project, depending on the type of air pollution control equipment selected and the current electrical demand of the equipment being replaced or taken out of service, as applicable. Though no substantial increase in natural gas use is expected for the operation of the proposed project, a minimal amount may be required during construction and can be supplied by either the affected facility or the local utility. Project construction and operational activities would not utilize non-renewable resources in a wasteful or inefficient manner and it is expected that operation of any equipment used to comply with PR 1156 would also comply with all applicable existing energy standards. For any additional electricity that is required, it is typically either supplied by the local electrical utility, as appropriate, so it is not anticipated that new or substantially altered power utility systems will need to be built to accommodate any additional electricity demands created by the proposed project.

The propose revisions to PR 1156 would not significantly affect energy use at affected facilities. The possible reduction in construction because of the revision to the enclosure requirement could reduce the amount of energy required during construction. Therefore, no adverse impacts are expected to energy.

Geology and Soils

The proposed project involves either the addition of new structures or the modification of existing structures, as applicable, to existing cement manufacturing facilities. The installation of add-on controls at existing affected facilities to comply with PR 1156 will not generate significant new adverse effects on geophysical formations in the district. Further, the construction activities and the installation of the add-on controls are expected to conform to the Uniform Building Code and all other applicable state and local building codes. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structures to the risk of loss, injury, or death is not anticipated.

Since add-on controls will likely be installed or modified at existing facilities, during construction of the proposed project, the possibility exists for temporary erosion resulting from excavating activities, if required. These activities are expected to be minor since the storage pile areas are generally flat and have previously been graded. No unstable earth conditions or changes in geologic substructures are expected to result from the proposed project.

Since PR 1156 will affect existing facilities, it is expected that the soil types present at the affected facilities will not be further susceptible to expansion or liquefaction. Furthermore, subsidence is not anticipated to be a problem since little excavation, grading, or filling activities will occur at affected facilities. Additionally, the affected areas are not envisioned to be prone to landslides or have unique geologic features since the affected facilities are located in heavy industrial areas.

In addition, since the proposed project will affect existing facilities located in industrial zones, it is expected that people or property will not be exposed to expansive soils or soils incapable of supporting water disposal. The proposed project does not require installation of septic systems or alternative wastewater disposal systems. Thus, the proposed project would not adversely affect soils associated with a septic system or alternative wastewater disposal system.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. A reduction in construction would occur because of the revision to PR 1156 would remove need for affected facilities to enclosure a storage pile at each site. The reduction in construction could benefit geology and soil, since it would reduce the amount to disturbance from heavy equipment at the affected facilities. Therefore, no adverse impacts are expected to geology and soils.

Hazard~~ou~~s and Hazardous Materials

There are no provisions in the proposed rule which would require or result in the routine transport, use or disposal of hazardous materials; create a significant hazard to the public; emit hazardous emissions, or require handling of hazardous materials within one-quarter mile of an existing or proposed school.

PR 1156 defines chemical stabilizers as non-toxic; therefore, increased use of chemical dust suppressants is not expected to generate significant adverse hazardous impacts. In addition, PR 1156 states that it is the responsibility of the users to ensure that any chemical dust suppressants used is not prohibited by the Regional Water Quality Control Boards, California Air Resources Board, USEPA or any applicable law, rule or regulation; and should meet any specifications, criteria or test required by federal, state or local water agencies.

Neither facility is identified as a Resources Conservation and Recovery Act (RCRA) facility. The proposed project does not involve the use or transport of hazardous materials that could affect air traffic or safety. Furthermore, neither existing facility is within two miles of a public airport or within the vicinity of a private air strip. Therefore, PR 1156 is not expected to generate hazards or hazardous material that would impact air traffic or safety.

No provision of the proposed rule would interfere with any adopted emergency response or evacuation plans. PR 1156 does not require the construction of any building, structure or facility in wildlands or any location that could expose people or structures to significant loss, injury or death involving wildland fires. Complying with the proposed rule does not require or involve the use of flammable materials that could increase fire hazards in areas with flammable materials.

The revisions to PR 1156 would not affect the amount of hazards or hazardous materials used, generated or stored at affected facilities. Therefore, adverse impacts from PR 1156 are expected to remain not significant for hazards and hazardous materials.

Land Use and Planning

There are no provisions in the proposed rule that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements will be altered by regulating emissions of PM. Further, the proposed project would be consistent with the typical industrial zoning of the affected facilities. Typically, all proposed modifications are expected to occur within the confines of the existing cement manufacturing facilities. Since

the proposed rule would regulate PM, PR 1156 would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. No new development or alterations to existing land designations will occur as a result of the implementation of the proposed rule. Therefore, no significant adverse impacts affecting existing or future land uses are expected.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. Therefore, no adverse impacts are expected to land use and planning.

Mineral Resources

There are no provisions of the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state such as aggregate, coal, clay, shale, et cetera, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. Therefore, no adverse impacts are expected to material resources.

Noise

Physical modifications or operational changes associated with the implementation of PR 1156 will take place at facilities that are located in industrial settings at existing cement manufacturing facilities. The existing noise environment at each of the affected facilities is dominated by mining and industrial equipment, vehicular traffic around the facilities, and trucks entering and exiting the facilities. Construction activities for the proposed project are expected to generate noise associated with the use of heavy construction equipment and construction-related traffic. However, noise from the proposed project is not expected to produce noise in excess of current operations at each of the existing facilities. Depending on the air pollution control technology installed, replaced, or modified, the operations phase of the proposed project may add new sources of noise to each facility. However, it is expected that both of the facilities affected by PR 1156 would continue to comply with all existing noise control laws or ordinances. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health. These potential noise increases are expected to be less than significant, thus, implementing PR 1156 is not expected to result in significantly adverse noise impacts.

The propose revisions to PR 1156 would only affect operations on existing affected facilities in industrial or commercial areas. The proposed revisions to PR 1156 would require less construction; therefore, the amount of noise expected from PR 1156 may be reduced. Therefore, since no adverse impacts were expected for noise under the original requirements, no adverse impacts from noise are expected from the revisions to PR 1156..

Population and Housing

Construction activities associated with the proposed project at each affected facility are not expected to involve the relocation of individuals, impact housing or commercial facilities, or change the distribution of the population because the proposed project will occur completely within existing industrial facilities. The proposed project is not anticipated to generate any significant effects, either direct or indirect, on the district's population or population distribution as the additional workers needed during the construction phase are expected to come from the existing labor pool in the southern California area. Further, the operations required by the proposed project are not expected to require a significant number of new permanent employees at each affected facility. In the event that new employees are hired, it is expected that the number of new employees at any one facility would be small. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing PR 1156. Accordingly, no significant adverse impacts on human population or housing are expected.

PR 1156 would not require additional employees or housing; therefore would not alter the conclusions for the Draft EA. Therefore, PR 1156 is still expected to be less than significant for population and housing.

Public Services

Implementation of the proposed project by installing new or replacing existing add-on controls is anticipated to continue current operations at existing affected facilities. Besides permitting the equipment or altering permit conditions by the SCAQMD, PR 1156 is not expected to increase the need or demand for additional public services, e.g., fire departments, police departments, schools, parks, government, etc, above current levels. Further, the proposed project would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times or other performance objectives.

No increase in public services is expected by the revisions to PR 1156; therefore, would not alter the conclusions for the Draft EA. Therefore, PR 1156 is still expected to be less than significant for public services.

Recreation

As discussed under "Land Use" above, there are no provisions to the proposed project 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 the proposal. The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

PR 1156 would not require additional employees or housing; therefore would not alter the conclusions for the Draft EA. Therefore, PR 1156 is still expected to be less than significant for recreation.

Solid /Hazardous Waste

The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations.

All hazardous materials are expected to be used in compliance with established OSHA or Cal/OSHA regulations and procedures, including providing adequate ventilation, using recommended personal protective equipment and clothing, posting appropriate signs and warnings, and providing adequate worker health and safety training. When taken together, the above regulations provide comprehensive measures to reduce hazards of explosive or otherwise hazardous materials. Compliance with these and other federal, state and local regulations and proper operation and maintenance of equipment should ensure the potential for explosions or accidental releases of hazardous materials is not significant.

In general, the net effect of PR 1156 would be to incrementally extend dust control requirements that are already required of PM generating activities at cement manufacturing operations in the district. The proposed rule clarifies and enhances the enforceability of existing control measures to reduce PM, which will assist with efforts to bring the district into attainment with state and federal air quality standards. There are no provisions in the proposed rule which would require or result in the routine transport, use, or disposal of hazardous materials; create a significant hazard to the public; emit hazardous emissions, or require the handling of hazardous materials within one-quarter mile of an existing or proposed school.

Some of the dust control provisions in PR 1156 may incrementally increase the use of chemical stabilizers to control fugitive dust. Previous environmental analyses prepared by the SCAQMD concluded that nontoxic chemical stabilizers are available. PR 1156 defines chemical dust suppressants as non-toxic, which must not be used if prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. Further, it is the responsibility of the users to ensure that any chemical dust suppressant they use is not prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. The primary effect expected as a result of using chemical dust suppressants is the potential for groundwater contamination. This effect is discussed in detail under "IX. Hydrology and Water Quality" in the NOP. As a result, it is not expected that any incremental increase in the use of chemical stabilizers would expose users or the public to hazardous materials.

Based on the information on the possible increase in combustion to evaporate additional water applied to stabilize storage piles in the air quality section, it is also expected that implementing PR 1156 is not expected to significantly increase any new hazardous emissions which would adversely affect existing/proposed schools.

Government Code §65962.5 typically refers to a list of facilities that may be subject to Resource Conservation and Recovery Act (RCRA) permits. Neither CPCC nor TXI are on this list (http://www.dtsc.ca.gov/HazardousWaste/RCRA_Facilities_Index.html), and would not typically generate large quantities of hazardous waste. It is anticipated that the affected facilities would continue to manage any and all hazardous materials and hazardous waste, in accordance with federal, state and local regulations.

The purpose of PR 1156 is to achieve PM emission reductions which will ultimately improve air quality and reduce adverse human health impact related to poor air quality. Since cement manufacturing operations would be occurring at existing industrial facilities, implementation of PR 1156 is not expected to increase or create any new hazardous emissions which could adversely affect public/private airports located in close proximity to the affected sites. PR 1156 has no provisions that dictate the use of any specific chemical dust suppressant formulation. For some applications, persons who apply chemical dust suppressant may have the flexibility of choosing the compliant solvent best suited for their operations.

In addition, Health and Safety Code §25506 specifically requires all businesses handling hazardous materials to submit a business emergency response plan to assist local administering agencies in the emergency release or threatened release of a hazardous material. Business emergency response plans generally require the following:

1. Identification of individuals who are responsible for various actions, including reporting, assisting emergency response personnel and establishing an emergency response team;
2. Procedures to notify the administering agency, the appropriate local emergency rescue personnel, and the California Office of Emergency Services;
3. Procedures to mitigate a release or threatened release to minimize any potential harm or damage to persons, property or the environment;
4. Procedures to notify the necessary persons who can respond to an emergency within the facility;
5. Details of evacuation plans and procedures;
6. Descriptions of the emergency equipment available in the facility;
7. Identification of local emergency medical assistance; and
8. Training (initial and refresher) programs for employees in:
    a. The safe handling of hazardous materials used by the business;
    b. Methods of working with the local public emergency response agencies;
    c. The use of emergency response resources under control of the handler; and
    d. Other procedures and resources that will increase public safety and prevent or mitigate a release of hazardous materials.

In general, every county or city and all facilities using a minimum amount of hazardous materials are required to formulate detailed contingency plans to eliminate, or at least minimize, the possibility and effect of fires, explosion, or spills. In conjunction with the California Office of Emergency Services, local jurisdictions have enacted ordinances that set standards for area and business emergency response plans. These requirements include immediate notification, mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area. Based on the preceding information, it is not anticipated that PR 1156 would impair implementation of or physically interfere with an adopted or modified emergency response plan or emergency evacuation plan.

Since the use of chemical dust suppressants would occur at both existing industrial cement manufacturing operations in urban areas where wildlands are typically not prevalent, risk of loss or injury associated with wildland fires is not expected as a result of implementing PR 1156.

Based on the above, the proposed rule is not expected to significantly increase the volume of solid or hazardous wastes, require additional waste disposal capacity, or generate waste that does not meet applicable local, state, or federal regulations.

The modifications to PR 1155 are not expected to alter solid or hazardous waste impacts or conclusions from those proposed in the Draft EA; therefore, adverse impacts to solid and hazardous waste is still expected to be less than significant.

Transportation/Traffic

The proposed rule will not substantially increase the amount of businesses or equipment in the district. The main effect of the PR 1156 will be to add new or modify existing control equipment. As shown in Appendix B of this document, during the construction phase for construction worker trips and delivery truck trips are estimated for the proposed project. It is expected that worker and delivery truck trips will be dispersed over a relatively wide area so it is not expected that the level of service at any individual intersection will be substantially affected by the project. During the operational phase of the proposed project, a maximum of two truck hauling trips per day are estimated for chemical dust suppressant delivery. Based on this analysis, there are no provisions in the proposed rule that would adversely affect existing traffic load, worker commute trips, raw material or finished product transport trips, parking, or conflict with adopted policies associated with alternative transportation. The level of service standard, traffic levels or existing emergency accesses are not expected to change at any particular intersection because the truck trips will be dispersed over a wide area.

The modifications to PR 1155 are not expected to alter adverse traffic impacts or conclusions from those proposed in the Draft EA. Since construction of full enclosure is not expected; transportation and traffic may benefit relative to the original requirements during construction. therefore, adverse impacts to traffic impacts is still expected to be less than significant.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines §15126(c) requires an environmental analysis to consider "any significant irreversible environmental changes which would be involved if the proposed action should be implemented." The Initial Study identified air quality and hydrology and water quality as the only environmental areas potentially adversely affected by the proposed project. However since the release of the Initial Study, the ~~Draft~~ Final EA concluded that the significant adverse impacts would occur only for air quality during construction. As can be seen by the information presented in this ~~Draft~~ Final EA, the proposed project would not result in irreversible environmental changes or irretrievable commitment of resources.

The revisions to PR 1156 are not expected to generate any significant irreversible environmental changes.

POTENTIAL GROWTH-INDUCING IMPACTS

CEQA Guidelines §15126(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." Implementing PR 1156 will not, by itself, have any direct or indirect growth-inducing impacts on businesses in the SCAQMD's jurisdiction because it is not expected to foster economic or population growth or the construction of additional housing and primarily affects existing cement manufacturing facilities. Construction workers used to implement the PM control requirements at the affected facilities can be obtained from the existing labor pool in southern California. Upon final compliance no additional workers are expected to be need at the affected facilities.

The revisions to PR 1156 are not expected to increase production, employees or housing; therefore, are not expected to generate any significant growth inducing impacts.

CONSISTENCY

The Southern California Association of Governments (SCAG) and the SCAQMD have developed, with input from representatives of local government, the industry community, public health agencies, the USEPA - Region IX and CARB, guidance on how to assess consistency within the existing general development planning process in the Basin. Pursuant to the development and adoption of its Regional Comprehensive Plan Guide (RCPG), SCAG has developed an Intergovernmental Review Procedures Handbook (June 1, 1995). The SCAQMD also adopted criteria for assessing consistency with regional plans and the AQMP in its CEQA Air Quality Handbook. The following sections address the consistency between PR 1156 and relevant regional plans pursuant to the SCAG Handbook and SCAQMD Handbook.

Revisions to PR 1156 are not expected to alter the consistency determination of the Draft EA.

Consistency with Regional Comprehensive Plan and Guide (RCPG) Policies

The RCPG provides the primary reference for SCAG's project review activity. The RCPG serves as a regional framework for decision making for the growth and change that is anticipated during the next 20 years and beyond. The Growth Management Chapter (GMC) of the RCPG contains population, housing, and jobs forecasts, which are adopted by

SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review. It states that the overall goals for the region are to (1) re-invigorate the region's economy, (2) avoid social and economic inequities and the geographical isolation of communities, and (3) maintain the region's quality of life. Based on the following discussion PR 1156 is consistent with RCPG policies.

Consistency with Growth Management Chapter (GMC) to Improve the Regional Standard of Living

The Growth Management goals are to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. Proposed Rule 1156 in relation to the GMC would not interfere with the achievement of such goals, nor would it interfere with any powers exercised by local land use agencies. PR 1156 will not interfere with efforts to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

Consistency with Growth Management Chapter (GMC) to Provide Social, Political and Cultural Equity

The Growth Management goals are to develop urban forms that avoid economic and social polarization, promotes the regional strategic goals of minimizing social and geographic disparities, and of reaching equity among all segments of society. Consistent with the Growth Management goals, local jurisdictions, employers and service agencies should provide adequate training and retraining of workers, and prepare the labor force to meet the challenges of the regional economy. Growth Management goals also include encouraging employment development in job-poor localities through support of labor force retraining programs and other economic development measures. Local jurisdictions and other service providers are responsible for developing sustainable communities and providing, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection. Implementing PR 1156 has no effect on and, therefore, is not expected to interfere with the goals of providing social, political and cultural equity.

Consistency with Growth Management Chapter (GMC) to Improve the Regional Quality of Life

The Growth Management goals also include attaining mobility and clean air goals and developing urban forms that enhance quality of life, accommodate a diversity of life styles, preserve open space and natural resources, are aesthetically pleasing, preserve the character of communities, and enhance the regional strategic goal of maintaining the regional quality of life. The RCPG encourages planned development in locations least likely to cause environmental impacts, as well as supports the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals. While encouraging the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites, the plan discourages development in areas with steep slopes, high fire, flood and seismic hazards, unless complying with special design requirements. Finally, the plan encourages mitigation measures that reduce noise in certain

locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and develop emergency response and recovery plans. PR 1156 implements an AQMP control measure, which results in improving air quality in the region. Therefore, in relation to the GMC, PR 1156 is not expected to interfere, but rather help with attaining the air quality portion of these goals.

Consistency with Regional Mobility Element (RMP) and Congestion Management Plan (CMP)

PR 1156 is consistent with the RMP and CMP since no significant adverse impact to transportation/circulation will result from adding new or modifying existing PM control equipment. There will be a maximum increase of two truck transport trips to deliver chemical dust suppressants per day. Because trips to the two affected facilities would be dispersed over a wide area, PR 1156 is not expected to significantly adversely affect circulation patterns or congestion management.

CHAPTER 5

ALTERNATIVES

Introduction
Alternatives Rejected as Infeasible
Description of Alternatives
Comparison of Alternatives
Conclusion

INTRODUCTION

This ~~Draft~~ Final EA provides a discussion of a range of reasonable alternatives to the proposed project as required by state CEQA Guidelines §15126.6. Alternatives include measures for attaining objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative. A "No Project" alternative must also be evaluated (CEQA Guidelines §15126.6(e)). The range of alternatives must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. State CEQA Guidelines §15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an EIR under CEQA.

SCAQMD's policy document Environmental Justice Program Enhancements for FY 2002-03, Enhancement II-1 recommends that all SCAQMD CEQA assessments include a feasible project alternative with the lowest air toxics emissions. In other words, for any major equipment or process type under the scope of the proposed project that creates a significant environmental impact, at least one alternative, where feasible, shall be considered from a "least harmful" perspective with regard to hazardous air emissions.

The Governing Board may choose to adopt any portion or all of any alternative presented below. The Governing Board is able to adopt any portion or all of any of the following alternatives because the impacts of each alternative are fully disclosed to the public and the public has the opportunity to comment on the alternatives and impacts generated by each alternative.

ALTERNATIVES REJECTED AS INFEASIBLE

A CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and explain the reasons underlying the lead agency's determination [CEQA Guidelines §15126.6(c)]. No alternatives identified were rejected as infeasible.

DESCRIPTION OF ALTERNATIVES

The following proposed alternatives were developed by modifying specific components of the proposed rule. The rationale for selecting and modifying specific components of the proposed rule to generate feasible alternatives for the analysis is based on CEQA's requirement to present "realistic" alternatives; that is, alternatives that can actually be implemented

The following four alternatives were developed by identifying and modifying major components of PR 1156. As stated in the Areas of Controversy section of Chapter 1, staff and stackholders have been and are currently in discussions about PR 1156. The alternatives have been developed to capture the comments received to date. Specifically, the primary components of the proposed alternatives that have been modified are the requirements related to the baghouse standards and capture efficiencies, loading and unloading control, crushers, active storage pile enclosure thresholds, chemical dust suppressants/watering, and final compliance dates. The alternatives, summarized in Table 5-1 and described in the following subsections, include the following: Alternative A (No Project); Alternative B (Partial Enclosures); and Alternative C (Full Enclosures) and Alternative D (Reduction from Baseline). Unless otherwise specifically noted, all other components of the project alternatives are identical to the components of PR 1156. The following subsections provide a brief description of each alternative.

Alternative A - No Project Alternative

Alternative A, the No Project Alternative, would mean not adopting PR 1156 and, therefore, maintaining the existing SCAQMD and USEPA requirements for controlling particulates at the affected facilities. The affected facilities would still be required to comply with the NSPS standards of 0.30 pound PM per ton feed and 20 percent opacity for kilns, 0.10 pounds PM per ton feed and 10 percent opacity for clinker coolers; and 10 percent opacity for mills, dryers and material handling points. Operators would still be required to meet the PM requirements for kilns and clinker coolers combined of 0.40 pound of kiln feed for kiln feed rates less than 75 tons per hour or 30 pounds per hour for kiln feed rates of 75 tons per hour or greater. Further, affected operators would be expected to comply with the existing PM/PM10 prohibitory rules in Regulation IV (e.g., Rule 401, Rule 403, Rule 404, and Rule 405) and Rule 1112.1. New processes would continue to be subject to the lowest achievable emission rates (LAER) or best available control technology (BACT) requirements in Regulation XIII.

Alternative B – Partial Enclosures

Alternative B would relax slightly some of the compliance requirements in PR 1156 and Alternative C. The baghouse performance standards would be 0.03 grain per dry standard cubic foot, which is less stringent than the 0.01 grain per dry standard cubic foot in the proposed rule for all baghouses. The baghouse performance standard is 0.01 grain per standard cubic foot buffer over the lowest concentration (0.02 grain per standard cubic foot) measured from the kiln with the highest overall concentrations at the affected facilities. The 0.01 grain per standard cubic foot buffer would be added to ensure PM control, while relieving operators of the existing affected facilities from the need to replace the entire baghouse system to comply with Alternative B. Under Alternative B, affected facilities would not be required to install a continuous opacity monitoring system (COMS), a baghouse leak detection system (BLDS), or prepare or submit operation and maintenance (O&M) procedures.

Alternative B would not include additional requirements on the primary crusher at CPCC which is not currently controlled. Operators at CPCC would still be required to follow the requirements of Rule 403.

Under Alternative B, facility operators would be required to control PM emissions from active storage piles by applying chemical stabilizers; enclosing them in three-sided structures; or covering storage piles with tarps. The compliance dates for all requirements would be extended three years.

Alternative C – Full Enclosures

Alternative C would impose more stringent PM control requirements than those proposed in PR 1156 and Alternative B. The baghouse performance standards would be 0.005 grain PM per dry standard cubic foot, which is more stringent than the 0.01 grain per dry standard cubic foot standard in the proposed rule for all baghouses. Alternative C would necessitate the replacement of existing baghouses with new ones outfitted with high efficiency filters, since it is uncertain if affected facilities would be able to meet and sustain the 0.005 grain PM per dry standard cubic foot standard for all baghouses. The 0.005 grain PM per dry standard cubic feet is based on the best achieved levels for the kiln/clinker cooler systems. Alternative C would require continuous emission monitoring systems (CEMS) for the top 80 percent emitters and operators to prepare and submit O & M procedures. Under Alternative C, operators would be required to fully enclose process equipment such as conveyors and vent them to baghouses. The throughput threshold for full enclosure of storage piles would be reduced from 50,000 tons per year as in the proposed rule to 10,000 tons per year in Alternative C.

Alternative C would require crushers to be fully enclosed in a building or structure consisting of a solid roof, solid walls on two sides of the building with one side facing in the direction of the prevailing winds and flaps covering the remaining two sides. Alternative C allows the use of wind fences with a permitted fog suppression system in place of a structure with a solid roof and walls for existing crushers.

The compliance date for enclosing the storage piles would be extended to allow operators two additional years to comply. The compliance date for enclosing the primary crusher at CPCC would allow operators one year to comply.

Alternative D – Reduction from Baseline

Alternative D was developed from comments provided by industry on the proposed rule. Instead of baghouse performance standards that are applicable to each baghouse individually industry representatives proposed to reduce the overall baseline emissions collectively from baghouses at each facility by 50 percent. This proposal was developed from the concern that the kiln and clinker cooler baghouses would not be able to consistently meet a concentration performance standard. By establishing a collective reduction from each facility's baseline, facility operators could reduce emissions from some baghouses below the proposed project performance standards to make-up the reductions that cannot be accomplished by the baghouses that cannot meet the proposed project standard.

Table 5-1
Summary of PR 1156 and Project Alternatives

Description	Proposed Project	Alternative A No Project	Alternative B Less Stringent	Alternative C More Stringent	Alternative D Reduction from Baseline
Baghouse standards – kilns/clinker cooler (d)(4), and other equipment (d)(6)	Baghouse performance standard of 0.01 grain/dscft PM for existing equipment and 0.005 grain/dscf for new equipment ~~or 99.95% collecting efficiency~~ with COMS/BLDS for top emitters and O&M procedures	Compliance with Rule 1112.1, 404 and 405	Baghouse performance standard of 0.03 grain/dscf without COMS/BLDS and O&M procedures	Baghouse performance standard of 0.005 grain/dscf with PM CEMS for top emitters and O&M procedures	Overall reduction 50% of baseline emissions without COMS/BLDS and O&M procedures
Process Equipment Loading, Unloading and Transferring (d)(2)(A) and (d)(2)(B)	Enclose loading/unloading process units and vent to baghouses; and cover existing conveyors	Same as project	Same as project	Enclose loading/unloading process units and vent to baghouses; and enclose existing conveyors	Same as project
Screening, Milling, Grinding, Blending, Drying, Heating, Mixing, Sacking, Palletizing, Packaging and Other Related Operations (d)(3)(B) and (C)	Enclose system and vent to baghouse	Compliance with Rule 403	Same as no project	Enclose system and vent to baghouse	Same as project
Crushing (d)(3)(B) and (C)	Enclose system and vent to baghouse; or wind screens with ~~fog generator~~ wet suppression	Compliance with Rule 403	Same as no project	Enclose system and vent to baghouse	Same as project

Table 5-1 (Cont.)
Summary of PR 1156 and Project Alternatives

Description	Proposed Project	Alternative A No Project	Alternative B Less Stringent	Alternative C More Stringent	Alternative D Reduction from Baseline
Active clinker piles ~~with High Emissivity~~ c) Control (d)(5)(B) d) Loading and Unloading (d)~~(2)(A)~~(5)(E)	c) Enclose active storage piles with a ~~silt content > 5% and~~ 4 acre area or a cumulative 12-month rolling average clinker loading and unloading (or processing) rate > ~~5~~80,000 ton/year d) Loading/unloading within enclosure	Compliance with Rule 403	c) Chemical stabilizer, or 3-sided barrier with 2 feet of freeboard, or 3-sided barrier with roof, or tarp entire surface d) Loading/unloading with dust suppressants	c) Enclose all active storage piles d) Loading/ unloading within enclosure	Same as project
Other active/ inactive piles a) Control (d)(5)(C) b) Loading and Unloading (d)~~(2)(C)~~(5)(E)	a) Chemical stabilizer, or 3-sided barrier with 2 feet of freeboard, or 3-sided barrier with roof, or tarp entire surface b) Loading/unloading with dust suppressants	Compliance with Rule 403	Same as project	a) Enclose all active storage piles b) Loading/unloading within enclosure	Same as project
Chemical dust suppressant/ Watering	Water or chemical dust suppressants allowed for process and storage piles; only chemical dust suppressants for unpaved roads.	Compliance with Rule 403	Same as project	Chemical dust suppressants only	Same as project
Compliance dates	1~~.5~~ year~~s~~ to meet pulse jet baghouse and active storage pile enclosure requirements, ~~2.~~5 years to meet ~~reverse-air~~ non-pulse jet bag requirements, and 6 months for other requirements.	Compliance with Rule 403	~~3~~8 years to meet all requirements	2 years to enclose storage piles and 1 year to enclose crusher	Baghouse compliance phased over 3-5 years

Industry proposed eliminating monitoring (COMS, CEMS, or BLDS) and O&M procedure requirements. Industry also requested baghouse compliance phased in over three to five years.

COMPARISON OF THE ALTERNATIVES

The Environmental Checklist (see Chapter 2 of the Initial Study in Appendix D) identified only air quality and hydrology and water quality as the environmental areas that could be significantly adversely affected by the proposed project. Further evaluation of potential impacts in Chapter 4 of this Environmental Assessment confirmed that the proposed project would generate significant adverse project-specific and cumulative impacts for construction air quality only, but significant adverse hydrology and water quality impacts would not occur as a result of implementing PR 1156.

The following sections briefly describe potential adverse impacts that may be generated by each project alternative. Potential adverse impacts for the environmental topics are quantified where sufficient data are available. A comparison of the environmental impacts for each project alternative is provided in Table 5-2. No other environmental topics in addition to air quality or hydrology/water quality were identified that could be adversely affected by implementing any project alternative.

Air Quality

Alternative A - No Project Alternative

Alternative A or 'no project' means that PR 1156 would not be adopted and instead the operators would maintain their current operations without change and will continue to be subject to the following requirements:

- SCAQMD Rule 401 - Visible Emissions;
- SCAQMD Rule 404 - Particulate Matter - Concentration;
- SCAQMD Rule 405 - Particulate Matter - Weight;
- SCAQMD Regulation XIII – New Source Review;
- SCAQMD Regulation XXX – Title V Permits;
- Federal New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart F, Standards of Performance for Portland Cement Plants;
- Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63, Subpart LLL, NESHAP from *the Portland Cement Manufacturing Industry*

Alternative A would not generate construction air quality impacts. It is not anticipated that owners/operators of affected facilities would have to install new or modify existing control equipment that could generate construction emissions. Instead, owners/operators of affected facilities would either continue existing operations that would comply with all applicable SCAQMD and USEPA requirements. By not adopting PR 1156, approximately two tons per day of PM will continue to be emitted by cement manufacturing facilities and, thus, no health benefits from reducing PM overall will not be realized.

Table 5-2
Comparison of Adverse Environmental Impacts of the Alternatives

Description	Proposed Project	Alternative A No Project	Alternative B Partial Enclosures	Alternative C Full Enclosures	Alternative D Reduction from Baseline
Air Quality Emission Reductions					
Baghouse standards – kilns/clinker cooler and other equipment	0.2 ton/day PM reduction by December 31, 20~~07~~10	None	None	0.3 ton/day PM reduction by December 31, 20~~07~~10	0.2 ton/day PM reduction within 5 years~~; delays required control 5 years longer than proposed project~~
Process Equipment	0.5 ton/day PM reduction by December 31, 20~~07~~10	None	Same as proposed project within 3 years; delays required control 1 year longer than proposed project	0.7 ton/day PM reduction by December 31, 20~~07~~10	Same as proposed project
Storage Piles	0.04 ton/day PM reduction by December 31, 2006	None	0.015 tons/day PM reduction with 3 years; delays required control 2 years longer than proposed project	0.05 ton/day PM reduction within 2 years; delays required control 1 year longer than proposed project	Same as proposed project
Vehicle Traffic	1.5 ton/day PM reduction within six months of rule adoption	Same as proposed project	Same as proposed project	Same as proposed project	Same as proposed project
Total Emission Reductions, ton/day	~~2.2~~2.1		~~2.2~~2.1	~~2.5~~2.4	~~2.2~~2.1

Table 5-2 (Cont.)
Comparison of Adverse Environmental Impacts of the Alternatives

Description	**Proposed Project**	**Alternative A No Project**	**Alternative B Partial Enclosures**	**Alternative C Full Enclosures**	**Alternative D Reduction from Baseline**
Construction Emissions	Significant NOx emissions at 248 lb/day over one year	None	Significant NOx emissions at 175 lb/day over 3 years; would allow construction emission 2 years longer than proposed project.	Significant NOx emissions at 367 lb/day for 2 years would allow construction emission 1 year longer than proposed project.	Same as proposed project
Secondary Operational Emissions	No significant emissions	None	No significant emissions less than PR 1156	No significant emissions More than PR 1156	Same as proposed project
Air Quality Impacts Significant?	Yes, construction emissions	No	Yes, construction emissions	Yes, construction emissions	Yes, construction emissions
Hydrology/Water Quality Impacts Significant?	No	None	No	No	No

Alternative B – Partial Enclosures

Alternative B would require that operators enclose storage piles with silt content greater than five percent and loading and unloading of more than 200,000 tons per year. Operators would be required to control Pm from other open storage piles with chemical stabilizers, a three-sided enclosure, or tarp.

Under Alternative B, facility operators would be required to control PM emissions from active storage piles by applying chemical stabilizers; enclosing them in three-sided structures; or covering storage piles with tarps. Under the proposed project, SCAQMD staff assumed that five three-side enclosures would be built around storage piles. The baseline emission from the storage piles was estimated to be 0.07 ton per day. Staff estimates that the control efficiency for chemical stabilizers, a three-sided enclosure, or tarp would be about 80 percent. Therefore, the PM emission reduction for a storage pile controlled by chemical stabilizers, a three-sided enclosure, or tarp would be 0.025 ton per day (0.031 x 0.80 = 0.025). Therefore, Alternative B would have 0.015 ton of PM per day less reductions than the proposed project (0.04 - 0.025).

The requirements for Alternative B would not become effective for three years after the date of rule adoption. Alternative B would allow storage piles to remain uncontrolled for two years longer than the proposed project. Construction of the storage pile enclosures could extend over those two additional years during which secondary emissions would occur during construction.

Alternative B would have 0.2 ton per day less PM emission reductions than the proposed project (see Table 5-3).

Table 5-3
Alternative B PM Emission Reductions Compared to the Proposed Project

Equipment/Process	PM Inventory (ton/day)	Proposed Project PM Emission Reduction (ton/day)	Alternative B PM Emission Reduction (ton/day)	Difference in Reductions (ton/day)*
Kilns and Clinker Coolers	0.4	0.2	-	-0.2
Other Processes	0.6	0.5	0.5	-
Open Piles	0.07	0.04	0.025	-0.015
Vehicle Traffic	3	1.5	1.5	-
Total	4	2.2	2.0	-0.2

* Negative numbers show the tons per day of emissions from Alternative B that are less than PR 1156

Construction Emissions

Alternative B would require the construction of five three-sided enclosures. The three-sided enclosure built at CPCC would not generate any emissions above baseline, since they would be build with existing equipment and materials (see Chapter 4). That is existing on-site equipment would be diverted from performing their normal duties to construct the

enclosures. Secondary emissions from construction associated with Alternative B are presented in Table 5-4. Both Alternative B and the proposed project would be significant for NOx emissions from construction emissions. However Alternative B would generate fewer emissions than the proposed projects: 35 pounds per day less CO, nine pounds per day less VOC, 73 pounds per day less NOx, five pounds per day less SOx, and four pounds per day less PM10.

Table 5-4
Secondary Emissions from Construction in Alternative B

Sources	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Construction of Four Three-Sided Enclosures	54.4	10.0	108.0	10.4	8.0
Miscellaneous Construction	29.2	7.4	67	4.4	4.4
Maximum Daily Emissions	83.6	17.4	175.0	14.8	12.4
Significance Threshold	550	75	100	150	150
Exceed Significance?	No	No	Yes	No	No

Operational Emissions

The "worst-case" operational emission from Alternative B would be the same as the proposed project. Under both Alternative B and the proposed project, the "worst-case" operational emissions would be generated from increased chemical dust suppressant haul truck delivery trips.

Chemical dust suppressants are used at one facility to control emissions from open clinker piles. Both facilities may choose to apply chemical dust suppressants to storage piles or transfer points. Chemical dust suppressants would only need to be applied once a month to inactive portions of piles (PR 1156 Staff Report). It was assumed that only a third of the storage piles would be disturbed each day. Based on these assumptions, approximately nine delivery trucks would be required per day. Delivery truck trips would contribute to operational emissions. Emissions from chemical dust suppressant truck trips are presented in Table 5-5.

Table 5-5
Secondary Criteria Emission Impacts from Operational Requirements in Alternative B

Description	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM lb/day
Delivery Truck Trips	2.3	0.5	15.0	0.2	0.3
Significance Threshold	550	55	55	150	150
Significant?	No	No	No	No	No

Alternative C – Full Enclosures

Emission Reductions

Baghouse emission reductions for Alternative C were estimated by multiplying the proposed rule emission reductions by a ratio of the Alternative C and proposed rule performance standards.

Emission Reduction, lb/day = Proposed Rule Emissions Reduction, lb/day x (Existing Performance Standard, grain/dscf – Alternative C Performance Standard, grain/dscf)/(Existing Performance Standard, grain/dscf – Proposed Rule Performance Standard, grain/dscf)

Kiln and Clinker Cooler Emission Reduction, lb/day = 440 lb/day x (0.03 grain/dscf – 0.005 grain/dscf)/(0.03 grain/dscf – 0.01 grain/dscf) = 550 lb/day = 0.28 ton/day

Other Processes Emission Reduction, lb/day = 1,060 lb/day x (0.03 grain/dscf – 0.005 grain/dscf)/(0.03 grain/dscf – 0.01 grain/dscf) = 1,325 lb/day = 0.66 ton/day

Emission reductions from open storage piles were estimated by multiplying the propose rule emission reductions by a ratio of the Alternative C and proposed project control efficiencies.

Emission Reduction, lb/day = Proposed Rule Emissions Reduction, lb/day x (Alternative C Control Efficiency)/(Proposed Project Control Efficiency)

Open Storage Pile Emissions Reduction, lb/day = 80 lb/day x (0.95/0.8) = 95 lb/day = 0.048 ton/day

Vehicle traffic emission reductions would be the same as the proposed project (1.5 tons of PM per day).

Therefore, Alternative C would generate 0.28 ton/day of PM emission reductions from kilns and clinker coolers and 0.66 ton/day of PM emission reduction from processes. Alternative C would also generate 0.048 ton/day of PM emission reductions from open storage piles. Alternative C would generate 1.5 tons of PM emission reduction per day from vehicle traffic. Therefore, Alternative C would have a total emission reduction of 2.5 ton/day (5,000 pounds per day). The PM emissions reductions for Alternative C for are shown in Table 5 6. Table 5-6 also shows the differences in PM reductions between Alternative C and the proposed project.

Table 5-6
Alternative C Additional PM Emission Reductions beyond the Proposed Project

Equipment/Process	PM Inventory (ton/day)	Proposed Project PM Emission Reduction (ton/day)	Alternative C PM Emission Reduction (ton/day)	Difference in Reductions (ton/day)
Kilns and Clinker Coolers	0.4	0.2	0.3	0.1
Other Processes	0.6	0.5	0.7	0.2
Open Piles	0.07	0.04	0.05	0.01
Vehicle Traffic	3	1.5	1.5	0
Total	4	2.2	2.5	0.3

Construction Emissions

Alternative C would require that operators build enclosures around the storage piles and crushers. An enclosure would be required around CPCC's primary crusher to comply with Alternative C. Staff has estimated that Alternative C would require facility operators to build 15 additional storage pile enclosures[9]. Based on discussions with dome manufactures, a one-acre dome could be constructed in four months. In a "worst-scenario", it would take the affected facilities one year from the adoption of the rule to retain a contractor and for the contractor to begin work. Since it takes four months to build one dome, five domes could be built simultaneously every four months during the remaining year before the effective compliance date. Since the storage piles would be fully enclosed, no three-sided enclosures would be required. Enclosing the crusher would require similar equipment to concrete pouring phase of building the three-sided enclosure (Appendix C, Table C-6).

Table 5-7 presents the criteria emissions from construction emissions including the four domes (two more than are required by the proposed rule). While the emissions from Alternative C would increase by 57 pounds of CO per day, 15 pounds of VOC per day, 120 pounds of NOx per day, eight pounds of SOx per day and six pounds of PM per day over the proposed project (see Table 4-4); the conclusions would remain the same (i.e., only NOx emissions would be significant for both Alternative B and the proposed project).

Alternative C allows two years from the date of rule adoption to complete construction of the storage pile enclosures allows an additional year to comply with the requirements in this alternative compared to the proposed project. However, because of the number of enclosures required (15 enclosures versus two enclosures for the existing project or one enclosure for Alternative B), it is likely that under Alternative C more fugitive dust would be controlled within the first year than under the proposed project or Alternative B. Not only would Alternative C have the most construction emissions, construction would also last one year longer than the proposed project. Alternative B would allow one more year of

[9] Draft Staff Report Proposed Rule 1156 Further Reduction of Particulate Emissions from Cement Manufacturing Facilities, June 14, 2005, Table 5-5.

construction than Alternative C; however, Alternative B is only expected to require one dome versus the 15 expected for Alternative C.

Table 5-7
Alternative C Construction Criteria Emissions

Sources	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Construction of Five Domes Simultaneously	122	28.5	249	19.5	14.5
Construction of Crusher Enclosure	12.0	2.5	19.6	1.1	1.2
Construction of Enclosed Conveyors	12.2	2.9	31.8	2.6	1.6
Miscellaneous Construction	29.2	7.4	67	4.4	4.4
Maximum Daily Emissions	**175**	**41**	**367**	**28**	**22**
Significance Threshold	550	75	100	150	150
Exceed Significance?	No	No	Yes	No	No

Storage piles would not need daily application of chemical dust suppressants, except to active areas of the piles at the end of the day. The 35,910 gallons per day assumed watering the entire surface of the storage piles three times a day to a depth of three inches, and a three percent moisture content in the material transferred from the storage piles to the conveyors. Assuming that the active face of each storage pile would be a fourth of the surface area, one application of chemical dust suppressants daily, and chemical dust suppressants added to the equivalent of three percent of the material transferred from the storage piles to the conveyors, the total combined amount of chemical dust suppressant for both facilities would be approximately 4,000 gallons per day (895 gallons material transferred from storage pile to conveyors: 895 gallons/day; storage piles (35,562 gallons) x (1 application/3 applications) x (1/4 of total surface area is active) = 3,838 gallons per day). A tanker truck can hold up to 4,000 gallons. To be conservative, it could be assumed that each facility would need two additional chemical dust suppressant tanker truck deliveries.

Altering the compliance date would not change the maximum daily emissions by which significance is determined. Delaying the compliance date would only increase the duration of the exposure.

Operational Emissions

It is assumed that since all storage piles are enclosed, operators at CPCC already uses chemical dust suppressants on unpaved roads, and roads at TXI are paved only one additional delivery truck would be needed. Operational emissions from the delivery truck are presented in Table 5-8 and Appendix C, Table C-14. Since Alternative C requires the least number of additional truck deliveries, it would be the least toxic alternative.

Table 5-8
Emissions from Additional Delivery Truck Trips

Sources	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Delivery Truck Trips	0.25	0.06	1.66	0.02	0.03
Significant Thresholds	*550*	*55*	*55*	*150*	*150*
Significant?	NO	NO	NO	NO	NO

Alternative D – Reduction from Baseline

Alternative D contains the same requirements as the proposed project except for the baghouse requirements. The proposed project would reduce existing emissions from baghouses by 50 percent through the use of a 0.01 grain per dry standard cubic foot PM performance standard for existing equipment and a 0.05 grain per dry standard cubic meter PM standard for new equipment. The proposed project would allow facility operators to establish 99.95 percent collection efficiency instead of the complying with the concentration performance standard.

Instead of establishing a concentration performance standard, as proposed by the proposed project and other alternatives, Alternative D would establish an overall reduction of 50 percent of the collective baghouse baseline emissions. Since the Staff Report for 1156 estimates that the proposed project would reduce baghouse emissions by 50 percent, Alternative D would accomplish the same reductions, but on a facility-wide basis instead of an individual baghouse basis. Since, Alternative D would have equivalent baghouse PM reductions, and all other component of Alternative D would be the same; Alternative D would have the same emission reductions as the proposed project.

Alternative D would allow the facility operators three to five years form the date of rule adoption to comply with the baghouse requirements. The proposed project would require operators to comply within 1~~.5~~ to 2~~.~~5 years. Alternative D would allow ~~a longer~~ the same effective date to provide operators time to replace and optimize baghouses. ~~It is believed that Alternative D would require more time because if the operators are correct and not all baghouses would be able to meet the 0.01 or 0.05 grain per dry standard cubic foot PM standard; other baghouses would need to meet even lower concentrations to make-up for the baghouses that could not meet the standards. The "worst-case" scenario would be that it would take facility operators entire 4.5 years longer to achieve the emissions reductions proposed. Therefore, over the 4.5 years Alternative D would generate 0.75 ton per day fewer PM emission reductions than the proposed project.~~

Alternative D would not require facility operators to use COMS/BLSD or to detail O&M procedures as a part of the rule. Not requiring COMS/BLSD or O&M procedures as part of the rule would not affect the emission reductions directly; however, these tools aid in verification and enforcement of the baghouse requirements.

Hydrology and Water Quality

Alternative A - No Project Alternative

Alternative A would not generate significant adverse impacts to hydrology and water quality. Instead, owners/operators of affected facilities would either continue existing operations that would comply with all applicable SCAQMD and USEPA requirements, including the use of water and chemical dust suppressants to comply with Rule 403. By not adopting PR 1156, with respect to hydrology and water quality, current water demand would not change.

Alternative B – Less Stringent Requirements

Alternative B, like the proposed project, would allow the use of both water and chemical dust suppressants to control PM emissions. Therefore, the adverse hydrology and water quality impacts from Alternative B are expected to be the same as the proposed project (Chapter 4). Adverse impacts from the proposed project were determined to be less than significant. Therefore, Alternative B is expected to be less than significant for hydrology and water quality.

Alternative C – More Stringent Requirements

Alternative C would have the same rumble grate, wheel and truck washing requirements as the proposed rule. Facility operators would be required to use chemical dust suppressants only for all other dust control, unlike the proposed rule which would also allow water. In Chapter 4, 35,910 gallons of water per day were estimated as the "worst-case" amount of water that would be used to control dust from storage piles and transfer from the piles to the conveyors. Since water is currently used at both facilities for dust suppression, by requiring only chemical dust suppressants, Alternative C would reduce water demand compared to the existing water demand of the affected facilities, and therefore, would be less than significant for water demand.

PR 1156 potentially adversely impacts two categories of hydrology and water quality: groundwater quality impacts from the use of chemical stabilizers, and increase water used to suppress fugitive dust. Water quality issues were evaluated in the NOP and determined not to be significant (see Appendix D). The determination of insignificance was supported by the fact that chemical stabilizers are defined as non-toxic and can already used be to reduce fugitive dust emissions under Rule 403. Previous environmental analyses prepared by the SCAQMD concluded that nontoxic chemical stabilizers are available. PR 1156 defines chemical dust suppressants as non-toxic. PR 1156 also states that chemical dust suppressants must not be used if prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. Further, it is the responsibility of the users to ensure that any chemical dust suppressant they use is not prohibited for use by any applicable law; and should meet any specifications, criteria or test required by the federal, state or local water agency. Therefore, any potential adverse water quality impacts would be insignificant.

Alternative D – Reduction from Baseline

Alternative D differs from the proposed project in baghouse standards only. Therefore, Alternative D would have the same impacts upon hydrology and water quality as the proposed project. Since the adverse impacts on hydrology and water quality from the proposed project were determined to be less than significant; Alternative D is expected to be less than significant.

CONCLUSION

Although, Alternative A does not create any construction or operational air quality impacts or any hydrology or water quality impacts, it does not achieve any emission reductions. Further, Alternative A does not promote the goals of the 2003 AQMP to achieve further PM emission reductions necessary to attain and maintain all state and national ambient air quality standards.

Alternative B would obtain the less PM emission reductions than the proposed project and would allow a delay in implementing the PM emissions control by at least one year compared to PR 1156. Since Alternative B does not include CEMS, COMS, BLDS or O&M procedures, verification of compliance would not be as great as the proposed project and Alternative C, which includes these systems. Alternative B may generate more operational emissions, but these emissions would still be under the significance thresholds. The proposed project is superior to Alternative B, because it achieves greater emission reductions on a shorter schedule and includes better verification of compliance.

The *CEQA Guidelines §15126.6(e)(2)* requires the environmentally superior alternative to be identified. In addition, SCAQMD Environmental Justice Enhancement II-1 recommends that all SCAQMD CEQA assessments include a feasible project alternative with the lowest air toxics emissions. Alternative C is the environmentally superior and least toxic alternative. Alternative C would provide greater PM emission reductions from kiln/clinker cooler baghouses, process equipment and fugitive dust from storage piles. The lower kiln/clinker and process baghouse concentration requirements would reduce PM point source emissions beyond the proposed project and other alternatives. Crushers, conveyors and storage piles would be required to be fully enclosed reducing fugitive dust emissions beyond the proposed project and other alternatives. Enclosed crushers, conveyors, and storage piles would result in less water or chemical stabilizers usage. Secondary emissions from construction would be 119 pounds per day greater than the proposed project and Alternative D, 192 pounds per day greater than Alternative B, and 367 pounds greater than Alternative A. Construction emissions would also occur over two years from the date of rule adoption, which is one year longer than the proposed project. Exempt for Alternative A, NOx secondary construction emissions exceed the NOx construction significant threshold of 55 pounds per day for PR 1156 and all other project alternatives.

Alternative C baghouse performance standards may not be technologically feasible on a continuous basis for all baghouses. Enclosing all open storage piles may significantly adversely impact operations, since material is purchased based on price and availability. Enclosing the crusher, conveyors and storage piles may be extremely costly. Therefore,

while Alternative C may be the mores environmentally superior and least toxic alternative, it may not be able to sustain the required baghouse control efficiency.

Alternative D would achieve equivalent PM emission reductions ~~over a longer~~ the same time frame with the same amount of secondary emission impacts. Since Alternative D does not include CEMS, COMS, BLDS or O&M procedures, verification of compliance would be more difficult compared to the proposed project and Alternative C, which include these systems. ~~PM reductions from Alternative D would also be delayed the longest (between three to five years) while operators implement measures to reduce emissions across the entire facility.~~

Since the proposed project is feasible and achieves verified emissions reductions in the shortest period of time, it provides the most balanced approach to achieving the goals of BCM-08 – Further Emission Reductions from Aggregate and Cement Manufacturing Operations. However, it is not the most environmentally superior project or lease toxic alternative (Alternative C is both). However, while the proposed project is the staff preferred alternative, the Governing Board may choose to adopt any of the alternatives in whole or in part in place of the proposed project, based on other considerations in addition to environmental concerns such as compliance costs, effects on future employment (jobs lost, for example), etc.

A P P E N D I X A (of the ~~Draft~~ Final EA)

A B B R E V I A T I O N S A N D A C R O N Y M N S

Abbreviations and Acronyms

Abbreviation/Acronym	Description
µ	Micro
A	Area
AAM	Annual geometric mean
AB	Assembly Bill
AGM	Annual arithmetic mean
AQMP	Air Quality Management Plan
ATCM	Airborne toxic control measure
BACM	Best available control measure
BACT	Best available control technology
Basin	South Coast Air Basin
BLDS	Baghouse leak detection system
BMP	Best Management Practices
BOD	Bio-chemical oxygen demand
BPTCP	Bay Protection and Toxic Cleanup Plan
CaCO3	Calcium carbonate
CalEPA	California Environmental Protection Agency
CaO	Calcium oxides
CARB	California Air Resources Board
CEMEX	Southdown California Cement
CEMS	Continuous emission monitoring system
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CO2	Carbon dioxide
COMS	Continuous monitoring system
Cont	Continued
CPCC	California Portland Cement Company
CVSIP	Coachella Valley State Implementation Plan
CWA	Clean Water Act
dB	Decibel
dBA	Decibel A-weighted
dscf	Dry standard cubic foot
e.g	Example
EA	Environmental Assessment
EF	Emission factor
ePTFE	Expanded polytetrafluoroethylene
ERPG	Emergency Response Planning Guideline
ETV	Environmental Technology Verification
EYE	Eye
GMC	Growth Management Chapter
HAP	Hazardous air pollutant
HCFC	Hydrochlorofluorocarbons
HI	Hazard index
HP	Horsepower

Abbreviation/Acronym	Description
i.e.	That is
IS	Initial Study
k	PM aerodynamic diameter constant
LA	Los Angeles
LAER	Lowest achievable emission rate
lb	Pound
M	Meter
M	Moisture content
M&I	Municipal and industrial
MDAB	Mojave Desert Air Basin
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standard
NESHAPs	National Emission Standards for Hazardous Air Pollutants
No.	Number
NO2	Nitrogen dioxide
NOC	Notice of completion
NOP	Notice of preparation
NOx	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standard
O&M	Operation and maintenance
O3	Ozone
OR	Orange
OSHA	Occupational Safety and Health Administration
P	Precipitation days
PM	Particulate matter
PM10	Particulate matter less than 10 microns in aerodynamic diameter
PM2.5	Particulate matter less than 2.5 microns in aerodynamic diameter
PPHM	Parts per hundred million
PPM	Parts per million
PR	Proposed Rule
RCPG	Regional Comprehensive Plan Guide
RCRA	Resources Conservation and Recovery Act
REL	Reference exposure level
RV	Riverside
s	Surface material silt content
S	Silt content
SANDAG	San Diego Association of Governments
SB	San Bernardino
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SIP	State Implementation Plan
sL	Silt loading
SO2	Sulfur dioxide
SOx	Sulfur oxides

Abbreviation/Acronym	Description
SSAB	Salton Sea Air Basin
SWMP	Storm Water Management Plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TCA	1,1,1-trichloroethane
TMDL	Total maximum daily load
TSP	Total suspended particulate
TSS	Total suspended solids
TXI	
U	Wind speed
UBC	Uniform Building Code
USEPA	United States Environmental Protection Agency
VMT	Vehicle miles traveled
VOC	Volatile organic compound
W	Mean vehicle weight
W	Wind speed
WDR	Waste Discharge Requirement

A P P E N D I X B (of the ~~Draft~~ Final EA)

P R O P O S E D R U L E 1 1 5 6

In order to save space and avoid repetition, please refer to the latest version of the proposed amended Rule 1162 located elsewhere in the final rule package.

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APPENDIX C

CONSTRUCTION AND OPERATIONS CALCULATIONS

EMISSION SOURCES AND EMISSION FACTORS

The operations that generate particulate matter at a cement manufacturing plant are:

1. Quarrying;
2. raw material crushing, screening, grinding and milling;
3. raw material loading and unloading to storage including open storage pile, bin, hopper, or storage tank;
4. clinker production and combustion of fuels in kiln and clinker cooler;
5. product grinding and milling;
6. product loading and unloading to and from storage area;
7. raw material and product conveying system and transfer point; and
8. product packaging.

Emissions from each operation listed above can be subcategorized into 1) process emissions and 2) fugitive emissions. Process emissions can be contained in an enclosure and vented to add-on control equipment. Examples of process emissions are emissions from milling and grinding operations vented to a baghouse. Fugitive emissions cannot be contained. Examples of fugitive emissions are emissions generated from vehicle traffic traveling within the plant, or emissions from wind erosion, re-entrainment, and spillage.

An operation may generate both process and fugitive emissions. For example, emissions from an open storage pile include 1) process emissions from loading and unloading activities, and 2) fugitive emissions due to wind erosion, re-entrainment, and traffic traveling within the area.

The following paragraphs provide 1) a description of the emission sources at each operation in a cement manufacturing facility; 2) a description of the control techniques applicable for each source and the control efficiency; and 3) methodology, equations and assumptions used in estimating emissions and emission reductions.

The information is summarized in Table C-1, C-2, and C-3. Table C-1 provides a list of emission sources at cement manufacturing facility; Table C-2 provides a list of control techniques; and Table C-3 summarizes the uncontrolled and controlled emission factors for each source. Only the methodology for estimating emissions is presented in this EA. Actual emissions calculations are not provided because the affected facilities have declared their throughput proprietary. Throughputs would be disclosed if the actual emission calculations were provided.

Quarry Operation

Emissions from quarry operation are due mainly to blasting, open storage piles, loading and unloading, wind blowing, and re-entrainment of settled dust by wind and mechanical disturbance, vehicle traffic, or machine movement.

Factors affecting emissions at the quarry site include stone size and distribution, surface moisture content, blasting technique, material blasted, size of blasted areas, blasting frequency, type of equipment and operating practices, and topographical and climatic factors.

Uncontrolled emission factors for blasting operations have not yet been developed. The emissions from quarry operation are small compared to other process equipment at the cement manufacturing plants.

Wet suppression is a control technique for particulate emissions at the quarry sites.

Crushing, Screening, Blending, Grinding, Milling, Combusting of Fuels, and Pyroprocessing

Particulate emissions from these operations are due mainly to the process of crushing, screening, blending, grinding, milling, material conveying, material loading/unloading and combusting of fuels and pyroprocessing.

Fugitive dust sources in these areas are due mainly to wind, spillage, re-entrainment of settled dust by wind or traffic and machine movement.

Factors affecting emissions include stone type, stone size and distribution, moisture content, process throughput, crusher or screen type, operating practices, and topographical and climatic factors.

Control techniques for these operations are wet suppression and add-on control such as baghouse. Uncontrolled and controlled emission factors are listed in AP-42, Chapter 11.6, 11.19.2, 13.2.2, 13.2.4 and are summarized in Table C-2.

Storage and Handling

Emissions from material storage and handling includes emissions from loading and unloading of materials, wind erosion of materials from open storage pile, and traffic activity that causes ground material near the open storage pile to be crushed into airborne silt.

These emission sources are affected by material type, size and characteristic, moisture content, process throughput, type of storage (enclosed or covered or open), operating practices, and topographical and climatic factors.

Enclosing the open pile blocks the wind. Coupling the enclosure with wet suppression by spraying at the opening of the enclosure eliminates nearly 95 percent of the emissions.

Wet suppression (e.g. application of water, chemicals and/or foam watering) is useful mainly to reduce emissions from vehicle traffic and re-entrainment in the open storage pile area. Wet suppression typically has only a temporary effect on total emissions and the control efficiency depends upon variable parameters such as local climate conditions, source properties, duration of control effectiveness (i.e. as long as surface moisture is high enough to cause the fines to adhere to the larger rock particles), and frequency of applying wet suppression.

Conveying

Particulate emissions occur when materials are transferred between process operations. Wind erosion and spillage are the cause of fugitive emissions from open or partially enclosed conveyors. Materials are spilled off of the conveyors and become airborne by

wind. Emissions are affected by material type, material size and characteristic, moisture content, process throughput, conveyor type and drop operation, operating practices, and topographical and climatic factors.

Enclosed conveyors and add-on control equipment such as baghouses at transfer points eliminate 95 percent of the emissions.

Wet suppression typically has only a temporary effect on reducing emissions and the control efficiency of wet suppression depends upon local climate conditions, source properties, duration of control effectiveness and frequency of applying wet suppression.

Material Loading and Unloading

Loading by endloaders, loading in stations, truck/trailer unloading, and railcar unloading are examples of material loading and unloading activities. Material type, material size and characteristic, material moisture content, process throughput, method of loading and unloading, operating practices, and topographical and climatic factors affect the emissions of loading and unloading.

Wet suppression, bottom loading, enclosed operation and vented to add-on control equipment are typical control practice for material loading and unloading activities.

Vehicular Traffic

Vehicular traffic traveling on roadways between locations at the facilities is a source of particulate emission. Materials adhering to the vehicle tires and rims, the sides, and the bottom of the trucks or trailers fall onto the road, and are subsequently crushed into fine particles, and re-entrained into ambient air. Materials leaking from trucks/trailers, spillage from trucks, and accumulations on roadways are another emission sources.

Control techniques used for unpaved roadways are paving, dust suppression application, route modifications, and soil stabilization. Control techniques for paved roads include utilizing street sweepers and dust suppression. Other control techniques are truck washing to clean outgoing trucks and trailers, truck load covers to reduce spillage and wind entrainment, rumble grates and wheel washers, and good housekeeping practices.

Table C-1 - Emission Sources

Operation	Source of Particulate Matter
• Quarry • Crushing • Screening • Blending • Pyroprocessing • Grinding • Milling • Storage	• Material Processing (e.g. Crushing, Milling, Combustion and Pyroprocessing in Kiln and Clinker Cooler) • Material Loading, Unloading and Conveying • Vehicle Traffic (e.g. Front End Loader) • Wind Erosion, Re-entrainment, and Spillage

Table C-2 - Control Techniques

Emission Source	Control Techniques
Kilns/Clinker Coolers	• Baghouses
Crushing, Grinding, Screening, Milling, Blending, Drying, and Other Processes	• Enclosed and Vented to Baghouses • Wet Suppression
Storage Bins, Hoppers, Tanks, Piles	• Enclosed and Vented to Baghouses • Wet Suppression
Loading & Unloading	• Enclosed Truck/Railcar Unloading and Vented to Baghouses • Wet Suppression • Techniques to Reduce Freefall Distances (e.g. Transfer Chute)
Conveying System	• Enclosed and Vented to Baghouses • Wet Suppression • Techniques to Reduce Freefall Distances (e.g. Stack Conveyor)
Vehicle traffic and Roadways	• Conveying System In Lieu of Truck Transporting • Route Modification (e.g. Paving, Adding Gravel/Slag to Dirt Road) • Dust Suppression Application (Water With /Without Surfactants) • Soil Stabilization • Vehicle Restrictions (e.g. Limit Speed, Limit Number of Vehicles) • Prevention and Street Sweeping • Truck Wash • Covers and Leak Resistant Bottoms On Trucks
Wind Erosion	• Enclosure and Wet Suppression
Spillage	• Good Housekeeping

Operations/Emission Sources	Emission Factors	Unit	Reference
LOADING AND UNLOADING @ Quarry, Crushing, Grinding, Screening, Milling, Blending, and Storage Sites	• TSP: $k_L \times 0.0032 \times \left(\frac{U}{5}\right)^{1.3} \times \left(\frac{M}{2}\right)^{-1.4}$ • PM10: 47% TSP	lb/ton materials	AP-42 (Chapter 13.2.4, Equation 1)
VEHICLE TRAFFIC @ Quarry, Crushing, Grinding, Screening, Milling, Blending, and Storage Sites	• TSP: $k_E \times \left(\frac{s}{12}\right)^a \times \left(\frac{W}{3}\right)^b \times \left(\frac{365-P}{365}\right)$ • PM10: 31% TSP	lb/vehicle-miles	AP-42 (Chapter 13.2.2, Equation 1a & Equation 2)
WIND EROSION @ Quarry, Crushing, Grinding, Screening, Milling, Blending, and Storage Sites	• TSP: 0.72 u • PM10: 31% TSP	lb/acre-hr	AP-42 (Chapter 11.9, Table 11.9-1)
BLASTING @ Quarry Site	• TSP: 1.4×10^{-5} (A) $^{1.5}$ • PM10: 52% TSP	lb/blast	AP-42 (Chapter 11.9, Table 11.9-1)
CRUSHING	• TSP: 2.1 PM10 = 5.0×10^{-3} • PM10: 2.4×10^{-3}	lb/ton materials	AP-42 (Chapter 11.19.2, Table 11.19.2-2)
Crushing (Primary) with Fabric Filter	• TSP: 1.0×10^{-3} • PM10: No Data, ~50% TSP = 5.0×10^{-4}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Crushing (Tertiary) with Wet Suppression	• TSP: 2.1 PM10 = 1.2×10^{-3} • PM10: 5.9×10^{-4}	lb/ton materials	AP-42 (Chapter 11.19, Table 11.19.2-2)
Crushing Fines	• TSP: 2.1 PM10 = 0.03 • PM10: 0.015	lb/ton materials	AP-42 (Chapter 11.19.2, Table 11.19.2-2)
Crushing Fines with Wet Suppression	• TSP: 2.1 PM10 = 4.0×10^{-3} • PM10: 2.0×10^{-3}	lb/ton materials	AP-42 (Chapter 11.19, Table 11.19.2-2)
Conveyor Transfer Point @ Crushing Site	• TSP: 2.1 PM10 = 2.9×10^{-3} • PM10: = 1.4×10^{-3}	lb/ton materials	AP-42 (Chapter 11.19.2, Table 11.19.2-2)
Conveyor Transfer Point @ Crushing Site with Wet Suppression	• TSP: 2.1 PM10 = 1.0×10^{-4} • PM10: 4.8×10^{-5}	lb/ton materials	AP-42 (Chapter 11.19.2, Table 11.19.2-2)
Conveyor Transfer Point @ Crushing Site with Fabric Filter	• TSP: 2.9×10^{-5} • PM10: No Data, ~ 0.5 TSP = 1.5×10^{-5}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)

Operations/Emission Sources	Emission Factors	Unit	Reference
SCREENING	• TSP: 2.1 PM10 = 0.03 • PM10: 0.015	lb/ton materials	AP-4 (Chapter 11.19.2, Table 11.19.2-2)
Screening with Wet Suppression	• TSP: 2.1 PM10 = 1.8×10^{-3} • PM10: 8.4×10^{-4}	lb/ton materials	AP-4 (Chapter 11.19.2, Table 11.19.2-2)
Screening with Fabric Filter	• TSP: 2.2×10^{-4} • PM10: No Data, ~0.5 TSP = $1.1.x\ 10^{-4}$	lb/ton materials	AP-4 (Chapter 11.6, Table 11.6-4)
Screening Fines	• TSP: 2.1 PM10 = 0.15 • PM10: 0.07	lb/ton materials	AP-4 (Chapter 11.19.2, Table 11.19.2-2)
Screening Fines with Wet Suppression	• TSP: 2.1 PM10 = 4.4×10^{-3} • PM10: 2.1×10^{-3}	lb/ton materials	AP-42 (Chapter 11.19.2, Table 11.19.2-2)
RAW MATERIAL MILLING Raw Mill with Fabric Filter	• TSP: 0.012 • PM10: No Data, ~ 0.5 TSP = 6.0×10^{-3}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Raw Mill Feed Belt with Fabric Filter	• TSP: 3.1×10^{-3} • PM10: No Data, ~ 0.5 TSP = 1.6×10^{-3}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Raw Mill Weight Hopper with Fabric Filter	• TSP: 0.02 • PM10: No Data, ~ 0.5 TSP = 0.01	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Raw Mill Air Separator with Fabric Filter	• TSP: 0.032 • PM10: No Data, ~ 0.5 TSP = 0.016	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
PRODUCT MILLING Finish Mill with Fabric Filter	• TSP: 8.0 0 x 10^{-3} • PM10: No Data, ~ 0.5 TSP = 4.0×10^{-3}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Finish Mill Feed Belt with Fabric Filter	• TSP: 2.4×10^{-3} • PM10: No Data, ~ 0.5 TSP = 1.2×10^{-3}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Finish Mill Weight Hopper with Fabric Filter	• TSP: 9.4×10^{-3} • PM10: No Data, ~ 0.5 TSP = 4.7×10^{-3}	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)
Finish Mill Air Separator with Fabric Filter	• TSP: 0.028 • PM10: No Data, ~ 0.5 TSP = 0.014	lb/ton materials	AP-42 (Chapter 11.6, Table 11.6-4)

Table C-4
Excavation Criteria Emissions Full Enclosures and Three Sided Enclosures

Example		**Construction Activity**		
One Acre		**Excavation**	15,624	cubic feet[a]
Site Preparation Schedule -	**3**	**days[a]**		

Equipment Type[b]	**No. of Equipment**	**hr/day**	**Crew Size**
Excavators	1	7.0	5
Tractors/Loaders/Backhoes	1	7.0	

Construction Equipment Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Excavators	0.481	0.120	1.302	0.243	0.070
Tractors/Loaders/Backhoes	0.424	0.132	0.858	0.115	0.086

Fugitive Dust Stockpiling Parameters

Silt Content[d]	**Precipitation Days[e]**	**Mean Wind Speed Percent[f]**	**TSP Fraction**	**Area (acres)[g]**
6.9	10	100	0.5	0.06

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	**Mean Wind Speed[i]**	**Moisture Content[d]**	**Dirt Handled[a]**	**Dirt Handled[j]**
	mph		cy	lb/day
0.35	10	7.9	193	160,742

Construction Vehicle (Mobile Source) Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Passenger Vehicles[k]	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy-Duty Truck[l]	0.006308183	0.001402763	0.041540914	0.000403826	0.000774

Table C-4 (Continued)

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Construction Worker	5	20
Haul Truck[m]	2	40
Water Truck[n]	3	0.5

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Excavators	3.37	0.84	9.11	1.70	0.49
Tractors/Loaders/Backhoes	2.97	0.92	6.01	0.81	0.60
Total	**6.3**	**1.8**	**15.1**	**2.5**	**1.09**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Grading[o]: PM10 Emissions (lb/day) = 0.60 x 0.051 x mean vehicle speed$^{2.0}$ x VMT x (1 - control efficiency)

Storage Piles[p]: PM10 Emissions (lb/day) = 1.7 x (silt content/1.5) x ((365-precipitation days)/235) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[q] PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/ 2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10[p] lb/day
Storage Piles	68	0.76
Material Handling	68	0.01
Total		**0.77**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Passenger Vehicles	3.03	0.33	0.33	0.00	0.02
Haul Truck	1.01	0.22	6.65	0.06	0.12
Water Truck	0.02	0	0.12	0	0.002
Total	**4.06**	**0.55**	**7.09**	**0.07**	**0.14**

Total Incremental Localized Emissions from Construction Activities

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**10.4**	**2.3**	**22.2**	**2.6**	**2.0**
Significance Threshold[s]	***550***	***75***	***100***	***150***	***150***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:

a) Estimated for one-acre dome, excavation 10 feet below grade by three feet wide. 2002 RSMeans Building Construction Cost Data, 15th Annual Western Ed. ~ 0.04 hr/cubic yard productivity for concrete block foundation wall. (15,624 cft x 0.04 hr/cubic yard)/(8 hr/day) = 3 days
b) Estimated from throughput.
c) Basin values provided by the ARB, Aug 2004. Assumed equipment is diesel fueled.
d) USEPA, AP-42, Jan 1995, Table 11.9-3 Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations
e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993
f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph. At least one met site recorded wind speeds greater than 12 mph over a 24-hour period in 1981.
g) Assumed storage piles are 0.06 acres in size
h) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm
i) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.
j) Assuming 0,193 cubic yards of dirt handled [(0,193 cubic yard x 2,500 lb/cubic yard)/3 days = 160,742 lb/day]
k) CARB, EMFAC2002 (version 2.2) Burden Model, Winter 2005, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT
l) Assumed 30 cubic yd truck capacity for 0,193 cubic yard of dirt [(0,193 cubic yard x truck/30 cubic yard)/3 days = 2 one-way truck trips/day]. Multiple trucks may be used.
m) Assumed six foot wide water truck traverses over 15,624 square feet of disturbed area
n) USEPA, AP-42, Jan 1995, Table 11.9-1, Equation for Site Grading ≤ 10 µm
o) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, USEPA-450/2-92-004, Equation 2-12
p) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1
q) Includes watering at least three times a day per Rule 403 (68% control efficiency).
r) SCAQMD Regional Significance Thresholds

Table C-5
Full Enclosure Construction Criteria Emissions

Example	**Construction Activity**
One Acre	Dome Construction

Construction Schedule

Equipment Type[a]	**No. of Equipment**	**hr/day**	**Crew Size**
Forklifts	2	7.0	12
Cranes	2	7.0	
Rough Terrain Forklifts	1	7.0	
Cement and Mortar Mixers	2	7.0	
Generator Sets	1	7.0	
Electric Welders	2	7.0	

Construction Equipment Combustion Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type[b]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Forklifts	0.268	0.090	0.508	0.000	0.054
Cranes	0.368	0.102	1.157	0.196	0.059
Rough Terrain Forklifts	0.456	0.123	0.890	0.150	0.084
Cement and Mortar Mixers	0.039	0.011	0.068	0.000	0.005
Generator Sets	0.338	0.101	0.699	0.001	0.051
Electric Welders	N/A	N/A	N/A	N/A	N/A

Construction Vehicle (Mobile Source) Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Passenger Vehicles[c]	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy-Duty Truck[d]	0.006308183	0.001402763	0.041540914	0.000403826	0.000774

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Construction Worker	12	20
Flatbed Truck[a,e]	4	40
Water Truck[f]	3	1.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

	CO	VOC	NOx	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Forklifts	3.75	1.26	7.11	0.00	0.76
Cranes	5.15	1.43	16.20	2.74	0.83
Rough Terrain Forklifts	3.19	0.86	6.23	1.05	0.59
Cement and Mortar Mixers	0.55	0.15	0.95	0.00	0.07
Generator Sets	2.37	0.71	4.89	0.01	0.36
Electric Welders	N/A	N/A	N/A	N/A	N/A
Total	**15.01**	**4.41**	**35.38**	**3.80**	**2.61**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	VOC	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Passenger Vehicles	7.28	0.78	0.78	0.00	0.038
Flatbed Truck	2.02	0.45	13.29	0.13	0.248
Water Truck	0.05	0.01	0.35	0	0.006
Total	**9.35**	**1.24**	**14.42**	**0.13**	**0.29**

Table C-5 (Continued)
Full Enclosure Construction Criteria Emissions

Total Incremental Combustion Emissions from Construction Activities

	CO	VOC	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-Site Emissions	**24.4**	**5.7**	**49.8**	**3.9**	**2.9**
Significance Threshold[g]	***550***	***75***	***100***	***150***	***150***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:
a) Based on discussions with dome manufactures.
b) Basin values provided by the ARB, Aug 2004. Assumed equipment is diesel fueled except the welders which are powered by the generator.
c) http://www.aqmd.gov/ceqa/handbook/onroad/onroadEF03_25.xls
d) http://www.aqmd.gov/ceqa/handbook/onroad/onroadHHDT05_25.xls
e) Assumed haul truck travels 0.1 miles through facility
f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area
g) SCAQMD Regional Significance Thresholds

Table C-6
Three-sided Enclosure Criteria Emissions – Concrete Pouring Emission

Example	**Construction Activity**
One Acre	Three Sided Enclosure Construction - Panel Forms

Construction Schedule

Equipment Type[a]	**No. of Equipment**	**hr/day**	**Crew Size**
Rough Terrain Forklifts	1	7.0	8
Cement and Mortar Mixers	2	7.0	
Generator Sets	1	7.0	
Electric Welders	2	7.0	

Construction Equipment Combustion Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type[b]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Rough Terrain Forklifts	0.456	0.123	0.890	0.150	0.084
Cement and Mortar Mixers	0.039	0.011	0.068	0.000	0.005
Generator Sets	0.338	0.101	0.699	0.001	0.051
Electric Welders	N/A	N/A	N/A	N/A	N/A

Construction Vehicle (Mobile Source) Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Passenger Vehicles[c]	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy-Duty Truck[d]	0.006308183	0.001402763	0.041540914	0.000403826	0.000774

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Construction Worker	8	20
Flatbed Truck[a,e]	2	40
Water Truck[f]	3	1.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Rough Terrain Forklifts	3.19	0.86	6.23	1.05	0.59
Cement and Mortar Mixers	0.55	0.15	0.95	0.00	0.07
Generator Sets	2.37	0.71	4.89	0.01	0.36
Electric Welders	N/A	N/A	N/A	N/A	N/A
Total	**6.11**	**1.72**	**12.07**	**1.06**	**1.02**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Passenger Vehicles	4.85	0.52	0.52	0.00	0.025
Flatbed Truck	1.01	0.22	6.65	0.06	0.124
Water Truck	0.05	0.01	0.35	0	0.006
Total	**5.91**	**0.75**	**7.52**	**0.06**	**0.16**

Total Incremental Combustion Emissions from Construction Activities

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-Site Emissions	**12.0**	**2.5**	**19.6**	**1.1**	**1.2**
Significance Threshold[g]	***550***	***75***	***100***	***150***	***150***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:
a) SCAQMD, staff estimate
b) Basin values provided by the ARB, Aug 2004. Assumed equipment is diesel fueled except the welders which are powered by the generator.
c) http://www.aqmd.gov/ceqa/handbook/onroad/onroadEF03_25.xls
d) http://www.aqmd.gov/ceqa/handbook/onroad/onroadHHDT05_25.xls
e) Assumed haul truck travels 0.1 miles through facility
f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area
g) SCAQMD Regional Significance Thresholds

Table C-7
Three-sided Enclosure Criteria Emissions – Tilt-up of Panels

Example	**Construction Activity**
One Acre	Three Sided Enclosure Construction - Tilt-up of Panels

Construction Schedule

Equipment Type[a]	**No. of Equipment**	**hr/day**	**Crew Size**
Cranes	1	7.0	6
Generator Sets	1	7.0	

Construction Equipment Combustion Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type[b]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cranes	0.368	0.102	1.157	0.196	0.059
Generator Sets	0.338	0.101	0.699	0.001	0.051

Construction Vehicle (Mobile Source) Emission Factors

	CO	**VOC**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Passenger Vehicles[c]	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy-Duty Truck[d]	0.006308183	0.001402763	0.041540914	0.000403826	0.000774

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Construction Worker	6	20
Flatbed Truck[a,e]	4	40
Water Truck[f]	3	1.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

	CO	VOC	NOx	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cranes	2.58	0.71	8.10	1.37	0.41
Generator Sets	2.37	0.71	4.89	0.01	0.36
Total	**4.95**	**1.42**	**12.99**	**1.38**	**0.77**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	VOC	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Passenger Vehicles	3.64	0.39	0.39	0.00	0.019
Flatbed Truck	2.02	0.45	13.29	0.13	0.248
Water Truck	0.05	0.01	0.35	0	0.006
Total	**5.71**	**0.85**	**14.03**	**0.13**	**0.27**

Total Incremental Combustion Emissions from Construction Activities

	CO	VOC	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-Site Emissions	**10.7**	**2.3**	**27.0**	**1.5**	**1.0**
Significance Threshold[g]	***550***	***75***	***100***	***150***	***150***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:

a) SCAQMD, staff estimate
b) Basin values provided by the ARB, Aug 2004. Assumed equipment is diesel fueled except the welders which are powered by the generator.
c) http://www.aqmd.gov/ceqa/handbook/onroad/onroadEF03_25.xls
d) http://www.aqmd.gov/ceqa/handbook/onroad/onroadHHDT05_25.xls
e) Assumed haul truck travels 0.1 miles through facility
f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area
g) SCAQMD Regional Significance Thresholds

Table C-8
Miscellaneous Construction

Example	**Construction Activity**
Two Acre Site	Miscellaneous Construction

Construction Schedule

Equipment Type[a]	**No. of Equipment**	**hr/day**	**Crew Size**
Forklifts	2	7.0	4
Rough Terrain Forklifts	2	7.0	

Construction Equipment Combustion Emission Factors

Equipment Type[b]	**CO** lb/hr	**VOC** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Forklifts	0.268	0.090	0.508	0.000	0.054
Rough Terrain Forklifts	0.456	0.123	0.890	0.150	0.084

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	**VOC** lb/mile	**NOx** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Passenger Vehicles[c]	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy-Duty Truck[d]	0.006308183	0.001402763	0.041540914	0.000403826	0.000774

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Construction Worker	4	20
Flatbed Truck[a,e]	4	40
Water Truck[f]	3	1.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Forklifts	3.75	1.26	7.11	0.00	0.76
Rough Terrain Forklifts	6.38	1.72	12.46	2.10	1.18
Total	**10.13**	**2.98**	**19.57**	**2.10**	**1.94**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Passenger Vehicles	2.43	0.26	0.26	0.00	0.013
Flatbed Truck	2.02	0.45	13.29	0.13	0.248
Water Truck	0.05	0.01	0.35	0.00	0.006
Total	**4.50**	**0.72**	**13.90**	**0.13**	**0.27**

Total Incremental Combustion Emissions from Construction Activities

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-Site Emissions	**14.6**	**3.7**	**33.5**	**2.2**	**2.2**
Significance Threshold[g]	***550***	***75***	***100***	***150***	***150***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:

a) SCAQMD, staff estimate
b) Basin values provided by the ARB, Aug 2004. Assumed equipment is diesel fueled except the welders which are powered by the generator.
c) http://www.aqmd.gov/ceqa/handbook/onroad/onroadEF03_25.xls
d) http://www.aqmd.gov/ceqa/handbook/onroad/onroadHHDT05_25.xls
e) Assumed haul truck travels 0.1 miles through facility
f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area
g) SCAQMD Regional Significance Thresholds

Enclosed Conveyor Construction

Example	**Construction Activity**
Two Acre Site	Miscellaneous Construction

Construction Schedule

Equipment Type[a]	**No. of Equipment**	**hr/day**	**Crew Size**
Forklifts	1	7.0	4
Cranes	1	7.0	6
Rough Terrain Forklifts	1	7.0	

Construction Equipment Combustion Emission Factors

Equipment Type[b]	**CO** lb/hr	**VOC** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Forklifts	0.268	0.090	0.508	0.000	0.054
Cranes	0.368	0.102	1.157	0.196	0.059
Rough Terrain Forklifts	0.456	0.123	0.890	0.150	0.084

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	**VOC** lb/mile	**NOx** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Passenger Vehicles[c]	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy-Duty Truck[d]	0.006308183	0.001402763	0.041540914	0.000403826	0.000774

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Construction Worker	4	20
Flatbed Truck[a,e]	4	40
Water Truck[f]	3	1.4

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Forklifts	1.88	0.63	3.56	0.00	0.38
Cranes	2.58	0.71	8.10	1.37	0.41
Rough Terrain Forklifts	3.19	0.86	6.23	1.05	0.59
Total	**7.65**	**2.20**	**17.89**	**2.42**	**1.38**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Passenger Vehicles	2.43	0.26	0.26	0.00	0.013
Flatbed Truck	2.02	0.45	13.29	0.13	0.248
Water Truck	0.05	0.01	0.35	0.00	0.006
Total	**4.50**	**0.72**	**13.90**	**0.13**	**0.27**

Total Incremental Combustion Emissions from Construction Activities

	CO	**VOC**	**NOx**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-Site Emissions	**12.2**	**2.9**	**31.8**	**2.6**	**1.6**
Significance Threshold[g]	***550***	***75***	***100***	***150***	***150***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:

a) SCAQMD staff estimate
b) Basin values provided by the ARB, Aug 2004. Assumed equipment is diesel fueled except the welders which are powered by the generator.
c) http://www.aqmd.gov/ceqa/handbook/onroad/onroadEF03_25.xls
d) http://www.aqmd.gov/ceqa/handbook/onroad/onroadHHDT05_25.xls
e) Assumed haul truck travels 0.1 miles through facility
f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area
g) SCAQMD Regional Significance Thresholds

Table C-10
Storage Pile Chemical Dust Suppressant Usage Estimates

Description	Storage Pile 1	Storage Pile 2	Storage Pile 3	Storage Pile 4	Storage Pile 5	Storage Pile 6	Storage Pile 7	Storage Pile 8	Storage Pile 9	Storage Pile 10	Storage Pile 11
Width (ft)	300	225	300	23,215	300	75	75	300	75	450	300
Length (ft)	150	75	150	0.53	75	75	75	300	75	45	75
Footprint Area (acre)	1.03	0.39	1.03	5,804	0.52	0.13	0.13	2.07	0.13	0.46	0.52
Surface Area (feet^2)	109,486	38,621	109,486	43,412	49,871	9,743	9,743	155,885	9,743	42,254	49,871
Surface Area (acre)	2.51	0.89	2.51	23,215	1.14	0.22	0.22	3.58	0.22	0.97	1.14
Volume of chemical stabilizer (feet^3)	9,124	3,218	9,124	1,935	4,156	812	812	12,990	812	3,521	4,156
Volume of chemical stabilizer (gallon)	68,246	24,074	68,246	14,471	31,086	6,073	6,073	97,168	6,073	26,338	31,086

Description	Storage Pile 12	Storage Pile 13	Storage Pile 14	Storage Pile 15	Storage Pile 16	Storage Pile 17	Storage Pile 18	Storage Pile 19	Storage Pile 20	Storage Pile 21	Total
Width (ft)	135	47	51	30	30	184	143	278	149	300	
Length (ft)	135	47	51	30	30	184	143	278	149	300	
Footprint Area (acre)	0.42	0.05	0.06	0.02	0.02	0.78	0.47	1.77	0.51	2.07	**12.77**
Surface Area (feet^2)	31,567	3,826	4,505	1,559	1,559	58,640	35,419	133,860	38,453	155,885	**1,073,191**
Surface Area (acre)	0.72	0.09	0.1	0.04	0.04	1.35	0.81	3.07	0.88	3.58	**24.61**
Volume of chemical stabilizer (feet^3)	2,631	319	375	130	130	4,887	2,952	11,155	3,204	12,990	**89,433**
Volume of chemical stabilizer (gallon)	19,677	2,385	2,808	972	972	36,552	22,078	83,439	23,969	97,168	**668,956**

Surface area of equilateral triangle = $3^{1/2} \times a^2$
Surface area of a polygon with equilateral triangle end sides = $a^2 (1 + 3^{1/2}/4)$
Acre = 43,560 square feet
Assumed inch depth of chemical stabilizer applied.
Gallon = 7.48 cubic feet

Sources
File - MarTXIStorage.xls, Sheet - MarTXIStoragepile
File, AugCPCCStorage.xls, Sheet - AugRevCPCCStoragepile

Table C-11
Material Handling Water Estimates for Dust Control

Description	Storage Pile 1	Storage Pile 2	Storage Pile 3	Storage Pile 4	Storage Pile 5	Storage Pile 6	Storage Pile 7	Storage Pile 8	Storage Pile 9	Storage Pile 10	Storage Pile 11
Annual Rate of Loading & Unloading (ton/year)	33,714	113,911	8,944	0	105,879	1,900	9,047	3,500	4,700	9,183	5,000
Annual Rate of Loading & Unloading (ton/day)	92	312	25	0	290	5	25	10	13	25	14
Water Usage (gal/day)	9.2	31.2	2.5	0	29.0	0.5	2.5	1.0	1.3	2.5	1.4

Description	Storage Pile 12	Storage Pile 13	Storage Pile 14	Storage Pile 15	Storage Pile 16	Storage Pile 17	Storage Pile 18	Storage Pile 19	Storage Pile 20	Storage Pile 21	Total
Annual Rate of Loading & Unloading (ton/year)	8,954	31,815	17,815	0	0	18,181	8,359	145,234	743,878	0	**1,270,014**
Annual Rate of Loading & Unloading (ton/day)	25	87	49	0	0	50	23	398	2,038	0	**3,479**
Water Usage (gal/day)	2.5	8.7	4.9	0.0	0.0	5.0	2.3	39.8	203.8	0.0	**348**

Ref: CPCC/ENSR July Report.

Table C-12
Potential Water Usage from the Use of Wheel Washers

Description	CPCC[a]	TXI[b]	Total
Annual truck trips leaving the facility, trips	118,754	72,567	191,321
Amount of water used per truck, gal/truck	40	40	
Annual volume of water, gal/yr	4,750,160	2,902,680	7,652,840
Daily Truck Trips, gal/day	13,014	7,953	20,967

a) ENSR International, Colton Facility PM10 Emission Inventory, document number 01214-009-100, prepared for CPCC, July 2004.
b) ENSR International, TXI Riverside Cement Crestmore Facility Paved Road and Storage Pile Fugitive PM10 Emissions, document number 05715-008-400, April 2005

Table C-13
Criteria Emissions from Delivery of Chemical Stabilizer

Description	Usage gal/month	Usage gal/day	No of Delivery Trucks
Undisturbed Area	668,956	22,299	3
Active Areas		29,811	4
Additional trucks			2
Total			9

Undisturbed usage from Table C-11.
Active Area assumed to be a third of the total area of the pile (668,956 gal/day/3 = 29,811 gal/day)
Assumed 8,000 gallon capacity delivery trucks
No of Delivery Trucks = (Usage, gal/day)/(8,000 gal/truck) = 7 trucks + 2 additional trucks to be conservative = 9

Description	**No. of Trips per Day**	**Length of Round Trip, mile**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**
Emission factor, lb/mile	9	40	0.00631	0.00140	0.04154	0.00040	0.00077
Delivery Truck Emissions, lb/day			2.27	0.50	14.95	0.15	0.28
Operational Significance Threshold			*550*	*55*	*55*	*150*	150
Exceed Significance?			NO	NO	NO	NO	NO

CARB, EMFAC2002 (version 2.2) Burden Model, Winter 2005, 75 F, 40% RH: HHD and passenger vehicles (<8500 pounds) EF, lb/yr = (EF, ton/yr x 2000 lb/ton)/VMT
Emissions, lb/day = emission factor, lb/mile x number of trips per day x length of round trip, miles/trip

Table C-14
Alternative C Criteria Emissions from Delivery of Chemical Stabilizer

Description	**No. of Trips per Day**	**Length of Round Trip, mile**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**
Emission factor, lb/mile	1	40	0.00631	0.00140	0.04154	0.00040	0.00077
Delivery Truck Emissions, lb/day			0.25	0.06	1.66	0.02	0.03
Operational Significance Threshold			*550*	*55*	*55*	*150*	150
Exceed Significance?			NO	NO	NO	NO	NO

CARB, EMFAC2002 (version 2.2) Burden Model, Winter 2005, 75 F, 40% RH: HHD and passenger vehicles (<8500 pounds) EF, lb/yr = (EF, ton/yr x 2000 lb/ton)/VMT
Emissions, lb/day = emission factor, lb/mile x number of trips per day x length of round trip, miles/trip

APPENDIX D

NOTICE OF PREPARATION AND INITIAL STUDY

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

21865 Copley Drive, Diamond Bar, CA 91765-4182

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT

Project Title:
Draft Environmental Assessment: Proposed Rule 1156 – PM10 Emission Reductions from Cement Manufacturing Facilities

Project Location:
South Coast Air Quality Management District (SCAQMD) area of jurisdiction consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin and the Mojave Desert Air Basin

Description of Nature, Purpose, and Beneficiaries of Project:
Proposed Rule (PR) 1156 – PM10 Emission Reductions from Cement Manufacturing Facilities would reduce PM10 emissions from cement manufacturing facilities. PR 1156 would implement a portion of the 2003 Air Quality Management Plan (AQMP) Control Measure BCM-08 – Further Emission Reductions from Aggregate and Cement Manufacturing Operations. PR 1156 has been developed to address the issues related to the only two cement manufacturing facilities, California Portland Cement Company and Riverside Cement Company, located in the SCAQMD's jursidiction. The proposed rule would apply to all operation and material handling and transport at the cement manufacturing facilities. Based on the construction activities necessary to comply with the proposed rule requirements, the quantity of emissions due to construction may exceed the SCAQMD's daily significance threshold. Water usage and wastewater disposal may be significant. No other potentially significant adverse impacts were identified.

Lead Agency:	**Division:**
South Coast Air Quality Management District	Planning, Rule Development and Area Sources

Initial Study and all supporting documentation are available at:	**or by calling:**	**or by accessing the SCAQMD's website at:**
SCAQMD Headquarters 21865 Copley Drive Diamond Bar, CA 91765	(909) 396-2039	http://www.aqmd.gov/ceqa/aqmd.html

The Public Notice of Preparation is provided through the following:

☑ Los Angeles Times (January 21, 2005) ☑ SCAQMD Website ☑ SCAQMD Mailing List

Initial Study Review Period:
January 21, 2005 – February 22, 2005

Scheduled Public Meeting Dates (subject to change):
Public Workshop: January 14, 2005 at SCAQMD Headquarters
SCAQMD Governing Board Hearing: June 3, 2005, SCAQMD Headquarters

Send CEQA Comments to:	**Phone:**	**Email:**	**Fax:**
Mr. James Koizumi	(909) 396-3234	jkoizumi@aqmd.gov	(909) 396-3324

Direct Questions on Proposed Rule:	**Phone:**	**Email:**	**Fax Number:**
Ms. Minh Pham	(909) 396-2613	mpham@aqmd.gov	(909) 396-3324

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Initial Study for:

Proposed Rule 1156 – PM10 Emission Reductions from Cement Manufacturing Facilities

January 20, 2005

SCAQMD No. 050114JK

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John Olvera – Senior Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

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Cities Representative, San Bernardino County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. By statute, the SCAQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the district[2]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP[3].

The area of jurisdiction under the SCAQMD exceeds state and federal ambient air quality standards for PM10 (defined as particulate matter with an aerodynamic diameter of 10 microns or less). These microscopically fine particles can originate from a variety of area sources, both natural and man-made, and from a variety of stationary source processes, which include direct emissions (referred to as primary PM10) and atmospheric chemical reactions that convert gases to particles (referred to as secondary PM10). Approximately one-third of the ambient PM10 concentrations are a result of soil dust entrainment, commonly referred to as fugitive dust[4]. In response to these elevated PM10 levels, the SCAQMD adopted Rule 403 – Fugitive Dust, to reduce fugitive dust and the corresponding PM10 emissions.

Currently, fugitive dust from cement manufacturing facilities is regulated under Rule 403 in the Basin. Proposed Rule (PR) 1156 would further regulate fugitive dust emissions from specific dust generating activities and operations at cement manufacturing facilities to supplement fugitive dust control requirements from Rule 403. PR 1156 would implement a portion of the 2003 AQMP control measure BCM-08 – Further Emission Reductions from Aggregate Operations (PM10). Cement manufacturing facilities are defined as any facility engaged in producing Portland cement or associated products. Two facilities in the Basin would be affected by the Proposed Rule 1156, California Portland Cement Co. (CPCC) and TXI Riverside Cement (TXI).

PR 1156 would implement the cement operation portion of Control Measure BCM-08. A separate rule, Rule 1157, was adopted by the Governing Board on January 7, 2005 to address emissions generated by aggregate and related operations. Similar to Rules 403 and 1157, PR 1156 would control PM10 emissions though the use of performance standards and proposed dust control measures.

This Initial Study, prepared pursuant to the California Environmental Quality Act (CEQA), identifies only construction-related air pollutant emissions as a potentially significant adverse impact. A Draft Environmental Assessment (EA) will be prepared to analyze whether the potential air quality impact is significant. Any other potentially significant environmental impacts identified through this Notice of Preparation/Initial Study process will also be considered for further analysis in the Draft EA.

[1] The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., ch 324 (codified at Health & Safety Code, §§40400-40540).
[2] Health & Safety Code, §40460 (a).
[3] Health & Safety Code, §40440 (a).
[4] SCAQMD, Board Package for Proposed Rule 403, Agenda No. 38, April 2, 2004.

Throughout this document, references to the proposed project or PR 1156 are used interchangeably.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PR 1156 is a "project" as defined by the California Environmental Quality Act (CEQA). CEQA requires that the potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the CEQA process is to inform the SCAQMD's Governing Board, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing the proposed project and to identify feasible mitigation measures when an impact is significant.

California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the Secretary of Resources Agency on March 1, 1989 and is codified as SCAQMD Rule 110. Pursuant to Rule 110 (the rule which implements the SCAQMD's certified regulatory program), SCAQMD is preparing a Draft Environmental Assessment (EA) to evaluate potential adverse impacts from PR 1156.

The SCAQMD as Lead Agency for the proposed project has prepared this Initial Study (which includes an Environmental Checklist). The Environmental Checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. The Initial Study is also intended to provide information about the proposed project to other public agencies and interested parties prior to the release of the Draft EA. Written comments on the scope of the environmental analysis and possible project alternatives received by the SCAQMD during the 30-day review and comment period will be considered (if received by the SCAQMD during the 30-day review period) when preparing the Draft EA.

PROJECT LOCATION

The SCAQMD has jurisdiction over an area of 10,473 square miles (referred to hereafter as the district), consisting of the four-county South Coast Air Basin (Basin) and the Riverside County portions of the Salton Sea Air Basin (SSAB) and the Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The 6,745 square-mile Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB and MDAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of both Riverside County and the SSAB and is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 1-1).

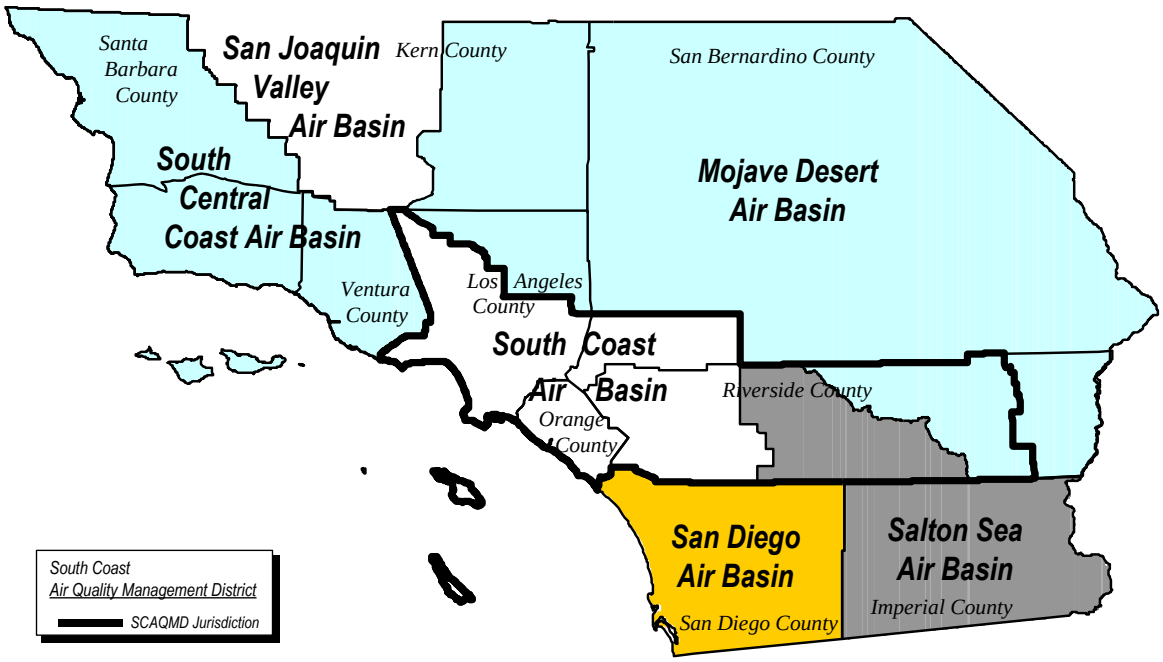

Figure 1-1
South Coast Air Quality Management District

PROJECT BACKGROUND AND OBJECTIVES

PR 1156 would implement in part BCM-08 – Further Emission Reductions from Aggregate Operations (PM10), previously evaluated and discussed in the Final 2003 AQMP, dated August 2003, and Final Program Environmental Impact Report for 2003 AQMP (SCH. No. 2002081137), dated August 2003. The 2003 Control Measure BCM-08 estimated a total inventory of 1.4 tons per day as PM10 for all identified aggregate and cement manufacturing facilities, and with a total anticipated emissions reduction of 0.7 ton per day PM10 by 2010[5]. The two cement manufacturing facilities subject to PR 1156 contribute approximately 25 percent of the emission inventory and reductions reported in Control Measure BCM-08. Additional PM10 emission reductions are needed to attain the ambient air quality standards for particulate matter. However, staff has found that the emission inventory and reductions in Control Measure BCM-08 based on limited information and, therefore, are underestimated.

[5] The emissions inventory and emissions reductions for aggregate and related operations were revised during the development of Rule 1157. The Final Staff Report for Rule 1157, dated December 3, 2004, estimated that the baseline emissions inventory for aggregate and related operations is 29 tons of PM10 per day, and that 18 tons per day of PM10 emissions would be reduced by Rule 1157.

As a part of the rule promulgation process, staff has completed facility surveys and has reviewed source test and monitoring data in order to prepare a more accurate emissions inventory.

The primary objective of PR 1156 is to further control PM10 emissions from operations at the cement manufacturing facilities not specifically covered by Rule 403:

- Establishing performance or emission standards that could be used to evaluate the performance of the control technologies;
- Improve existing control technologies to increase their control efficiency; and
- Implement specific criteria to ensure that the facilities will operate these control equipment at their peak performance.

PROJECT DESCRIPTION

PR 1156 would implement a portion of control measure BCM-08 – Further Emission Reductions from Aggregate Operations (PM10), previously evaluated and discussed in the Final 2003 Air Quality Management Plan (August 2003) and Final Program Environmental Impact Report for 2003 Air Quality Management Plan (August 2003). PR 1156 specifies the most effective emission controls that would further control of fugitive dust beyond Rule 403 requirements, which are technologically feasible and cost-effective to reduce dust impacts from affected facilities on the surrounding communities.

The following subsections briefly summarize the main components of PR 1156. For the complete text of the proposed rule, please refer to Appendix B.

Proposed Rule 1156

Purpose

The purpose of PR 1156 – PM_{10} Emission Reductions from Cement Manufacturing Facilities is to reduce PM10 emissions from cement manufacturing facilities.

Applicability

PR 1156 applies to all operations and materials handling and transport at a cement manufacturing facility including but not limited to kiln and clinker cooler, storage, crushing, drying, screening, milling, conveying, bulk loading and unloading system, roadways, materials transport, and track-out.

Definitions

This subdivision lists keywords related to cement manufacturing and defines them for clarity and to enhance enforceability. For example, dust suppressants are defined as water, hygroscopic materials, or chemical dust stabilizers used as a treatment material to reduce fugitive dust emissions.

Requirements

Operators of affected operations would be required to comply with the following requirements by January 1, 2006 unless otherwise stated.

10. PR 1156 establishes the following visible emission requirements:

- No dust emissions exceeding 10 percent opacity shall be discharged to the atmosphere from any activity, except open storage piles, roadways and unpaved areas, using USEPA Opacity Test Method 9.
- No fugitive dust emissions exceeding 20 percent opacity shall be discharged to the atmosphere from any storage pile, roadway or unpaved area, based on an average of 12 consecutive readings, or 50 percent opacity based on five individual consecutive readings using SCAQMD Opacity Test Method No. 9B.
- No visible dust plume exceeding 100 feet in any direction from the facility boundaries shall be generated from any operations at the facility.

11. Loading, Unloading and Transferring:

- Operators of affected existing operations would be required to conduct loading and unloading in an enclosed structure that is vented to SCAQMD-permitted air pollution control equipment. The enclosed structure would be required to have openings with overlapping flaps, sliding doors or other equally effective devices, which are required to remain closed, except to allow trucks and railcars to enter and leave.
- Operators of affected existing operations would be required to enclose all conveying system and transfer points. The enclosed structure would be required to vent to permitted control equipment.
- Operators of affected existing operations would be required to apply dust suppressant if needed during material loading, unloading, and transferring activities, and at conveying system transfer points to meet opacity requirements.
- Operators of affected existing operations would be required to install and maintain dust curtains, shrouds, and gaskets along the conveying system to meet opacity requirements.
- Operators of affected existing operations would be required to use appropriate equipment including, but not limited to, stackers or chutes, to minimize the height materials fall into storage bins, silos, hoppers or open stock piles to meet opacity requirements.
- In lieu of meeting the performance standards for baghouses required for loading, unloading and transferring the following performance standards in Table 1-1 would be required to be achieved:

12. Crushing, Screening, Milling, and Other Operations

- Existing operators would be required to enclose all operations including, but not limited to, crushing, screening, drying, blending, and milling. The enclosed structure shall be vented to permitted control equipment.
- Operators would be required to apply chemical dust suppressants during all operations in order to meet visible emission requirements.
- In lieu of meeting the performance standards for baghouses required for crushing, screening, milling and other operations, the performance standards presented in Table 1-1 would be required to be achieved.

13. Kilns and Clinker Coolers

By December 31, 2006, operators would be required to achieve an outlet concentration of 0.005 grain per dry cubic feet or 0.05 pound PM10 per ton of clinker produced, or 99.95 percent overall control efficiency.

Table 1-1
PM10 Emission Factor

Process	PM10 Emission Factor (lb/ton materials)
Primary limestone crushing vented to baghouse	0.0005
Secondary limestone crushing and screening vented to baghouse	0.0002
Limestone conveying vented to baghouse	0.00001
Raw mill vented to baghouse	0.006
Raw mill conveyor vented to baghouse	0.0016
Raw mill weight hopper vented to baghouse	0.0095
Raw mill air separator vented to baghouse	0.016
Finish mill vented to baghouse	0.004
Finish mill conveyor vented to baghouse	0.0012
Finish mill weight hopper vented to baghouse	0.0047
Finish mill air separator vented to baghouse	0.014
Raw material loading and unloading	0.001
Cement loading and unloading	0.0003

14. Material Storage

- Operators of affected facilities would be required to store all raw materials and products in a silo, bin or hopper that is vented to an air pollution control device.
- By December 31, 2006, operators would be required to enclose open piles of materials with ten percent or less moisture content or materials equal or less than half inch sieve.
- For the remaining piles that would not be enclosed, operators of affected facilities would be required to apply chemical dust suppressants to stabilize the entire surface area, except for areas of the piles that are actively distributed during loading and unloading activities. Reapplication of chemical dust stabilizers to disturbed areas of the pile would be required at the end of each work shift. Operators would also be required to install and maintain a three-sided barrier to provide wind sheltering and maintain the open-side of the pile in a stabilized condition.

15. Air Pollution Control Device

- Operators of affected facilities would be required to install and maintain a baghouse system that has an outlet concentration of 0.005 grain per dry standard cubic feet PM10 or a 99.95 percent collection efficiency.
- Operators of affected facilities would be required to install and maintain a baghouse ventilation and hood system that meets a capture efficiency of at least 99.5 percent or a minimal capture velocity requirement specified in the U.S. Industrial Ventilation Handbook.

16. Internal Roadways and Areas

c) Unpaved Roadways and Areas

- Operators of affected facilities would be required to apply chemical dust suppressants to stabilize the entire unpaved haul road surface; post signs at the two ends stating that only haul trucks would be allowed to use these roads unless non-haul trucks are using the roads to travel to maintenance areas; and enforce a 15 mile per hour or less speed limit. These requirements are exempt for quarry areas
- For other unpaved roadways and areas, operators of affected operations would be required to apply chemical dust suppressants to stabilize the surface or apply a gravel pad containing one-inch or larger washed gravel to a depth of six inches; and enforce a speed limit of 15 miles per hour or less.

d) Paved Roads:

Operators of affected facilities would be required to sweep all internal paved roads with a Rule 1186-certifed sweeper at least one a day, or more frequently to comply with visible dust requirements.

17. Track-Out:

- Operators of affected facilities would be required to pave at least 0.25 mile of road leading to each public roadway to prevent track-out.
- If necessary to comply with opacity limits, operators of affected facilities would be required to install a rumble grate, truck washer and wheel washer.
- Operators and truck drivers would be required to ensure that cement trucks leaving the facility are fully covered with no accumulation of material on the wheels or external parts of the truck. For open-bed trucks loaded with materials, operators and truck drivers would be required to ensure that loaded materials are leveled and maintained with at least six inches of freeboard for open-bed trucks. Operators and truck drivers would be responsible for tarping or sufficiently covering the load before open-bed trucks leave the facility. Signs would be required to ensure compliance with spillage requirements.
- Operators would be required to provide fugitive dust advisory flyers to any truck company accessing the facility at least once a year.

18. Facility Cleanup

Operators would be required to develop and implement rigorous housekeeping procedures that would prompt the removal of any pile of material spillage or carry-back

and apply chemical dust suppressants or other dust control methods to maintain the piles in a stabilized condition. Carry-back is the dry materials that fall off the underside of the conveyor belt and accumulates on the ground.

Monitoring and Source Testing

The proposed rule would require monitoring and source testing requirements to verify compliance.

Recordkeeping Requirements

The proposed rule would require recordkeeping requirements to verify compliance.

Source Test Methods and Calculation

The proposed rule would require approved source test methods and calculations to be used in determining PM10 emission rates and collection efficiencies of baghouses.

Exemptions

- Materials that are demonstrated to have more than a 10 percent moisture content or are larger than half inch sieve are exempt from total storage pile enclosure requirements.
- The operator is exempt from using chemical dust suppressants on unpaved roads provided that the unpaved roads are in the quarry area and used in transportation of raw material to other processing sites at the facility and the roads are identified and stabilized with water. The operator is also exempt if the use of applicable chemical dust suppressants on specific unpaved roads violates the rules and/or regulations of the local Water Quality Control Board or other government agency provided the operator uses water in sufficient quantity and frequency to stabilize the road surface and the Executive Officer is notified in writing 30 days prior to the use of water.
- Empty haul trucks are not required to use designated haul trucks roads if they travel on unpaved roads complying with the requirements for chemical dust suppressant or gravel pad requirements for internal unpaved non-haul roadways and areas presented above.
- The operator would be exempt from internal unpaved roadway requirements where the road is used less than twice a day by a designated vehicle at a speed limit less than 15 miles per hour.
- Haul trucks transferring raw materials used in the production of cement from the quarry to primary crushers during normal working hours are exempt from the speed limit of 15 miles per hour or less for internal unpaved haul roadways.

Alternative Control Options

- In lieu of using dust suppressants, facility may submit for approval by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency a plan for achieving equivalent emissions reductions through alternative control measures.
- In lieu of installing an enclosure and venting the feed stream of the primary crusher to a baghouse that meets the air pollution device requirements, the operator may use alternative control measures after demonstrating equivalent control reductions and receiving approval from the Executive Officer.

ALTERNATIVES

The Draft EA will discuss and compare alternatives to the proposed project as required by CEQA and by SCAQMD Rule 110. Alternatives must include realistic measures for attaining the basic objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative. In addition, the range of alternatives must be sufficient to permit a reasoned choice and it need not include every conceivable project alternative. The key issue is whether the selection and discussion of alternatives fosters informed decision making and public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. Suggestions on alternatives submitted by the public will be evaluated for inclusion in the Draft EA.

SCAQMD Rule 110 does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an Environmental Impact Report under CEQA. Alternatives will be developed based in part on the major components of the proposed rule. The rationale for selecting alternatives rests on CEQA's requirement to present "realistic" alternatives; that is alternatives that can actually be implemented. CEQA also requires an evaluation of a "No Project Alternative." Written suggestions on potential project alternatives received during the comment period for the Initial Study will be considered when preparing the Draft EA.

CONTROL OPTIONS

Existing Control Technologies

The operations that generate particulate matter at a cement manufacturing plant are:

- Quarrying, crushing, screening, grinding, milling, and conveying of raw materials;
- Loading and unloading of raw materials to storage including open storage piles, bins, hoppers, or storage tanks;
- Clinker production and combustion of fuels in kilns and clinker coolers;
- Grinding and milling of clinker into cement;
- Loading and unloading and conveying of cement to and from the storage area;
- Product packaging or sacking.

Emissions generated from these operations can be subcategorized into 1) process emissions, and 2) fugitive emissions. Process emissions can be contained in an enclosure and vented to add-on control equipment. For example, the raw mills and finish mills at CPCC are located in a building where the emissions vent to a baghouse. Fugitive dust emissions cannot be contained but can be controlled. Examples of fugitive dust emissions are emissions generated from vehicle traffic traveling within the plant and track-out, or emissions from wind erosion, re-entrainment, and spillage.

An operation may generate both process and fugitive emissions. For example, process emissions from an open storage pile include 1) process emissions from loading and unloading activities; and 2) fugitive emissions due to wind erosion, re-entrainment, and vehicle movement within the area.

As previously discussed PR 1156 would affect two facilities CPCC and TXI. The facilities employ a variety of control technologies to reduce process and fugitive dust emissions. Table 1-2 provides a list of control techniques currently employed at CPCC and TXI.

Table 1-2
Existing Control Techniques Employed at CPCC and TXI

Source	**Control Techniques**
Kilns Clinker Coolers	• Baghouses
Crushing Grinding Screening Milling Blending Drying Other Processes	• Enclosed and Vented to Baghouses Wet Suppression
Storage Bins Hoppers Tanks Piles	• Enclosed and Vented to Baghouses (excluding open piles) • Wet Suppression
Loading Unloading	• Enclosed Truck/Railcar Unloading and Vented to Baghouses • Wet Suppression • Techniques to Reduce Freefall Distances (e.g. Transfer Chute)
Conveying	• Enclosed and Vented to Baghouses • Wet Suppression • Techniques to Reduce Freefall Distances (e.g. Stack Conveyor)
Vehicle Traffic Roadways	• Route Modification (e.g. Paving, Adding Gravel/Slag to Dirt Road) • Dust Suppression Application (Water With /Without Surfactants) • Soil Stabilization • Vehicle Restrictions (e.g. Limit Speed, Limit Number of Vehicles) • Prevention and Street Sweeping • Truck Wash • Covers and Leak Resistant Bottoms On Trucks
Wind Erosion	• Enclosure or Wet Suppression
Spillage	• Excellent Housekeeping, Leveling of Loads, Tarping

As shown in Table 1-2, most of the process equipment at CPCC and TXI are enclosed and vented to baghouses. CPCC and TXI use wet suppression, street sweeping, truck washing and enforce vehicle speed limits to reduce fugitive emissions. Operators of both CPCC and TXI are familiar with available control technologies and have applied a wide range of control options to reduce emissions at their facilities. However, additional PM10 emission reductions are feasible and necessary.

To establish appropriate performance/emission standards and to identify further for improvements in the existing control technologies, staff has conducted a review of technical

papers, the USEPA website, and consulted with various control technology vendors. The results regarding baghouse application, control technologies for open storage piles, conveyors, and fugitive emissions are summarized in Table 1-3 and the following paragraphs.

Table 1-3 lists the performance standards achieved and verified by USEPA for high efficiency filters.

Table 1-3
High Efficiency Filtration Products

Vendor	PM10 Performance Standard (grain/dry standard square meter)
Air Purator Corp.	0.0003
BWF America, Inc	0.0004
BHA Group, Inc	0.0005
Menardi-Criswell	0.001
Tetratec/Donalson	0.001
W.L. Gore	0.004

In general, conventional filter media includes woven filter bags (fiberglass, polyester) that are used in reverse-air baghouses and felt filter bags that are used in pulse jet baghouses. Using conventional filter media, filtration occurs as a result of: 1) the formation of a primary dustcake (initial layer of dust) on the surface of the filters; and 2) the accumulation of dust particles within the depth of dustcake layer. The conventional filter media act solely as a support for the primary dustcake layer. The primary dustcake, however, is usually lost during the cleaning cycle and must be reestablished. Without the presence of the primary dustcake, dust particles will bleed through the conventional filters during the cleaning cycle resulting in intermittent emissions called "puffing."

High efficiency filters are based on the concept of surface filtration, which include expanded polytetrafluoroethylene (ePTFE) membranes, or PTFE finishes, bonded to the surface of conventional media. The ePTFE membranes or finishes can be bonded on either woven fiberglass or woven fabrics or felts. This layer of membrane reduces the need for primary dustcake and thus eliminates intermittent "puffing" emissions. The collecting efficiency of a conventional fiberglass filter is about 99.9 percent, and 99.993 percent for fiberglass conventional filter coated with ePTFE (Polizzi, 1999; Polizzi, 2001; Martin, 2004; Laskaris, 2002).

A hypothetical example of the significance in emission reductions achieved by switching from conventional filters to high efficiency filters is illustrated in Table 1-4. For this example, it is assumed that a hypothetical facility currently vents a process to a baghouse equipped with conventional filters that achieve 99.9 percent control. The PM10 emissions remaining after the baghouse is assumed to be to one ton per day. By retrofitting the baghouse with high efficiency filters that achieve 99.95 percent efficiency, the hypothetical facility can significantly reduce their facility emissions to 0.5 ton per day (50 percent

reduction); and with 99.993 percent control efficiency, they can lower their emissions to 0.07 ton per day (93 percent reduction).

Table 1-4
Collecting Efficiency Versus Emission Reduction

Description	Control Efficiency	PM10 Emissions (ton/day)
Conventional Filter	99.9%	1
High Efficiency Filter	99.95%	0.5
High Efficiency Filter	99.993%	0.07

Other Technical Information

Other relevant information related to baghouse performance is listed below:

- The opacity limit of five percent to 10 percent is specified in operating permits for many cement manufacturing facilities in California and other states such as Iowa, Indiana and South Dakota.
- The opacity limit of 10 percent is currently required by NESHAP.
- The European Commission for the cement industry in Europe has specified a Best Available Control Standard of 0.008 grain per dry standard square foot to 0.012 grain per dry standard square foot for dust (European Commission, 1999). Assuming 50 percent of dust is PM10, a comparable standard for PM10 is then approximately 0.004 grain per dry standard square foot to 0.006 grain per dry standard square foot.
- The Pollution Prevention Directorate Environmental Canada preliminarily recommended a standard of 0.006 grain per dry standard square foot or 0.08 pound of PM per ton of clinker for kilns and 10 percent opacity for all operations (Canada, 2004). Assuming 50 percent of the PM is PM10, the comparable standard for PM10 is then 0.04 pound per ton of clinker.
- Operating data at several cement manufacturing plants show emissions of less than 0.005 grain per dry standard square foot. For example, a cement kiln at Wietersdorf in Austria achieved from four to seven milligram per normal dry square meter (Grabmeyer, 2001).[6] In addition, a cement kiln at Lafarge Martres, Ciments d'Origny, Cimpor Souselas, Juracime Cement achieved less than 10 milligram per normal square meter (Laskaris, 2002).

Recommended Performance Standards for Baghouse Applications

The above information, staff believes that there are many improvements in the filtration products which can help to increase the collecting efficiency of a baghouse to as high as 99.99 percent and lower the outlet concentration of a baghouse to 0.0003 grain per dry standard square foot or less. To allow for some operational flexibility, staff recommends the following performance standards for PR 1156:

[6] Conversion 1 milligram/normal cubed meter = 0.0004 grain per dry standard square foot for dust.

- For kilns and clinker coolers:
  - An outlet emission level of 0.005 grain per dry standard square foot; or
  - 0.05 lb/ton clinker for kilns and clinker coolers

- For other processes vented to baghouses:
  - An outlet emission level of 0.005 grain per dry standard square foot;
  - 99.95 percent collecting efficiency for baghouses; or
  - USEPA AP-42 emission factor in lb/ton of materials transferred or processed for other process equipment

- For hood and ventilation system:
  - 99.5 percent capture efficiency; or
  - meet the requirements specified in U.S. Industrial Ventilation Handbook (Martin, 1998) (Industrial, 1986)

- A 10 percent opacity level for all equipment operating with baghouses.

Open Storage Piles & Conveying System

Emissions from open storage piles or open conveying systems are affected by many factors such as material type, size and characteristics, moisture content, process throughput, operating practices, topographical and climatic factors.

Wet suppression, either by the application of water, chemicals and/or foam watering is currently used at the facilities. However, its control effectiveness (i.e. as long as surface moisture is high enough to cause the fines to adhere to the larger rock particles) depends upon variables that are changeable such as local climate conditions and source properties, variables that are not easy to verify such as frequency of applying wet suppression or operator practices. Therefore, wet suppression is useful mainly to reduce emissions that cannot be contained such as emissions from vehicle traffic and re-entrainment. Even with these fugitive emissions, wet suppression typically has only a temporary effect, and its control efficiency is very subjective.

Enclosing open piles and conveying system blocks the wind and provides permanent control and containment. Its control efficiency is guaranteed, easy to verify, and does not depend on factors such as climate conditions and operator practices. Coupling the enclosure with wet suppression by spraying at the opening of the enclosure eliminates nearly 95 percent of the emissions.

Enclosed conveying system and domes for raw materials and products are installed and maintained at many cement manufacturing facilities in California such as:

- California Portland Cement in Mohave, Kern County, has a limestone enclosed storage and reclaim system;
- Lehigh Southwest Cement in Tehachapi, Kern County, has a covered quarry conveying system vented to baghouses and an enclosed storage area for five-acres of raw materials;

- National Cement in Lebec, Kern County, has 2.5 miles of ered conveyors and enclosed storage areasfor raw materials and products;
- Southdown California Cement (CEMEX) in Victorville, San Bernardino County, has a primary crusher enclosed and vented to baghouse, and a permit to construct to have all outside conveyors covered;
- TXI Riverside Cement at Oro Grande, San Bernardino County, has an SCAQMD Permit to Construct to have all conveyors transporting materials from quarry to crushers covered; and
- In addition, Rule 1158 adopted in 1999, has required enclosed storage and enclosed conveying system for facilities that handle and use coke, coal and sulfur in the Basin.

The 1999 staff report for Rule 1158 cited several dome vendors such as Dome Systems, Plas-Steel, and Klimke & Wright LTD. Staff has contacted four additional representative vendors who manufacture and supply concrete, steel or aluminum domes for cement manufacturing facilities. Their applications are summarized in Table 1-5. Additional detail regarding dome applications can be found at the vendor's websites.

Many vendors currently provide enclosed conveyors to the cement industry. The staff report for Rule 1158 cited several vendors who supply total enclosed conveyors[7]. Staff has contacted three additional vendors for quotes including Fiberdome; Mertec Engineering which represents Cambelt International Corporation, Kollman, SGCO; and Applied Conveyor Technology which represents Martin Engineering.

As demonstrated above, enclosed storage piles and conveying systems are achieved-in-practice, however because the costs of enclosed storage piles are high, PR 1156 does not require total enclosures for all existing storage piles, and instead PR 1156 includes the following:

- Enclosed conveyors;
- Enclosed storage piles of materials that meet certain emissivity criteria;
- For the remaining open piles, use wet suppression or three-sided enclosure with at least 2 feet of freeboard.

[7] These vendors supplied 1,600-foot covered conveying system for Metropolitan Stevedore, 300-foot covered conveying system for Aimcor, 390-foot covered conveying system for ARCO, 755-foot covered conveying system for Aimcor Main Barn, 1230-foot covered conveying system for ARCO Great Lake, 830-foot covered conveying system for Oxbow, and 875-foot covered conveying system for Chevron.

Table 1-5
Dome Application for Open Storage Piles

Vendor	**Dome Application**
Dometec	• Clinker concrete dome for Ash Grove Cement in Arkansas; • Clinker concrete dome for Essroc Materials in Michigan; • Gypsum, fly ash, and cement storage domes.
Temcor	• Limestone aluminum storage dome for California Portland Cement in Mojave California; • Limestone and cement dome for Lehigh Portland Cement and St. Lawrence Cement in Maryland; • Sand dome for Junction City in Georgia; and • Other coal and cement storage domes
Consevatek	• Cement and limestone aluminum domes for cement plants in Texas and Kansas.
Geometrica	• Clinker dome in Canada; • Gravel and copper ore domes in Mexico and Chile; • Coal and limestone aluminum and steel domes in Taiwan, Thailand, Chile and Mexico.

Other Control Technologies for Fugitive Emissions

The technical handbook (Martin, 1998), OSHA Guidelines (OSHA, 1987), and the staff reports for Rule 403, Rule 1158, and Proposed Rule 1157 discuss additional measures to control measures for fugitive dust emissions such as rumble grates, wheel washers, conveyor skirting, dust curtains, transferring chutes, use of shrouds or enclosures for crushers, screens, bucket elevators, feeders, screw conveyors, pneumatic conveyors, dryers, road paving, reducing traffic speed and volume. It is possible that these fugitive dust control measures could be applied at the affected cement manufacturing facilities.

CHAPTER 2 - ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Affected

Determination

Environmental Checklist and Discussion

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 rule.

GENERAL INFORMATION

Name of Proponent:	South Coast Air Quality Management District
Address of Proponent:	21865 Copley Drive Diamond Bar, CA 91765
Lead Agency Name:	South Coast Air Quality Management District
CEQA Contact Person:	James Koizumi (909) 369-3234
Rule Contact Person:	Minh Pham (909) 396-2613
Name of Project :	Proposed Rule 1156 – PM_{10} Emission Reductions from Cement Manufacturing Facilities

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. Any checked items represent areas that may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐	Aesthetics	☐	Geology and Soils	☐	Population and Housing
☐	Agricultural Resources	☐	Hazards and Hazardous Materials	☐	Public Services
☑	Air Quality	☑	Hydrology and Water Quality	☐	Recreation
☐	Biological Resources	☐	Land Use and Planning	☐	Solid/Hazardous Waste
☐	Cultural Resources	☐	Mineral Resources	☐	Transportation./Traffic
☐	Energy	☐	Noise	☐	Mandatory Findings

DETERMINATION

On the basis of this initial evaluation:

☐ I find the proposed project, in accordance with those findings made pursuant to CEQA Guideline §15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts 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. An ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

☑ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.

☐ I find that the proposed project MAY have a "potentially significant 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 ASSESSMENT 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 ENVIRONMENTAL ASSESSMENT pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL ASSESSMENT, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: January 20, 2005 **Signature:** Steve Smith

Steve Smith, Ph.D.
Program Supervisor – CEQA
Planning, Rule Development, and Area Sources

GENERAL EFFECTS OF THE PROPOSED PROJECT

The net effect of the proposed rule would be to reduce fugitive dust PM10 emissions from cement manufacturing facilities. Currently, there are only two cement manufacturing facilities in the district that would be subject to Rule 1156. Secondary emissions generated by construction, water usage and wastewater discharge may be significant and will be evaluated in the Draft EA.

ENVIRONMENTAL CHECKLIST AND DISCUSSION

	Potentially Significant Impact	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:			
a) Have a substantial adverse effect on a scenic vista?	☐	☑	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state 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 which would adversely affect day or nighttime views in the area?	☐	☐	☑

SIGNIFICANCE CRITERIA

The proposed project impacts on aesthetics would be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

DISCUSSION

a) through d) PR 1156 may require the construction of buildings, structures or other edifices that could partially obstruct views of scenic resources. Enclosures for storage piles may need to be added; however, the facilities are located in industrial areas. PR 1156 would only affect fugitive dust sources on-site of existing facilities. The proposed project would only affect two facilities in the district and since the proposed project would occur on these sites, it is not expected to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. While the enclosures for the storage piles would be larger than the existing storage piles in order to cover them, the enclosures would also

prevent visible dust which can obstruct or distort views of scenic resources. Additionally, there are few, if any scenic vistas or views located near the two affected facilities. Therefore, since these facilities are in industrial areas, and proposed rule would reduce visible dust; these changes to existing equipment at existing facilities would not significantly alter the visual characteristics in the vicinity of the affected facilities.

Aesthetics from dust control equipment at new facilities would be addressed in the CEQA document that would be required for the construction and operation of those new facilities. PR 1156 does not, in any way, require construction of any new cement manufacturing facilities. Adoption of the proposed rule would further control fugitive dust emissions in the district, which would fulfill PM10 SIP commitment requirements. Implementing the proposed rule may improve aesthetics by reducing dust that may obstruct or damage scenic vistas thereby improving visibility. PR 1156 does not encourage or require night operations. However, further implementing dust control measures at night would only be necessary if an affected facility operates at night. As a result the proposed project is not anticipated to create or require any new sources of light or glare which would adversely affect day or nighttime views in any scenic areas.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on aesthetics. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
II. AGRICULTURE RESOURCES. 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 a Williamson Act contract?	☐	☐	☑
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☑

SIGNIFICANCE CRITERIA

Project-related impacts on agricultural resources would be considered significant if any of the following conditions are met:

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.
- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural uses.

DISCUSSION

a) and c) PR 1156 would reduce PM10 emissions from the two cement manufacturing facilities in the district. The proposed amendments do not, however, require the acquisition of any land for the construction of any building or structure, and do not require conversion of farmland to other uses. The proposed amendments would not convert any existing, prime or unique farmland to a non-agricultural use; nor would the proposed amendments cause other changes to the existing environment which would result in the conversion of any existing, prime or unique farmland to a non-agricultural use.

b) The proposed rule would reduce PM10 emissions from the two cement manufacturing facilities in the district. The proposed rule has no effect on, and would not conflict with existing zoning or any Williamson Act contracts, because the proposed project does not require acquisition of any land that may currently be subject to a Williamson Act contract.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on agricultural resources. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
III. AIR QUALITY. 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?	☑	☐	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☑	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☑	☐
f)	Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☑

SIGNIFICANCE CRITERIA

Impacts will be evaluated and compared to the significance criteria in Table 2-1. If impacts equal or exceed any of the following criteria, they will be considered significant.

Table 2-1
Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	*Construction*	*Operation*
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TACs, Acutely Hazardous Materials, and Odor Thresholds		
Toxic Air Contaminants (TACs)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Hazard Index $\geq$ 1.0 (project increment) Hazard Index $\geq$ 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Table 2-1 (Cont.)
Air Quality Significance Thresholds

Ambient Air Quality for Criteria Pollutants	
NO_2 1-hour average annual average	20 $\mu g/m^3$ (= 1.0 pphm) 1 $\mu g/m^3$ (= 0.05 pphm)
PM10 24-hour annual geometric mean 24-hour construct	2.5 $\mu g/m^3$ 1.0 $\mu g/m^3$ 10.4 $\mu g/m^3$
Sulfate 24-hour average	1 $\mu g/m^3$
CO 1-hour average 8-hour average	1.1 mg/m^3 (= 1.0 ppm) 0.50 mg/m^3 (= 0.45 ppm)

PM10 = particulate matter less than 10 microns in size; NO_2 = Nitrogen Oxide, CO = Carbon Monoxide, VOC = Volatile Organic Compounds, SOx = Sulfur Oxide; $\mu g/m^3$ = microgram per cubic meter; pphm = parts per hundred million; mg/m^3 = milligram per cubic meter; ppm = parts per million; TAC = toxic air contaminant.

DISCUSSION

(a) Ultimately, it is the responsibility of the SCAQMD under state and federal law to reduce emissions of those substances that impair public health including primary and secondary air contaminants. Pursuant to the provisions of both the state and federal CAA, the SCAQMD is required to attain the federal ambient air quality standards for all criteria pollutants, including PM10. The SCAQMD's planning document which sets forth policies and measures to achieve federal and state air quality standards in the region is the AQMP. The AQMP strategy includes measures which target stationary, mobile and indirect sources. These measures are based on feasible methods of attaining ambient air quality standards. The proposed rule fulfills AQMP commitments to obtain further PM10 emission reductions from cement manufacturing facilities, and would assist the SCAQMD in its efforts to attain state and federal PM10 air quality standards. Because the proposed project implements control measure BCM-08 from the 2003 AQMP, it furthers implementation of the applicable AQMP. The direct effect of implementing PR 1156 is a reduction in PM10 fugitive dust emissions by two tons of PM10 per day (4,000 pounds of PM10 per day). The preliminary emission inventory and emission reductions are presented in Table 2-2.

Because the proposed project will not hinder implementation of the 2002 AQMP, this topic will note further analyzed in the draft EA.

Table 2-2

Preliminary Emission Inventory and Emission Reductions

Equipment/Process	Inventory (ton/day)		Emission Reductions (ton/day)	
	PM	**PM10**	**PM**	**PM10**
Kilns and Clinker Coolers	0.4	0.2	0.2	0.1
Other Processes	1.3	0.6	1.2	0.5
Open Piles	0.03	0.03	0.02	0.01
Vehicle Traffic	6.1*	1.7	4.5*	1.4
Total	7.8	2.5	6	2

Source: SCAQMD, Preliminary Draft Staff Report Proposed Rule 1156 – PM10 Emission Reductions from Cement Manufacturing Facilities, December 17, 2004.
Staff has not incorporated control efficiency for existing practices at the facilities.

(b), (c) and (f) While the proposed rule is designed to reduce PM10 emissions, there is the potential for adverse secondary air quality impacts associated with exhaust emissions from construction operations. Air quality significant thresholds are presented in Table 2-1.

Construction Activity Impacts
PR 1156 may result in construction impacts from the installation of storage pile enclosures, misting or water irrigation systems; enclosures for conveyors, crushers, and screens; chutes or stackers; baghouses; and rumble grates and wheel washers; and pave on-site roads. The following subsections describe construction activities that may occur to install dust control equipment.

Existing Facilities

Construction of Loading, Unloading, Transferring, and Storage Pile Enclosures
PR 1156 would require that raw materials and products are stored in a silo, bin or hopper that is vented to a baghouse with an outlet emission level of 0.005 grain per dry standard square foot or a collection efficiency of 99.95 percent. The baghouse ventilation system would be required to have a capture efficiency of at least 99.5 percent or the minimum capture velocity requirement specified in the US Industrial Ventilation Handbook. PR 1156 would require operators to enclose open piles of material unless the material has a moisture content of more than 10 percent or the material is larger than half-inch sieve. The enclosures would require overlapping flaps, sliding doors or other equivalent devices approved by the Executive Officer, which would be required to remain closed except to allow vehicles to enter or exit. Because of the anticipated number of construction equipment (approximately nine pieces), the type of equipment (cranes, rough terrain forklifts, tractors/loaders/backhoes, and generator sets), the size of the equipment, and hours of operation, construction air quality NOx impacts may exceed the applicable NOx construction significance threshold. However, construction impacts are limited in duration.

Construction of Conveyor Covers
PR 1156 would require that operators cover all conveyors and transfer point. Almost all of the conveyors at both CPCC and TXI are covered or partially covered. Both companies have stated that all conveyors can be covered with minimal construction. Minor emissions would be generated by delivery trucks to the facilities. These emissions are presented in Table 2-3.

Construction of Dust Curtains, Shrouds, Gaskets, and Stackers or Chutes
PR 1156 would require that operators install dust curtains, shrouds, gaskets, and stackers or chutes. Estimation of construction emissions from stackers or chutes will be included in the Draft EA.

Construction of Misting and Water Irrigation Systems
CPCC and TXI are assumed to have misting or dust suppression for operations as part of compliance with Rule 403. Construction for additional misting, water irrigation systems, chemical dust suppressant systems for dust suppressants at transfer points in process equipment, paved roads and/or storage piles would consist of installing nozzles, piping, pumps and electronic instrumentation. This equipment would be attached to existing structures or support structures would be built to support the equipment. Neither, heavy construction equipment nor earthmoving operations are expected to be used to install misting water irrigation systems, chemical dust suppressant systems for dust suppression; therefore, construction of misting and water irrigation systems and chemical dust suppressant systems is not expected to generate construction emissions.

Construction of Dust Control for Screening and Crushing Operations
PR 1156 would require baghouses for loading, unloading, transferring, crushing, milling, kilns, clicker coolers, and material storage. The baghouses would be required to have outlet emission level of 0.005 grain per dry standard square foot or a collection efficiency of 99.99 percent. The baghouse ventilation system would be required to have a capture efficiency of at least 99.5 percent or the minimum capture velocity requirement specified in the US Industrial Ventilation Handbook. PR 1156 would allow affected facilities to meet emission factors in Table 1-1 in lieu of meeting the baghouse standards for loading, unloading, transferring, crushing, and milling operations. PR 1156 would also provide for an alternative control option to enclosing and venting the feedstream of a primer crusher to a baghouse, provided that the alternative control option is demonstrated to have equivalent control reductions and is approved by the Executive Officer.

Based on discussions with CPCC and TXI existing enclosed sources are vented to baghouses. Operators at both CPCC and TXI believe that existing processes that are currently controlled by baghouses, may need to replace existing filters to comply with to PR 1156 standards, but the baghouse systems themselves would not need to be replaced or rebuilt. Construction of enclosures and baghouse for enclosures would be required for existing open operations.

Construction of Rumble Grates and Wheel Washers
Rule 403 contains track-out requirements that require facilities with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material to install a rumble grate or wheel washer, or pave or use washed gravel to stabilize unpaved

roads connecting to public roadways by January 1, 2005. PR 1156 would require that operators install rumble grates and wheel washers, if opacity limits required by the proposed rule cannot be met without them.

SCAQMD staff contacted one vender who can install rumble grates and wheel washers over the paved road without disturbing the road or requiring earthmoving operations. Since it is less expensive it is assumed that affected facilities would choose this option. Emissions from facilities that install rumble grates and wheel washers over a paved road without disturbing the road or requiring earthmoving operations are considered negligible and do not contribute to construction emission impacts.

Construction at New Facilities

PR 1156 does not require construction of new cement manufacturing facilities, but in the event new cement manufacturing facilities are built, emissions from new facilities subject to PR 1156 would be lower than emission from new facilities not subject to PR 1156, because new facilities would have to apply BACT as well as comply with PR1156 requirements. After adoption of PR 1156, any construction of new cement manufacturing facilities would occur for reasons unrelated to PR 1156. Like any new land used project, a new cement manufacturing facility would likely be subject to CEQA by the local land use agency and, therefore, would be required to undergo its own CEQA analysis. Therefore, this analysis does not include impacts from new facilities.

Operational Activity Impacts

Control of Process Fugitive Emissions

PR 1156 exempts materials with more than 10 percent moisture content from enclosing storage piles. Facilities that increase material moisture content to 10 percent may need to install a dryer or increase the amount of time materials remain in the kilns to meet industry product specifications. Emissions from increasing storage pile moisture content will be evaluated in the Draft EIR.

Sweeper and Water Trucks

Operational air quality impacts can occur from emissions from trucks that are used to apply water/chemical dust suppressants or sweepers used to reduce fugitive dust emissions. Under Rule 403 operators at affected facilities are now required to control dust from unpaved roads and prevent and remove dust from paved roads. Currently, facilities use watering trucks or chemical suppressants and water trucks to control dust from unpaved roads, and watering trucks or sweepers to control dust from paved roads. PR 1156 specifies the use of chemical dust suppressants on unpaved roads; and sweeping of paved roads at least once a day. Chemical dust suppressants often require water to reactivate them; however, the frequency of water application is typically less than using water alone for dust suppression.

Operators of either facility that do not currently sweep paved roads would be required to sweep those roads daily. Sweeping paved roads would replace the daily watering. Since, no increase in emissions is expected from implementation of the sweeping requirement; no adverse air quality

impacts from sweeper trucks are expected. Water quality and usage impacts are discussed in the Hydrology and Water Quality section of this checklist.

Chemical Stabilizer Delivery Truck Trips

It was assumed that the facility that does not currently use chemical dust suppressants would need one delivery of chemical stabilizers a week to comply with PR 1156. Delivery truck trips would contribute to operational emissions.

Conclusion

The intent of the proposed rule is to further reduce PM10 fugitive dust emissions from cement manufacturing facilities in the district. As previously noted, the direct affect of implementing the PR 1156 is a reduction in PM10 fugitive dust emissions by two tons per day (4,000 pounds of PM10 per day). As a result of the preliminary analysis above, the proposed project may generate significant adverse air quality impacts during construction and operation. Secondary emissions from construction activities are temporary; however, they may exceed NOx significance thresholds. Operation emissions from mobile operations are not expected to be significant. Potential emission increases from reducing increased moisture content in materials from storage piles controlled by water may be significant. Therefore, the project-specific and cumulative air quality impacts will be further analyzed in the draft EA.

d) Sensitive receptors in the district are currently exposed to daily PM10 conditions. PM10 has been found to lodge within the lungs contributing to respiratory problems. Implementing the proposed project is intended to reduce PM10 fugitive dust, which would reduce the exposure of surrounding neighborhood around the facility including sensitive receptors to PM10 concentrations, thereby improving public health in that area.

e) The proposed project may require an incremental increase in the application of fugitive dust control measures, which would result in an incremental increase in emissions during construction operations. Odors are often associated with diesel emissions. Potential odor impacts from the proposed project are not expected to be significant because the incremental increase in the operation of heavy-duty construction vehicles would last for short periods of time or occur in remote locations so it is not likely that substantial odors would accumulate at any individual site.

Based on the above discussion, the proposed project may generate significant adverse air quality impacts. Therefore, project-specific and cumulative air quality impact will be further analyzed in the draft EA.

	Potentially Significant Impact	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 §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, 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?	☐	☐	☑

Significance Criteria
Impacts on biological resources would be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The project interferes substantially with the movement of any resident or migratory wildlife species.
- **The project adversely affects aquatic communities through construction or operation of the project.**

DISCUSSION
(a) and (b) In general, the net effect of PR 1156 would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities in the district. In particular, PR 1156 would expand BACM requirements and dust control requirements for cement manufacturing practices at two existing facilities in the district. Construction of new cement manufacturing facilities may occur regardless of adoption of PR 1156 and, therefore, is unrelated to PR 1156. Construction of new cement manufacturing facilities would require a separate CEQA analysis prior to construction. There are no provisions in the proposed rule that require or result in any specific disturbance of undisturbed habitat or have a direct or indirect impact on plant or animal species. No reductions in sensitive plant or animal species are expected to result from implementing the PM10 control requirements specified in the proposed rule. No riparian habitat or other sensitive natural community would be affected by PR 1156 because the two affected facilities are located in industrial areas. Implementing the proposed rule may improve wildlife habitats by reducing dust that may obstruct or damage these areas.

(c) The proposed rule is expected to incrementally increase existing efforts at existing facilities in the district to control PM10 emissions. The proposed project does not require any direct removal, filling, hydrological interruption, or other activities in, or near, wetland areas as defined by §404 of the Clean Water Act (CWA). Thus, no adverse effects on these areas are expected.

(d), (e) and (f) Construction would occur at two existing facilities located in industrial areas. The proposed rule is expected to incrementally increase existing efforts in the district to control PM10 emissions. There are no provisions in the proposed rule that conflicts with any local policies or ordinances that protect biological resources. The proposed project would not interfere with the movement of any native or migratory animals, affect wildlife corridors, or impede the use of native wildlife nursery sites, because it only affects dust control activities entirely within the boundaries of two facilities.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on biological resources. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	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 or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑
d) Disturb any human remains, including those interred outside formal cemeteries?	☐	☐	☑

SIGNIFICANCE CRITERIA

Impacts to cultural resources would be considered significant if:

- The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group.
- Unique paleontological resources are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

DISCUSSION

a) through d) In general, the net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at two existing cement manufacturing facilities in the district. The proposed rule would expand existing fugitive dust requirements for existing cement manufacturing operations. The proposed rule does not require the demolition or construction of any buildings or structures, or other activities that could potentially adversely affect cultural resources. Any construction would occur at existing cement manufacturing facilities in locations that have been previously disturbed (i.e., roads, storage piles, existing equipment). No changes to historic, archaeological or paleontological resources or unique geologic features are required upon implementation of the proposed rule. The proposed project does include provisions that may require construction or other activities that require site preparation activities such as grading or earth movement in storage areas and existing roads were needed to comply with general performance requirements.

Site disturbance from construction activities is currently subject to the dust control requirements of Rule 403. PR 1156 directly affects dust control at existing facilities, which are located on previously disturbed land. Since the proposed project would not require soil disturbance outside the boundaries of the affected facilities, no disturbance of human remains or cemeteries is anticipated as a result of adopting and implementing the proposed project.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on cultural resources. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
VI. ENERGY. Would the project:			
a) Conflict with adopted energy conservation plans?	☐	☐	☑
b) Result in the need for new or substantially altered power or natural gas utility systems?	☐	☐	☑
c) Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☐	☑
d) Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☐	☑
e) Comply with existing energy standards?	☐	☐	☑

SIGNIFICANCE CRITERIA

The impacts to energy and mineral resources would be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable resources in a wasteful and/or inefficient manner.

DISCUSSION

a) through e) In general, the net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing facilities in the district. In addition to imposing new dust control requirements, the proposed rule clarifies and enhances the enforceability of existing control measures to reduce PM10 fugitive dust and is expected to contribute to efforts to bring the

district into attainment with state and federal air quality standards for PM10. There are no provisions within the proposed rule which would conflict with adopted energy conservation plans, result in the need for additional power or natural gas, create impacts on local or regional energy supplies, impact existing energy standards, or affect peak and base demands for electricity or other forms of energy, because dust control measures are not typically energy intensive activities.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on energy resources. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
VII. 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:	☐	☐	☑
• 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 known fault?	☐	☐	☑
• Strong seismic ground shaking?	☐	☐	☑
• Seismic–related ground failure, including liquefaction?	☐	☐	☑
• 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 on- or off-site 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?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☑

SIGNIFICANCE CRITERIA

Impacts on the geological environment would be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, and compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.
- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.
- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

DISCUSSION

a & d) The proposed rule is intended to reduce PM10 fugitive dust emissions. Dust control activities would occur at existing facilities, so any risks associated with ground shaking, etc., are existing risks. Any structure built to comply with PR 1156 (storage pile, conveyor, crusher or screen enclosures; baghouses; and fugitive dust suppressant equipment) would have to comply with relevant requirements of the Uniform Building Code and any other state, county and city building and safety codes which account for seismic activity. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structures to the risk of loss, injury, or death is not anticipated and will not be further analyzed in the Draft EA.

b) The proposed rule does not contain any provisions that would require disruption of soils that could result in soil erosion or loss of topsoil. Soils may be disturbed during construction at facilities that enclose storage piles. However, these disturbances during construction would occur at storage areas, which were previously disturbed and would be temporary in nature. The result of any construction activities would be to advance the proposed project goal of enhancing current requirements to stabilize any soil disruptions specifically to prevent wind erosion that contributes to PM10 emissions.

c) Accordingly, the installation of structures at existing affected facilities to comply with the proposed project is expected to conform to the Uniform Building Code and all other applicable state and local building codes. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. Additionally, the affected areas are not envisioned to be prone to landslides or have unique geologic features since the affected facilities are located in heavy industrial areas. Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landsides, mudslides, ground failure, or other natural hazards.

e) The proposed project does not require or involve the installation of septic tanks or alternative wastewater disposal systems. Therefore, no impacts from failures of septic systems related to soils incapable of supporting such systems are anticipated.

Based on the above discussion, the proposed project is not expected to have an adverse impact on geology or soils. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	**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, and 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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑

	Potentially	Less Than	No

		Significant Impact	Significant Impact	Impact
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would 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, within two miles of a public airport or public use airport, would the project 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, would the project 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?	☐	☐	☑
i)	Significantly increased fire hazard in areas with flammable materials?	☐	☐	☑

SIGNIFICANCE CRITERIA

The impacts associated with hazards would be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

DISCUSSION

a) through c) In general, the net effect of PR 1156 would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing aperations in the district. The proposed rule clarifies and enhances the enforceability of existing control measures to reduce PM10 fugitive dust, which will assist with efforts to bring the district into attainment with state and federal air quality standards. There are no provisions in the proposed rule which would require or result in the routine transport, use, or disposal of hazardous materials; create a significant hazard to the public; emit hazardous emissions, or require the handling of hazardous materials within one-quarter mile of an existing or proposed school.

Some of the dust control provisions in PR 1156 may incrementally increase the use of chemical stabilizers to control fugitive dust. Previous environmental analyses prepared by the SCAQMD concluded that nontoxic chemical stabilizers are available. PR 1156 defines chemical dust suppressants as non-toxic, which must not be used if prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. Further, it is the responsibility of the users to ensure that any chemical dust suppressant they use is not prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. The primary affect expected as a result of using chemical dust suppressants is the potential for groundwater contamination. This effect is discussed in detail under "IX. Hydrology and Water Quality." As a result, it is not expected that any incremental increase in the use of chemical stabilizers would expose users or the public to hazardous materials.

d) Government code §65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). If any affected sites or operations are identified on such a list, compliance with the proposed project is not expected to affect in any way any facility's hazardous waste handling practices.

e) & f) The proposed project does not involve the use or transport of hazardous materials that could adversely affect air traffic or safety. Furthermore, neither facility is within two miles of a public airport or within the vicinity of a private airstrip. Therefore PR 1156 is not expected to generate significant adverse hazards or hazardous materials impacts on air traffic or safety.

g) The proposed rule is intended to reduce PM10 fugitive dust emissions and contains no provisions that could interfere with any adopted emergency response or evacuation plans.

h) & i) Any construction as a result of PR 1156 would occur on existing cement manufacturing facilities. The proposed rule does not require the construction of any building, structure or facility in wildlands or any location that could expose people or structures to significant loss, injury, or death involving wildland fires. Similarly, complying with the proposed rule does not require or involve the use of flammable materials that could increase fire hazards in areas with flammable materials.

Based on the above discussion, the proposed project is not expected to create a hazard or hazardous materials impact. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
e)	**HYDROLOGY AND WATER QUALITY.** Would the project:			
f)	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 which would not support existing land uses or planned uses for which permits have been granted)?	☑	☐	☐
g)	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 on- or off-site?	☐	☐	☑
h)	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 on- or off-site?	☐	☐	☑
i)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☑
j)	Otherwise substantially degrade water quality?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
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 which 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?	☐	☐	☑
k)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☑
l)	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?	☐	☐	☑
m)	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?	☐	☐	☑
n)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☑	☐	☐
o)	Require 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?	☑	☐	☐

SIGNIFICANCE CRITERIA

Potential impacts on water resources would be considered significant if any of the following criteria apply:

Water Quality:

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project would result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use a substantial amount of potable water.
- The project increases demand for water by more than five million gallons per day.

DISCUSSION

There are potential water resource impacts that may be generated by incrementally increasing dust control requirements at the two affected facilities. The project-specific impacts are divided into two major impact categories - water quality and water demand.

Potential Water Quality Impacts from Chemical Dust Suppression

a), f), k), l) & m) The following paragraphs describe the characteristics of chemical dust suppressant and their potential to adversely affect groundwater or surface water. (The SCAQMD does not endorse any particular product, but does encourage the use of environmentally safe chemical dust suppressants.) It should be noted that although many of these products and control measures required for dust control are in existing SCAQMD regulations, the analyses in this document are based on overly conservative assumptions.

Petroleum-Based Dust Suppressants: Witco, the manufacturer of petroleum-based chemical dust suppressants COHEREX and COHEREX-PM, has stated, "Although COHEREX has been used for more than forty years and COHEREX-PM is a polymer modified version of this product, we have not experienced any problems of groundwater contamination by the application of COHEREX or COHEREX-PM." The manufacturer goes on to state that the deepest penetration into the soil's surface ranges from 1 3/4 inches to two inches. According to the manufacturer, this would be true even if the product were over-applied because of the ability of the product to create a barrier that limits deeper penetration into the treated soil (Escobar, 1991). This means that this type of chemical dust suppressant would not be expected to migrate through the soil to even the shallowest of aquifers, which, on the average, are generally 10 feet or more below the surface in the district.

Chloride-Based Dust Suppressants**:** The manufacturer of a magnesium chloride-based product, Leslie Salt, has indicated that its product, "Dust-Off", is a moderately concentrated salt solution containing certain trace metals such as cadmium, chromium (III and VI), lead, etc. However, these metals are present in amounts that are several orders of magnitude below the Total Threshold Limit Concentration Level (Title 22, List of Organic and Bioaccumulative Substances and Their Total Threshold Limit Concentration Values) for each metal. In a report prepared for Leslie Salt by McLaren Engineering in 1989 (Leslie Salt, 1989), it was noted that "The behavior and environmental fate of "Dust-Off" following any given application is site-specific… The potential for migration of "Dust-Off" ….is a function of site characteristics including climate (wind and rain), soil type, topography (slope or exposed surface and surrounding area), proximity to surface drainages (streams and intermittent drainages), depth to bedrock and depth to groundwater." The report concludes that "the salt concentration in the leachate percolating through the soil becomes significantly diluted due to dispersive transport. Therefore, the amount of dissolved salts from "Dust-Off" that could potentially enter a groundwater system depends on the location of the water table, the quantity of "Dust-Off" applied, and the number of years of application."

Another manufacturer of a magnesium chloride product, South Western Sealcoating, Inc., indicated that magnesium chloride has been used for years by the mining industry on haul roads and provided documentation of permission to use magnesium chloride from the Colorado River Basin Regional Water Quality Control Board (RWQCB) (Khan, 1991). The Arizona Department of Environmental Quality, Office of Water Quality gave similar permission for the use of magnesium chloride dust suppressants (Sobchak, 1989).

It is important to note that the RWQCB for the Colorado River Basin - Region 7, reviews applications for use of brine-based chemicals (i.e., calcium chloride and magnesium chloride) for dust control on a case-by-case basis (Gruenberg, 1994). This RWQCB conditionally approved the use of Lee Chemical, Incs'. Liquid Calcium Chloride in Colorado River Basin, Region 7, provided the Best Management Practices identified by Lee Chemical, Inc. are adhered to (Gruenberg, 1996).

Implementation of the proposed rule may result in an incremental increase in the use of chemical dust suppressants for PM10 control. Any increase is expected to be relatively limited for two reasons: 1) in most cases, other control methods are available, and 2) chemical dust suppressants are often already used for fugitive dust control and required in existing rules, regulations and local programs.

Previous environmental analyses prepared by the SCAQMD concluded that nontoxic chemical stabilizers are available. PR 1156 defines chemical dust suppressants as non-toxic. PR 1156 also states that chemical dust suppressants must not be used if prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. Further, it is the responsibility of the users to ensure that any chemical dust suppressant they use is not prohibited for use by the Regional Water Quality Control Boards; the California Air Resources Board; the U.S. USEPA; any applicable law, rule

or regulation; and should meet any specifications, criteria or test required by the federal, state or local water agency. Therefore, any potential adverse impacts would be insignificant. As the background information provided above indicates, potential users of chemical dust suppressants should contact local RWQCBs to determine whether or not a product is environmentally safe. RWQCBs evaluate MSDS and other information as appropriate and examine the areas to be sprayed if necessary. RWQCBs do not typically maintain a list of chemical dust suppressants, but evaluate the use of chemical dust suppressants on a case-by-case basis. Users are required to ensure that runoff does not migrate to a surface body of water, or if the dust suppressant is used in liquid form, that it does not flow from the use-area.

According to the RWQCB, Colorado River Basin, Region 7 (from Phil Gruenberg, Executive Officer) in a November 10, 1994 letter to the SCAQMD, the chemical and physical properties of the non-brine products indicate that the risk to water quality would be minimal. In addition, as currently required in Rule 403, local RWQCB's should be consulted before use of any chemical dust suppressant to ensure that the product has not been prohibited. Users must apply chemical dust suppressants in accordance with manufacturers' and RWQCB recommendations to ensure that water quality is protected.

The proposed rule does not have any provisions that affect an existing affected facility or site's production of wastewater or discharge infrastructure. As a result, the proposed project would not be expected to cause any facility to exceed wastewater treatment requirements of any applicable regional water quality control board. Similarly, since the proposed project has no effect on production of wastewater at any affected site or facility, construction of new, or expansion of existing wastewater treatment plants or storm water drainage facilities is not expected as a result of adopting and implementing the proposed rule. Therefore, the proposed project would not generate significant adverse impacts to water quality. This topic will not be further analyzed in the Draft EA.

Potential Water Demand Impacts from Dust Suppression

b), n) & o) The proposed rule is intended to reduce windblown dust from earth-moving, disturbed surface areas, paved road track-out, unpaved roads, and open storage piles at aggregate and related operation facilities. As noted in previous discussions, implementing the proposed rule could incrementally increase application of dust control measures throughout the district.

Watering is currently being used as one of a number of dust suppression methods for aggregate and related operations, construction and demolition sites, unpaved roads and parking lots, storage piles, landfills, and bulk material facilities under Rule 403. State nuisance law (Cal. Health and Safety Code § 41700) also restricts PM10 emissions to levels that do not "... cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public..." With the exception of unpaved roads and parking lots, the most frequently employed method of control for the types of facilities listed above is watering.

Facilities affected by PR 1156 currently use water or dust suppressants to control fugitive dust from a number of dust generating activities to comply with Rule 403. Implementation of the proposed rule would create an incremental additional demand for water in dust suppression

activities. Water could be used by itself for wet suppression, or in conjunction with certain chemical dust suppressants.

Additional water consumption would be required for wheel washers, storage piles and at transfer points in the aggregate and related processes. Water consumption will be presented in the Draft EA.

Other Potential Impacts

c), d) & e) The proposed project does not involve altering the course of any stream, river, or drainage patterns, nor is it expected to alter any existing drainage patters at affected sites that could result in soil erosion or provide additional sources of polluted runoff. The proposed project does involve incrementally increasing dust control watering practices at affected sites or facilities. However, the volume of water anticipated to be used would not substantially increase the rate or amount of surface runoff at any affected facility in the district in a manner that would result in flooding, either on- or offsite, since the rule only requires that operators at affected facilities dampen and/or stabilize non-exempt materials from each emission source.

g), h), i) & j) The proposed project does not require the construction of any buildings or other structure in a 100-year flood hazard area, which could impede or redirect flood flows. Similarly, the proposed project does not involve construction of structures, levees, or dams that could expose people or structures to a significant risk of loss, injury or death resulting from the failure of a levee or dam. Finally, the proposed project does not require construction of buildings or any other structures in or near areas that could be inundated by seiche, tsunami, or mudflow.

Based on the above discussion, the proposed project may incrementally increase demand for water because of increased water use and wastewater disposal. As a result water demand impact will be further analyzed in the draft EA.

		Potentially Significant Impact	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 the 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 or natural community conservation plan?	☐	☐	☑

SIGNIFICANCE CRITERIA

- Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

DISCUSSION

a) through c) The net effect of PR 1156 would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing facilities in the district. The proposed amendments would also enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions within the district. Typically, land use and other planning considerations are determined by local governments. No land use or planning requirements would be altered by the proposed project. Further, the proposed amendments do not require the construction of any structure, building or facility, except for the addition of control equipment to already existing process equipment. Finally, the proposed amendments would not physically divide an established community, nor conflict with any land use, habitat conservation or natural community conservation plans.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on land use and planning. Since no significant adverse impacts are anticipated, no mitigation measures are required.

	Potentially Significant Impact	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?	☐	☐	☑

SIGNIFICANCE CRITERIA

Project-related impacts on mineral resources would be considered significant if any of the following conditions are met:

- The project 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.
- The proposed project results 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.

DISCUSSION

a) and b) No provisions of the proposed rule are expected to result in the loss of availability of known mineral resources, such as aggregate, minerals, etc., or the loss of availability of a locally-important mineral resource site. The net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing operations in the district. The proposed rule would also enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions to meet attainment with state and federal air quality standards.

Based on the above, no adverse impacts on mineral resources are expected. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
XII.	**NOISE.** Would the project result in:			
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑
c)	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, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
f)	For a project within the vicinity of a private airship, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑

SIGNIFICANCE CRITERIA
Impacts on noise would be considered significant if:

- Construction noise levels exceed local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

DISCUSSION
a), b), c) & d) Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying (unwanted noise). Sound levels are measured on a logarithmic scale in decibels (dB). The universal measure for environmental sound is the "A" weighted sound level, dBA, which is the sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. "A" scale weighting is a set of mathematical factors applied by the measuring instrument to shape the frequency content of the sound in a manner similar to the way the human ear responds to sounds.

The State Department of Aeronautics and the California Commission of Housing and Community Development have adopted the Community Noise Equivalent Level (CNEL). The CNEL is the adjusted noise exposure level for a 24-hour day and accounts for noise source, distance, duration, single event occurrence frequency, and time of day. The CNEL considers a weighted average noise level for the evening hours, from 7:00 p.m. to 10:00 p.m., increased by five dBA, and the late evening and morning hour noise levels from 10:00 p.m. to 7:00 a.m., increase by 10 dBA. The daytime noise levels are combined with these weighted levels and averaged to obtain a CNEL value. The adjustment accounts for the lower tolerance of people to noise during the evening and nighttime periods relative to the daytime period.

Federal, state and local agencies regulate environmental and occupational, as well as, other aspects of noise. Federal and state agencies generally set noise standards for mobile sources, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of General Plan policies and Noise Ordinance standards, which are general

principles, intended to guide and influence development plans. Noise Ordinances set forth specific standards and procedures for addressing particular noise sources and activities. The Occupational Safety and Health Administration (OSHA) sets and enforces noise standards for worker safety.

One example of local jurisdiction requirements might be the City of Riverside. Existing operational noise generated from cement manufacturing operations in Riverside would be subject to the City of Riverside Noise Element of the General Plan and/or the City of Riverside Municipal Code. Table 2-3 and 2-4 summarizes these requirements. Other local jurisdictions typically have similar requirements.

Table 2-3
City of Riverside Noise Requirements

Document	Requirement
Noise Element of the General Plan of the City of Riverside	Requires that the City of Riverside enforce the California Noise Insulation Standards, Title 24.
City of Riverside Municipal Code Chapter 7.25.010	Requires that noise levels within a residential zone not exceed 55 dBA between 7 a.m. to 10 p.m. or 45 dBA between 10 p.m. and 7 a.m.; 65 dBA for any office/commercial or public recreation facility; and 70 dBA for industrial or nonurban categories.
City of Riverside Municipal Code Chapter 7.35.010	Construction activities prohibited between the hours of 7:00 p.m. and 7:00 a.m. on week days, between 5 p.m. and 8 a.m. on Saturdays or any time on Sunday or federal holidays such that the sound creates a noise disturbance across residential or commercial property lines or exceeds maximum permitted noise for the underlying land use category, except for emergency work by variance.

Construction-Related Noise

PR 1156 includes construction activities, should the facilities to comply with the proposed rule. Sources which may be expected to generate noise during temporary construction activities might include earth-moving equipment, trucks, work-crew vehicular traffic, compressors and generators. Table 2-5 presents a range of noise levels for various types of equipment that may be used at a typical construction site. Because of the nature of this activity, the types, numbers, periods of operation, loudness of equipment, and distance to the closest sensitive receptor/residence, will vary with each construction phase and the size of the affected facility.

Table 2-4
State of California and Exterior Noise Standards

Land Use	Interior	Exterior
Residential – Single-family, multi-family, duplex, mobile home	CNEL 45 dB	CNEL 65 dB
Residential – Transient lodging, hotels, motels, nursing homes, hospitals	CNEL 45 dB	CNEL 65 dB
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	Leq(12) 45 dB(A)	---
Schools	Leq(12) 45 dB(A)	Leq(12) 67 dB(A)
General offices, reception, clerical, etc.	Leq(12) 50 dB(A)	---
Bank, lobby, retail store, restaurant, etc.	Leq(12) 55 dB(A)	---
Manufacturing, kitchen, warehousing, etc.	Leq(12) 65 dB(A)	---
Parks, playgrounds	---	CNEL 65 dB
Golf courses, outdoor spectator sports, amusement parks	---	CNEL 70 dB

CNEL – Community Noise Equivalent Level
Leq(12) – The A-weighted equivalent sound level averaged over a 12-hour period.

Table 2-5
Typical Construction Noise Sources

Equipment Type	Typical Range (decibels)
Tractors/Crawlers/Dozers (up to 450 hp)	78 to 82
Grader (300 hp)	80
Diesel Trucks (100 to 400 hp)	72 to 81
Backhoe (85 hp)	76
Forklift (40 hp)	75
Air Compressor (25 hp or 230 hp)	75 or 80
Generator (22 hp or 550 hp)	73 or 85 @ rated hp

These construction activities will increase noise levels for a short duration, but will cease once construction activities are complete. Further, cement manufacturing facilities are typically located in industrial or rural areas, removed from residential communities.

In general, given ambient noise levels near affected facilities, noise attenuation (there is a six dBA drop in noise levels per doubling of distance), and compliance with local noise ordinances, potential construction noise impacts are not expected to be significant. Substantial construction is only expected from building enclosures around the storage piles. Based on review of plot plans, the closest storage piles are over 300 feet from the property line. Assuming the noise levels from Table 2-5 are valid at 30 feet, and the noise attenuation factor of a six dBA drop in noise levels per doubling of distance; at 300 feet the noise from the construction equipment

would be below the noise standards and requirements on Tables 2-3 and 2-4 (85 dBA – (10 x 6 dBA) ≈ 25 dBA).

The proposed project affects primarily existing facilities and would not generate excessive noise levels outside the boundaries of the affected facilities, or expose people residing or working in the project area to excessive noise levels. The proposed project requires no additional equipment to the existing facilities which would cause noise level to exceed ambient levels.

Operation-Related Noise

No provisions of the proposed rule would expose persons to noise levels in excess of standards established in local general plans or ordinances, or standards of other agencies. The net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing operations in the district. The proposed rule would also enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions in the Basin. The proposed rule does not require the addition of any structure, building or facility that would expose people to groundborne vibration or noise, or increase ambient noise levels during operation (either temporary or permanent). The proposed rule may require an incremental increase in dust control measures at affected sites or facilities. Dust control includes misters, baghouses, enclosures, chutes or stackers, rumble grates, wheel washers, heavy-duty diesel trucks to apply chemical stabilizers or water; and street sweepers to mechanically reduce fugitive dust. Since PR 1156 would expand on existing control or add control used at similar facilities or process, PR 1156 is not expected to increase noise levels over to existing baseline noise. TXI and CPCC are located in industrial areas and currently use heavy duty trucks and equipment. PR 1157 is not expected to substantially increase the amount of heavy-duty trucks or equipment at the facilities. Facilities are expected to need an additional truck per week to deliver chemical dust suppressants to comply with PR 1157. In addition, PR 1157 would require sweeper trucks to be used once a day. Currently, one facility uses sweeper trucks and the other facility uses a water truck. The facility that uses a water truck would be required to replace the water truck with a sweeper truck. The noise from the sweeper truck is not expected to be significantly greater than the water truck. Therefore, noise from operation with PR 1157 requirements is not expected to be substantially different than the existing setting.

e) & f) Additional structures may be required as part of the proposed project to enclose storage piles. Neither facility is within two miles of an airport and, as a result, the proposed rule is not anticipated to generate noise at either affected facility that would affect any way airport land use plans or private airstrips. Therefore, construction of fugitive dust control is not expected to affect airport land use plans or private air strips.

Based on the above discussion, no adverse noise impacts are expected as a result of the proposed project. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

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

SIGNIFICANCE CRITERIA

The impacts of the proposed project on population and housing would be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

DISCUSSION

a) through c) In general, the net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing operations in the district. The proposed rule would enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions in the district. No provision of the proposed rule induces growth either directly or indirectly; or displaces any housing or substantial numbers of people, requires the construction of replacement housing.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on population and housing. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government 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:			
a) Fire protection?	☐	☐	☑
b) Police protection?	☐	☐	☑
c) Schools?	☐	☐	☑
d) Parks?	☐	☐	☑
e) Other public facilities?	☐	☐	☑

SIGNIFICANCE CRITERIA

- Impacts on public services would be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

DISCUSSION

a) & b) The net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing operations in the district. The proposed rule would also enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions in the district. The proposed project does not involve the use of hazardous materials so no impacts to emergency responders, such as local fire or police departments, are anticipated. Similarly, the proposed project would not be expected to affect in any way service ratios, response times or other emergency responder performance objectives.

c), d) & e) No provision of the proposed rule requires the use of public services such as schools, parks or other public facilities. As indicated in the "Population and Housing" discussion, there are no provisions in the proposed rule that would induce population growth, which would require construction of additional schools, parks, or other recreational resources. As a result, it is not expected that the proposed project would cause or require physically altered public facilities. Further, enforcement activities required by PR 1156 would be carried out by SCAQMD inspectors as part of their normal duties.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on public services. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XV. RECREATION.			
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☑

SIGNIFICANCE CRITERIA
The impacts to recreation would be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely affects existing recreational opportunities.

DISCUSSION
a) and b) The net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities at cement manufacturing operations in the district. The proposed rule would also enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions in the district. Because the proposed project is not expected to induce or redirect population growth, no provisions of the proposed rule would increase the need for additional parks or other recreational facilities, or cause the deterioration of existing facilities. The proposed rule does not require the development or construction of new recreational facilities or require the expansion of existing recreational facilities, which could have an adverse effect on the environment.

Based on the above discussion, the proposed project is not expected to have a significant adverse impact on recreation. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially	Less Than	No

	Significant Impact	Significant Impact	Impact
XVI. SOLID/HAZARDOUS WASTE. Would the project:			
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☑

SIGNIFICANCE CRITERIA

The proposed project impacts on solid/hazardous waste would be considered significant if the following occur:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

DISCUSSION

a) and b) In general, the net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities from cement manufacturing operations in the district. The proposed rule would enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions in the district. No provisions of the proposed project involve, or require, solid waste disposal activities. Operators may need to replace the type of baghouse filter used. However, since operators currently use and dispose of their current baghouse filters; the change in filter types is not expected to significantly adversely impact solid waste. As a result, no impacts on landfill capacity are expected. Implementation of the proposed rule would not impede or hinder in any way compliance with any applicable federal, state or local statutes related to solid or hazardous waste disposal.

Based on the above discussion, the proposed project is not expected to have significant adverse impacts on solid and hazardous waste. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC. Would the project:			
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☑
b) Exceed, either individually or cumulatively, a level of service standard established by 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 due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☑
f) Result in inadequate parking capacity?	☐	☐	☑
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☐	☑

SIGNIFICANCE CRITERIA

The impacts on transportation/traffic would be considered significant if any of the following criteria apply:

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.

- There is an increase in traffic (e.g., 350 heavy-duty truck round-trips per day) that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.

DISCUSSION

(a), (b) & (f) In general, the net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities from cement manufacturing operations in the district. PR 1156 would enhance the clarity and enforceability of existing fugitive dust control programs. Under Rule 403 facilities are required to control dust from unpaved roads and prevent and remove dust from paved roads. Most impacts would occur during construction from construction worker, haul truck and delivery truck trips to and from each site. The "worst-case" would require 30 two way trips per day to deliver material as a part of construction of enclosures at the facility. These construction trips would not be significant because so few trips would be required at each site, and the construction periods would be short in duration. In the air quality section it was determined that two additional delivery truck trips to separate facilities per week during operation would be required for chemical stabilizer and street sweeping after each shift would be required. Street sweeping is not expected to significantly adversely impact traffic, because it would occur infrequently and for short durations of time and the sweepers are assumed to be kept on-site.

c) There are no requirements in the proposed rule which would affect air traffic patterns because the proposed project does not involve transport of any individuals or materials by plane. Further, as noted in the preceding discussion, the proposed rule does not generate an increase in traffic levels or a change in location that results in substantial safety risks to local airports or airstrips.

d) & e) There are no provisions in the proposed rule that require construction of design features (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment) that could create traffic hazards or result in inadequate emergency access, transportation/traffic design features, emergency access, or parking capacity.

Further, the proposed rule would not create an inadequate emergency access situation or inadequate parking capacity situation. There are no requirements in the proposed rule which would affect adopted policies, plans, or programs supporting alternative transportation. The proposed rule is intended to reduce PM10 fugitive dust emissions in the district.

Based on the above discussion, the proposed rule is not expected to generate a substantial number of new vehicle trips and therefore would not have a significant adverse impact on the transportation systems within the district. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the draft EA.

	Potentially Significant Impact	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

(a) The proposed project may require construction to install misting or dust suppressants, covers, enclosures, baghouses, chutes, and paving roadways from rumble grates and wheel washers to public roads. However, as stated in the other sections of the checklist the proposed rule is not expected to have the potential to adversely affect the environment, reduce or eliminate any plant or animal species or destroy prehistoric records of the past. In general, the net effect of the proposed rule would be to incrementally extend dust control requirements that are already required of fugitive dust generating activities in the district. In particular, PR 1156 would extend BACM requirements and dust control requirements for cement manufacturing facilities from in the district. The proposed rule would enhance the clarity and enforceability of existing fugitive dust rules to reduce PM10 emissions in the district. Each affected site is part of an existing cement manufacturing facility, which has been previously graded, such that the proposed project is not expected to extend into environmentally sensitive areas.

(b) The Environmental Checklist indicates that the proposed project has potentially significant adverse impacts on air quality and hydrology and water quality. The potential for project-specific and cumulative impacts on these resources will be evaluated in the Draft EA.

(c) The proposed project may result in emissions of regulated air pollutants and increased water usage and wastewater disposal at each affected facility. The potential for these impacts to have adverse impacts on human beings, either directly or indirectly, will be evaluated in the Draft EA.

APPENDIX A (NOP)

ABBREVIATIONS AND ACRONYMNS

Abbreviations and Acronyms

Abbreviation/Acronym	Description
µ	Micro
AQMP	Air Quality Management Plan
BACM	Best Available Control Measures
Basin	South Coast Air Basin
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CWA	Clean Water Act
dB	Decibel
dBA	Decibel A-weighted
EA	Environmental Assessment
EF	Emission factor
ERPG	Emergency Response Planning Guideline
EYE	Eye
HP	Horsepower
IS	Initial Study
k	PM aerodynamic diameter constant
lb	Pound
M	Meter
MDAB	Mojave Desert Air Basin
MWD	Metropolitan Water District
NO2	Nitrogen dioxide
NOx	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PM10	Particulate matter less than 10 microns in aerodynamic diameter
PPHM	Parts per hundred million
PPM	Parts per million
PR	Proposed Rule
S	Surface material silt content
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
sL	Silt loading
SO2	Sulfur dioxide
SOx	Sulfur oxides
SSAB	Salton Sea Air Basin
TAC	Toxic Air Contaminant
UBC	Uniform Building Code
USEPA	United States Environmental Protection Agency
VMT	Vehicle miles traveled
VOC	Volatile organic compound
W	Mean vehicle weight

APPENDIX B (NOP)

PROPOSED RULE 1156

In order to save space and avoid repetition, please refer to the latest version of proposed amended Rule 1156 located elsewhere in Appendix A of the Draft EA. The December 17, 2004 version of the proposed amended rules was circulated with the Notice of Preparation/Initial Study (NOP/IS) that was released on January 21, 2005 for a 30-day public review and comment period ending February 22, 2005.

Hard copies of this NOP/IS, which include the version "PR 1156 (December 17, 2004)" of the proposed amended rule, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039