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September 14, 2010

Scott Lutz
Air Quality Engineering Manager - Toxic Evaluation Section
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Subject: Health Risk Assessment Report- Permanente Plant

To: Scott Lutz

In agreement with the Bay Area Air Quality Management District (BAAQMD), Lehigh tasked AMEC Geomatrix, Inc. to complete an AB 2588 Health Risk Assessment (HRA) for its Permanente facility in Cupertino, California.

The HRA report clearly shows that no notification is required based on the District's $10x10^{-6}$ notification level, based on current production conditions (2008 – 2009) with the District's January 2010 incorporation of 2009 OEHHA Lifetime Age Sensitivity Factor (LASF).

Based on the current 2008 – 2009 plant infrastructure combined with the consideration of the LASF, the model predicts a potential future production increase to 951,790 short tons of clinker and 994,020 short tons of cement to be below the notification level.

I would like to schedule a meeting with the District to discuss this report's results, the anticipated facility changes based on new regulatory requirements, and the both near and long term production plans for the Permanente facility.

If you have any questions regarding this report, please feel free to contact me at 408-996-4271.

Sincerely,

Henrik Wesseling
Plant Manager
Lehigh Southwest Cement Company – Permanente Plant

cc: Brian Bateman – BAAQMD
Shane Alesi – Lehigh HTC
Stuart Tomlinson – LSCC
Scott Renfrew – LSCC

AB 2588 HEALTH RISK ASSESSMENT FOR 2008 CEIR EMISSIONS AND CURRENT LOW PRODUCTION EMISSIONS

Cupertino Facility
Cupertino, California

Prepared for:
Lehigh Southwest Cement Company
Cupertino, California

Prepared by:
AMEC Geomatrix, Inc.
Oakland, California

September 2010

Project 0111910000.00003.5

AMEC Geomatrix

September 14, 2010

Project 011191003

Mr. Scott Lutz
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

Subject: **AB2588 Health Risk Assessment**
Lehigh Southwest Cement Company
Cupertino, California

Dear Mr. Lutz:

On behalf of Lehigh Southwest Cement Company, AMEC Geomatrix Inc. (AMEC) is submitting this AB2588 Health Risk Assessment for the Lehigh Cupertino Facility (Permit No. A0017).

Please contact us if you have any questions.

Sincerely yours,
AMEC Geomatrix, Inc.

Caryn Kelly
Senior Toxicologist

Ann Holbrow Verwiel
Senior Toxicologist

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Attachments: AB 2588 Health Risk Assessment for 2008 CEIR Emissions and Current Low Production Emissions

cc: Scott A. Renfrew, Lehigh Southwest Cement Company (3 copies)
Heinrich Wesseling, Lehigh Southwest Cement Company (electronic only)
Robert Hull, Bay Area Air Quality Management District (electronic only)

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DEFINITIONS AND ABBREVIATIONS

DEFINITIONS

Acute health impacts: An adverse non-cancer health effect that occurs over a relatively short period of time (e.g., minutes or hours). The term is used to describe brief exposures and effects which appear promptly after exposure.

Chronic health impacts: An adverse non-cancer health effect that develops and persists (e.g., months or years) over time after long-term exposure (greater than one year) to a substance.

Cancer health impacts: The development of cancer as a result of exposure to carcinogenic substances.

Prioritization Score: A score calculated for each of three health effects endpoints (cancer, chronic and acute) for use by air districts to rank facilities into high, intermediate and low priority categories and determine if a health risk assessment should be performed.

Regulatory Notification Level: The health risk threshold above which public notification would be required by the BAAQMD. The regulatory notification level for BAAQMD is $1x10^{-5}$ (one-in-one-hundred thousand) for carcinogenic risk and 1 for noncarcinogenic hazard indexes. Higher thresholds (10^{-4} and 10) are used to require emission reduction plans.

Zone of Impact: The geographical area surrounding a facility with a predicted cancer risk estimate at or above $1x10^{-6}$ (one-in-a-million) as predicted by an AB 2588 health risk assessment. The regulatory notification level (see above) is the level at which public notification is required.

ABBREVIATIONS

BAAQMD	Bay Area Air Quality Management District
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
GLC	Ground-Level Concentration
HARP	Hotspots Analysis and Reporting Program
LASF	Lifetime Age Sensitivity Factor
MEIR	Maximum Exposed Individual Resident
MEIW	Maximum Exposed Individual Worker
OEHHA	Office of Environmental Health Hazard Assessment
PMI	Point of Maximum Impact located off site
REL	Reference Exposure Limit
TAC	Toxic Air Contaminant
URV	Unit Risk Value
ZOI	Zone of Impact

AB 2588 HEALTH RISK ASSESSMENT FOR 2008 CEIR EMISSIONS AND CURRENT LOW PRODUCTION EMISSIONS

Lehigh Southwest Cement Company
Cupertino Facility

EXECUTIVE SUMMARY

At the request of the Bay Area Air Quality Management District (BAAQMD), AMEC Geomatrix, Inc. (AMEC) conducted an AB25588 health risk assessment (HRA) for the Permanente Plant in Cupertino, California (the Facility). The HRA considered two emission scenarios: (1) emissions for a current production rate based on an average of production rates in 2008 and 2009 and (2) emissions for production rates in 2005 as reported in the 2008 Comprehensive Emission Inventory (2008 CEIR). Potential human health risks were evaluated for a maximum exposed individual resident (MEIR), a maximum exposed individual worker (MEIW), and the point of maximum impact (PMI). Notification is required based on results at actual receptors (MEIR and MEIW), and not based on conditions at the PMI if a receptor is not present at that location. In this evaluation, the PMI occurs in an open-space area northeast of the facility and no permanent receptors are present.

Based on current operating conditions at the Facility (average of 2008/2009 production rates), potential human health risks for cancer and noncancer endpoints were below levels requiring notification for the MEIR and MEIW. As shown in Table ES-1, this conclusion includes the analysis using the lifetime age sensitivity factor (LASF) for carcinogens, which was recently adopted by BAAQMD in January 2010 (BAAQMD, 2010).

Based on historical operating conditions in 2005, potential human health risks for cancer and noncancer endpoints were below levels requiring notification for the MEIR and MEIW based on the regulations in place at the time those emissions occurred. Only when the LASF, which was adopted in 2010, is applied to emissions based on 2005 production, is the predicted cancer risk at the BAAQMD notification level. Predicted noncancer health effects are below notification levels at the MEIR and MEIW for both historical and current production rates. Application of the LASF to emissions that occurred 5 years prior to its adoption for the purpose of requiring notification is not consistent with the intent of AB2588.

As a final step, we conducted an evaluation to address potential future increases in production. We identified annual production rates for clinker and cement that would result in predicted cancer risks just below the $1x10^{-5}$ notification level (e.g., $9x10^{-6}$) at the MEIR including consideration of the LASF. We applied an adjusted production rate factor to sources associated with production, but not to some wind-driven fugitive sources such as stockpiles.

Based on the evaluation, predicted cancer risk at the MEIR is below the notification level when a factor of 0.68 is applied to 2005 production rates. This corresponds to production of 951,790 short tons of clinker and 994,020 short tons of cement. Production rates are anticipated to be at or below this level through 2011.

In the future, when production rates increase above the rates identified in the previous paragraph, National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements to reduce emissions likely will have been implemented. Other modifications to plant operations may also have occurred. At the time production rates increase beyond 68 percent of 2005 production or in 4 years (which is required by the AB2588 regulation), whichever comes first, this HRA will be revised to reflect current conditions at the Facility at that time.

DETAILED HRA REPORT SUMMARY

The HRA was conducted based on guidance for the California Environmental Protection Agency's AB 2588 "Air Toxics Hot Spots" program (OEHHA, 2003). The HRA was prepared using:

- emissions reported in the Comprehensive Emission Inventory Report (CEIR) For Lehigh Southwest Cement Company's Cupertino Facility (AMEC, 2009);
- air dispersion coefficients developed as part of site-specific air dispersion modeling using AERMOD presented herein to predict off-site ground level chemical concentrations; and
- the Hotspots Analysis and Reporting Program (HARP) model developed by the California Air Resources Board to perform the calculations for carcinogenic, chronic noncarcinogenic, and acute noncarcinogenic health effects at the maximum exposed individual resident (MEIR), maximum exposed individual worker (MEIW), and point of maximum impact (PMI). The PMI in this case is in open space near the facility but does not represent an actual off-site person.

Sixty-nine chemicals regulated under AB 2588 were identified as being emitted from 42 sources at the Facility. General categories of emissions included the kiln, raw materials, combustion byproducts, and stationary sources. The total annual and hourly emissions emitted from the Facility in 2007 are presented in Table ES-1. Table ES-2 identifies the health effect categories for each of these chemicals (i.e., acute and chronic noncarcinogenic health effects, and carcinogenic health effects) identified by the Office of Environmental Health Hazard Assessment (OEHHA, 2009).

The HARP model incorporates the ground level concentrations predicted by the air dispersion modeling into exposure and risk assessment algorithms. The results from HARP provide the necessary information to generate the zone of impact (ZOI; i.e., the geographical area potentially affected by emissions based on predicted carcinogenic risk of $1x10^{-6}$), to identify the potentially exposed populations, and to quantify potential health risks. The ZOI is different from the regulatory notification level ($1x10^{-5}$), the level above which public notification is required by BAAQMD.

Chronic Noncarcinogenic Health Hazards

The highest target organ-specific hazard indexes for the MEIR (receptor #2085) were 0.3 and 0.2, respectively, based on 2008 CEIR emissions and the current low production scenario. The highest target organ-specific hazard indexes for the MEIW (receptor #10963) were 0.1 and 0.09, respectively, based on 2008 CEIR emissions and the current low production scenario. The organ/system endpoint with the highest hazard indexes was the central nervous system. These values for the MEIW and MEIR are below the BAAQMD regulatory notification level of 1.0, indicating notification is not required.

Predicted chronic noncarcinogenic hazard index at the PMI (receptor #226) was 0.4 and 0.2, respectively, based on the 2008 CEIR emissions and the current low production scenario. The organ/system endpoint with the highest hazard index was the central nervous system. The predicted chronic noncarcinogenic hazard indexes are below the regulatory notification level of 1, indicating notification is not required. The chemical contributing most significantly to predicted chronic hazard index at the PMI is mercury (75 percent), which occurs naturally in the raw materials used to make cement. The kiln contributes most significantly to the chronic hazard index (84 percent).

Acute Noncarcinogenic Health Hazards

The highest target organ-specific hazard indexes for the MEIW (receptor #10963) and MEIR (receptor #2085) were 0.6 and 0.8, respectively. The organ/system endpoint with the highest hazard indexes was the developmental endpoint. These estimated acute hazard indexes are well below the BAAQMD regulatory notification level of 1.0, indicating notification is not required.

Predicted acute noncarcinogenic hazard index at the PMI (receptor #130) was 2.
The organ/system endpoint with the highest hazard indexes was the developmental endpoint. The predicted acute noncarcinogenic hazard index is greater than the regulatory notification level of 1. The chemical contributing most significantly to predicted risk is mercury (97 percent of the total at the PMI), which occurs naturally in the raw materials used to make cement. The kiln contributes most significantly to the chronic hazard index (99 percent). Because there is no specific off-site receptor at the location of the PMI, notification would not be required by the BAAQMD. The AB 2588 program focuses on exposure for residents and workers, and none are present at the PMI for the Facility.

Potential Carcinogenic Risks

The theoretical carcinogenic risks for the MEIR (receptor #2085) were $1x10^{-5}$ and $8x10^{-6}$, respectively, for 2008 CEIR emissions and current low production emissions, including the

lifetime age sensitivity factor (LASF) for carcinogens published by OEHHA in 2009 (OEHHA, 2009). If the LASF is excluded the theoretical carcinogenic risks for the MEIR would be $8x10^{-6}$ and $5x10^{-6}$, respectively, for the 2008 CEIR emissions and current low production emissions. The theoretical carcinogenic risks for the MEIW (receptor #10963) were $1x10^{-6}$ and $7x10^{-7}$, respectively, for 2008 CEIR emissions and current low production emissions. The LASF does not apply to an adult worker. Considering the MEIR and MEIW scenarios, only the estimated theoretical excess cancer risk for the MEIR based on the 2008 CEIR emissions including the LASF (which was not in effect when the emissions occurred) were at the BAAQMD regulatory notification level of $1x10^{-5}$. Predicted cancer risks were below the notification level for the current low production emissions and 2008 CEIR emissions excluding the LASF. Notification is not considered necessary because current conditions do not exceed the notification level as demonstrated by the current low production scenario and 2008 CEIR emissions are at the notification level only when the LASF is applied, which was not in effect at that time.

Predicted cancer risk at the PMI (receptor #226) was $2x10^{-5}$ and $1x10^{-5}$, respectively, based on 2008 CEIR emissions and current low production emissions, including the LASF. If the LASF is excluded the theoretical carcinogenic risks for the MEIR would be $1x10^{-5}$ and $7x10^{-6}$, respectively, for the 2008 CEIR emissions and current low production emissions. The predicted cancer risk at the PMI for 2008 CEIR emissions including the LASF is greater than the $1x10^{-5}$ regulatory notification level. The chemicals contributing most significantly to predicted risk at the PMI are hexavalent chromium (55 percent) and benzene (26 percent). The kiln contributes most significantly to the cancer risk (37 to 39 percent). Because there is no specific off-site receptor at the location of the PMI, no action with respect to emissions should be required. The AB 2588 program focuses on long-term exposure for residents and workers, and none are present at the PMI for the Facility.

If production rates for cement and clinker are 68 percent of the production rate used to develop emissions in the 2008 CEIR (2005 production), predicted cancer risk would be $9.5x10^{-6}$, just below the BAAQMD notification level. Using 68 percent of the 2005 production rates, the optimal production rates would be 951,790 short tons of clinker and 994,020 short tons of cement. The 2008 CEIR emission estimates were based on 2005 production rates that were among the highest over the last 5 years period.

The carcinogenic risk estimated for the sensitive receptors $5x10^{-7}$ to $3x10^{-6}$ for the 2008 CEIR emissions and $3x10^{-7}$ to $2x10^{-6}$ for the current low production emissions are below the BAAQMD regulatory notification level ($1x10^{-5}$). Sensitive receptors include schools, day care centers, and hospitals.

Population Cancer Burden

The predicted excess cancer burden was 0.3 based on 2008 CEIR emissions and 0.2 based on current low production emissions (Table ES-4). These results are lower than 1, indicating that over a 70-year period under the worst-case exposure assumptions, no member of the community would be expected to contract cancer based on exposure to Facility emissions. Therefore, the cancer burden calculations indicate that the community as a whole would not have an increased incidence of cancer from emissions at the higher, historical production rates or current operations.

AB 2588 HEALTH RISK ASSESSMENT FOR 2008 CEIR EMISSIONS AND CURRENT LOW PRODUCTION EMISSIONS

Lehigh Southwest Cement Company
Cupertino Facility

1.0 INTRODUCTION

A health risk assessment (HRA) was conducted by AMEC Geomatrix, Inc. (AMEC) for Lehigh Southwest Cement Company (Lehigh), Permanente Plant, in Cupertino, California (the Facility). The Bay Area Air Quality Management District (BAAQMD) requested that Lehigh perform an AB 2588 HRA based on emissions reported in the 2008 Comprehensive Emission Inventory Report (CEIR), which was revised in 2009 and 2010 (Lehigh, 2009; AMEC, 2010a and 2010b). Those emissions were based on production rates from 2005, which were among the highest over the previous 5 year period. Considering current economic conditions, specifically decreases in the building/construction materials market demand, production has been reduced considerably since 2005. For this reason, Lehigh is also presenting the results of the AB 2588 HRA based on the current lower average production rates from 2008 and 2009 compared to 2005. Based on current market conditions, the low production rates are likely to be representative of operating conditions through 2011 or until the next HRA update is required in 4 years under AB 2588.

Predicted noncancer health effects are below notification levels at the MEIR and MEIW for both historical and current production rates. Based on current operating conditions at the Facility (average of 2008/2009 production rates), potential human health risks for cancer and noncancer endpoints were below levels requiring notification for the MEIR and MEIW. Based on historical operating conditions in 2005, potential human health risks for cancer and noncancer endpoints were below levels requiring notification for the MEIR and MEIW based on the regulations in place at the time those emissions occurred. Only when the LASF, which was adopted in 2010, is applied to emissions based on 2005 production, is the predicted cancer risk at the BAAQMD notification level. Application of the LASF to emissions that occurred 5 years prior to its adoption for the purpose of requiring notification is not consistent with the intent of AB2588.

Given that the HRA results for current conditions are at or below thresholds for notification, notification should not be required. In the future, when production rates increase and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements to reduce emissions have been implemented, or within 4 years, whichever comes first, this HRA will be revised to reflect current conditions at the Facility at that time. Based on the analysis herein,

predicted risk at the MEIR would be below the notification level if production rates were 68 percent of the emissions from the 2008 CEIR; current production rates are 58 percent of the 2005 production rate used in the 2008 CEIR.

1.1 BACKGROUND ON AB 2588 PROGRAM

The purpose of the AB 2588 program is to identify and rank facilities based on their estimated emissions of Toxic Air Contaminants (TACs), to evaluate the potential health risks to the surrounding community exposed to these releases, to notify communities if health risks exceed a specified level, and to mitigate emission sources exceeding specified regulatory notification levels. To identify and rank the various facilities, each air pollution control district (APCD) or air quality management district (AQMD) requires operators of these facilities to submit comprehensive emission inventory reports, listing the substances and estimated amounts of chemicals emitted by individual source. The emission inventory reports provide the data necessary to evaluate potential human health risks related to Facility emissions using a prioritization score or a detailed HRA.

1.1.1 Prioritization Score

As a first step, the air districts calculate a prioritization score. The prioritization score is a simplified approach for assessing human health risk by categorizing the facilities as high, intermediate, and low priority. The following factors are incorporated into the prioritization score calculation: (1) toxicity of the substances emitted, (2) the quantity of the substance emitted from the facility, (3) the proximity of the facility to potential receptors, such as schools, hospitals, day care centers, worksites, and residences, and (4) any other factors that may indicate that a facility poses a significant health risk to the surrounding community. The prioritization score calculation is conservative so that potentially high priority facilities are not overlooked. Specifically, the California Air Resources Board (CARB) and the California Air Pollution Control Officers Association (CAPCOA) state that the designation of a facility as high priority does not necessarily mean that it is emitting substances at a level that will significantly impact the surrounding community (CAPCOA, 1990). Only after an HRA is conducted can the possible health hazards resulting from facility emissions be properly evaluated. Based on the results of the prioritization score calculation, certain facilities are designated as high priority and are required to prepare a detailed HRA by the air district. Air districts may also request that an AB 2588 HRA be performed.

As part of the submittal of the 2008 Comprehensive Emission Inventory Report (CEIR), Lehigh calculated a prioritization score using CARB guidelines that provides a ranking of emissions related to potential health risk. Facilities are ranked as low priority with scores less than 1, as an intermediate priority with scores between 1 and 10, and as a high priority with scores

greater than 10. The prioritization scores for carcinogenic, chronic, and acute health effects were between 1 and 10 for the Facility, resulting in an intermediate priority ranking.

1.1.2 Detailed HRA

Detailed HRAs are typically required by the air districts for facilities with prioritization scores greater than 10 and also for facilities identified at the air district's discretion. Although the Facility had prioritization scores less than 10, BAAQMD requested that Lehigh perform an AB 2588 HRA.

1.2 OBJECTIVES OF THE HRA

The specific objectives of this HRA are to: (1) estimate off-site air concentrations of the substances emitted from the Facility based on the 2008 CEIR (2005 production) and current low production rates (average production in 2008 and 2009), (2) evaluate potential exposures to the surrounding community, and (3) characterize the potential health risks to individuals and the exposed population associated with those levels of exposure. This assessment presents the results of this analysis based on refined air dispersion modeling and the guidance provided by OEHHA (OEHHA, 2003). A brief description of the Facility and an outline of the report are presented below.

1.3 FACILITY DESCRIPTION

Raw materials are mined and processed for the production of cement. The location of the Facility and the general vicinity are shown on Figure 1. The primary operations area and the majority of point sources are shown in Figure 2A. Figure 2B presents an expanded view of the Facility showing the mine area, point sources distant from the main operation area, and fugitive volume sources. The Facility is surrounded in the immediate vicinity by rural undeveloped land. The nearest residence (Maximum Exposed Individual Resident [MEIR]) is located east of the Facility and the nearest industrial property (Maximum Exposed Individual Worker [MEIW]) is located north of the Facility (Figure 3A).

The processes contributing to the release of AB 2588 reportable chemicals include:

- Cement kiln (1 point source)
- Plant baghouses (24 point sources)
- Plant baghouses (1 volume source from inside a building)
- Plant stationary internal combustion engines (2 point sources)
- Plant fugitive emissions (14 volume sources)

There are a total of 27 point sources and 15 volume sources associated with the above processes in the air dispersion model. Source identification and emission estimates used in this report are described in more detail in Section 3.1.

1.4 REPORT FORMAT

The remainder of this document is organized as follows:

Section 2.0: Hazard Identification - This section identifies all the substances evaluated in this HRA for the Facility. The substances evaluated for cancer and noncancer end points are identified.

Section 3.0: Exposure Assessment - This section describes the estimated emissions for the TACs, the air dispersion modeling used to estimate airborne concentrations, the exposure pathways evaluated, and the off-site receptors evaluated.

Section 4.0: Toxicity Assessment - This section presents the toxicity criteria used to evaluate potential acute and chronic noncarcinogenic health effects and carcinogenic risk.

Section 5.0: Risk Characterization - This section presents the results of the risk assessment for the exposure scenarios evaluated. An evaluation of the ZOI, sensitive receptors, and population health risks are presented where appropriate.

Section 6.0: Conclusions - This section summarizes the results of the risk assessment.

Section 7.0: References - This section presents the references used in this risk assessment.

2.0 HAZARD IDENTIFICATION

The regulations that implement the requirements of AB 2588 identify chemicals that may cause potential carcinogenic and/or noncarcinogenic health hazards to the surrounding community. Emissions of 69 TACs were quantified in the 2008 CEIR prepared for the Facility. The revisions to the 2008 CEIR in 2009 (Lehigh, 2009) and 2010 (AMEC, 2010a and 2010b) did not change the number of chemicals, but refined emission estimates for specific sources.

The summary of Facility emissions (annual average and maximum hourly) for all reported TACs is presented in Table 1. Table 1 presents annual average emissions based on the 2008 CEIR and emissions associated with current low production rates (Section 3.1.2 provides detail regarding the development of these emissions). Maximum hourly emissions were not revised based on the current low production rate because the maximum production rate will not change. For the purpose of understanding where these chemicals originate in the cement manufacturing process, each chemical was assigned to a primary emission category. The categories are as follows:

- Kiln - Byproducts of combustion to heat the kiln for manufacturing and other chemicals identified during a source test of the kiln.
- Raw material - A chemical component that occurs naturally in the raw materials used to manufacture cement.
- Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emissions occur during material handling and storage.
- Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators.

Most chemicals originate at the kiln with a smaller subset present naturally in raw materials. Only two chemicals were assigned to the remaining two categories.

3.0 EXPOSURE ASSESSMENT

This section of the risk assessment describes environmental transport modeling and exposure parameters used to estimate the potential for human exposure to the chemical emissions from the Facility. The following sections (1) summarize and describe the source information and emission estimates used in the environmental transport models; (2) describe potentially exposed receptors and exposure pathways; (3) describe the assumptions used in the air dispersion and exposure models; and (4) present the annual average and one-hour maximum concentrations predicted for the TACs at the receptors of interest.

3.1 SOURCE IDENTIFICATION/EMISSION ESTIMATES

This section summarizes the sources of emissions at the Facility and the estimated emissions of TACs.

3.1.1 Source Identification

Multiple processes emitting TACs were evaluated for the Facility, including:

- One precalciner cement kiln.
- Permitted solid material handling equipment that emits point source and fugitive particulate matter (PM) emissions.
- Permitted stationary and portable internal combustion (IC) engines that use diesel fuel.
- Wind erosion and dust entrainment from roads, storage piles, and other volume sources, that emit fugitive PM emissions.
- Miscellaneous smaller sources, specifically fuel dispensing.

Sources were classified into the following two categories: point or volume sources. Twenty-seven of the sources were identified as point sources and associated with a specific release or stack location; 15 fugitive sources were characterized as volume sources.

To simplify the air dispersion modeling and risk assessment, some 2008 CEIR source groups were combined for modeling purposes as follows:

- Dust collector sources with an insignificant contribution to particulate emissions (less than 0.5 percent of PM10 emissions) were modeled as one combined source located in an average location based on the stacks it is comprised of in the main operations area of the Facility (Table 2 and Figure 2A);
- Fugitive sources were assigned to one of eight volume source areas (Table 3). In some cases emissions from fugitive sources occurred in two or three volume source areas. In these cases the emissions were divided evenly between the source areas with the exception of welding equipment. Emissions for welding equipment were apportioned based on the relative percent use in each of the volume source areas. For modeling purposes, volume sources 4 and 6 were subdivided into four smaller volume sources because the majority of the fugitive emissions were generated in these main operation areas.

The location of each source was specified in Universal Transverse Mercator (UTM) coordinates measured in meters (World Geodetic System 1984 datum) and the elevations were obtained from a site-specific CAD drawing showing current elevations at the Facility. The Facility is located on the slopes of a narrow valley with potentially significant changes in topography from one building to the next. A Facility plot plan showing the location of emissions sources at the Facility is presented in Figure 2A for the point sources near the main operations area and Figure 2B for the point sources distant from the main operations area and all volume sources. Source parameters used in the air dispersion modeling, such as process description, UTM coordinates, source height, exit velocity, and temperature of stack emissions are provided in Table 2 for point sources and Table 3 for volume sources.

3.1.2 Emission Estimates

Two emission estimates were used in this HRA. The emissions reported by Lehigh in the 2008 CEIR (AMEC, 2009 as revised), which reflected high production operating conditions based on production in 2005, and current low production rate emissions based on average production rates in 2008 and 2009. Production rates for 2005 were used for the 2008 CEIR as required by the BAAQMD to reflect operating conditions that were not affected by equipment problems or market constraints that occurred in 2006 and 2007. Production at the Facility in 2005 was among the highest production years over the previous five years. Production rates in 2008/2009 are expected to reflect production for the near future.

To develop emission rates for current and likely on-going low cement production rates, annual production of clinker and cement from 2008 and 2009 were compared to 2005 annual production. The average of 2008 and 2009 annual production was divided by the 2005 annual production from the CEIR to develop a current production ratio. The ratio of clinker production was 0.55 and the ratio of cement production was 0.58, indicating production has dropped approximately 30 to 40 percent since 2005. The higher of the two ratios (0.58) was selected to conservatively represent the lower current annual production. This ratio was applied to Facility emissions dependent on cement/clinker production to estimate 2008/2009 emissions for those sources. Specifically, the ratio was applied to all controlled and fugitive dust emissions with the exception of those related specifically to wind erosion (e.g., stockpile emissions and unpaved roads). Assuming Facility vehicles are driven at rates proportional to production, the ratio also was applied to fuel dispensed at the fueling station and dust generated on roads, but not to emergency diesel generators or welders.

For the cement kiln and the finish mill baghouses, TAC source test data was available. For the other sources, PM or TAC emissions were calculated using published emission factors, with assumptions as needed for operating parameters used in the equations. All emission estimates incorporate permit conditions and control measures required by the BAAQMD. Specific information on the control measures can be found in the 2008 CEIR (AMEC, 2009), which is available upon request from BAAQMD.

Tables 4A to 4D summarize annual average emissions used in the HRA as follows:

- Table 4A presents emissions from the kiln based on the 2008 CEIR and current low production rates;
- Table 4B presents emissions from the non-kiln point sources based on the 2008 CEIR;
- Table 4C presents emissions from the non-kiln point sources based on current low production rates; and
- Table 4D presents emissions from volume sources and emergency diesel generators based on the 2008 CEIR and current low production rates.

Maximum hourly emissions are the same for either the 2008 CEIR or current low production rates. Maximum hourly emissions are presented in Tables 5A to 5C as follows:

- Table 5A presents emissions from the kiln;
- Table 5B presents emissions from the non-kiln point sources; and
- Table 5C presents emissions from the volume sources and emergency diesel generators.

3.2 DESCRIPTION OF POTENTIALLY EXPOSED RECEPTORS

According to OEHHA guidance, risk assessments that utilize refined air dispersion modeling must provide a detailed analysis of the potentially exposed population to the air emissions from the Facility. This analysis includes identification of the point of maximum impact and maximum exposed individuals in residential and commercial/industrial areas, identification of sensitive receptors within the ZOI, and evaluation of potential population effects within the ZOI using census information. Table 6 presents the model identifiers and UTM coordinates for all key receptors, including sensitive receptors.

3.2.1 Identification of Residential and Occupational MEIs

The location of maximum potential hazard indexes or carcinogenic risk is referred to as the point of maximum impact (PMI). Designation of the PMI as a residential, commercial/industrial, or other type of receptor is determined based on the land use at that location. Industrial or residential land use nearest to the Facility was identified to locate maximum exposed individuals for chronic and acute noncarcinogenic, and carcinogenic effects for the residential population (MEIR) and worker population (MEIW). At this Facility, the nearest residential receptors are approximately 1500 meters east of the Facility. The nearest occupational receptors are approximately 1000 meters north of the Facility. The PMI, which is closer to the Facility, was neither a residential or commercial/industrial receptor. Receptors also were placed on various grid spacing (30 to 500 meters) covering an area approximately 12 kilometers from east to west and 24 kilometers from north to south. A 30-meter grid spacing was used in the residential area (Figure 3B). These grid receptors were used to define the ZOI.

3.2.2 Sensitive Receptors

In accordance with CAPCOA guidance, potential risks at locations of sensitive receptors within the ZOI such as schools, hospitals, and daycare centers must be identified. On-line maps (http://www.mapquest.com) and the Community Care Licensing Division of the California Department of Health Services website were used to identify sensitive receptors. Based on modeling results, 39 sensitive receptors were identified within the ZOI (discussed further in Section 5.2.1). The location of the sensitive receptors identified is shown on Figure 3A.

3.2.3 Census Tract

In addition to sensitive receptor information, AB 2588 HRAs must provide estimates of the number of individuals within the ZOI. Census data provide resident populations within geographic areas defined by census tracts. Based on modeling, the ZOI for the Facility included or intersected 44 census tracts (discussed further in Section 5.2.1). The residential population was obtained from the Year 2000 Census database for the applicable census

tracts. The populations in census tracts overlapped by the ZOI but not entirely within the ZOI were conservatively included in the cancer burden calculation. Thus, the total population exposed is likely to be overestimated.

3.3 ENVIRONMENTAL TRANSPORT AND EXPOSURE MODELING

The HARP model (version 1.4a) developed by CARB (CARB, 2008a) was specifically designed for conducting AB 2588 HRAs and was used to estimate the health risks associated with Facility emissions. Two data sources are uploaded to the HARP model to estimate predicted off-site concentrations: air dispersion modeling results and chemical emission rates (discussed in Section 3.1.2).

Air dispersion modeling was used to estimate off-site air concentrations of chemicals associated with Facility emissions. Air dispersion modeling was conducted in accordance with the *Air Quality Modeling Protocol,* which was approved by BAAQMD with comments in an email from Mr. Scott Lutz dated June 21, 2010. AMEC's response email from Mr. Steve Ochs was transmitted to BAAQMD on June 24, 2010 and is incorporated herein.

The HARP model uses the output from the air dispersion model and emission rates to predict chemical exposure and risk to the surrounding community. The assumptions used in the air dispersion model and HARP are discussed in more detail below.

3.3.1 Air Dispersion Model

This section presents the dispersion modeling approach. Discussion includes the model selected, meteorological data, and modeling parameters.

3.3.1.1 Model Selection

The Lakes MPI version of AERMOD (version 09292, dated 10/19/2009) was used to predict ambient concentrations resulting from the Facility's emissions sources as approved by BAAQMD. AERMOD is the recommended sequential model in U.S. EPA's Guideline on Air Quality Models (40 CFR 51, Appendix W), and Lakes has recompiled the program utilizing the MCIP2 multithreading libraries to enable AERMOD to take advantage of modern multicore processors. The following regulatory default options were used in AERMOD:

- elevated terrain algorithms requiring input of terrain height data for receptors and emission sources,
- stack tip downwash (building downwash automatically overrides),
- calms processing routines, and
- buoyancy-induced dispersion.

3.3.1.2 BPIP Analysis

If a stack is sufficiently close to a large building, the plume can be entrained in the building's wake. Wind in the wake of the building cause the plume's rise to be diminished, which results in increased ground level ambient concentrations near the building. Lehigh utilized a survey team to measure building heights and silo heights near any stacks. The height data was used in the U.S. EPA's Building Profile Input Program for PRIME (BPIPPRM, version 04274; U.S. EPA, 2004), which computed formula GEP stack heights and generated wind direction specific building profiles for sequential modeling.

3.3.1.3 Urban Land Use Assessment

Dispersion coefficients for air quality modeling were selected based on the land use classification technique suggested by Auer (Auer, 1978), which is the preferred method of the U.S. EPA. The classification determination involves assessing land use by Auer's categories within a 3-kilometer radius of the proposed site. Urban dispersion coefficients should be selected if greater than 50 percent of the area consists of urban land use types; otherwise, rural coefficients apply.

U.S. EPA's AERSURFACE tool (version 08009; U.S. EPA, 2008) was used to summarize the land use within a 3-kilometer radius of the Facility. AERSURFACE was developed by U.S. EPA to identify surface roughness length within a defined radius from a specified point. In this case, the latitude and longitude coordinates of the on-site meteorological station were input to AERSURFACE along with a 3 kilometer radius. USGS 1992 National Land Cover Data (NLCD) were acquired for the northern portion of the state of California and used as input to AERSURFACE. The area within 3-kilometers of the Facility is predominately rural with residential and commercial land use comprising 31 percent of the total area within a 3 km radius of the onsite meteorological station. Therefore, rural dispersion coefficients were used in the air quality modeling.

3.3.1.4 Receptors

AMEC applied the fine receptor grid generated by BAAQMD for their preliminary modeling and expanded the grid as mentioned in Section 3.2.1. The BAAQMD UTM NAD27 receptor grid was converted to UTM NAD83 using the USGS Corpscon program. Because the modeling used the same base meteorological data provided by BAAQMD, the maximum impact areas did not shift spatially in a significant way. Additionally, the BAAQMD receptor grid area captured the maximum residential impact areas from the previous HRA modeling analysis performed in 1994 (Radian, 1994).

In order to define the zone of impact (ZOI), receptor grids with spacing of 200 meters on the west boundary, 200x300 meters on the south boundary and 500 meters east and north

boundary were added around the Facility and extending out from the northern and eastern fine receptor grid. Receptors were also added at the 2000 census tract centroids and at daycare, schools, and hospitals within the ZOI. Figure 3A presents the receptor network for specific residential, worker, and sensitive receptors and Figure 3B presents the grid receptors used for the modeling analysis.

Receptor elevations were assigned by using U.S. EPA's AERMAP (version 09040; U.S. EPA, 2009a) software tool, which is designed to extract elevations from USGS Digital Elevation Model (DEM) files, USGS National Elevation Dataset (NED) files, and Shuttle Radar Topography Mapping (SRTM) files. AERMAP is the terrain preprocessor for AERMOD and uses the following procedure to assign elevations to a receptor:

- For each receptor, the program searches through the terrain input files to determine the two profiles (longitudes or eastings) that straddle this receptor.
- For each of these two profiles, the program then searches through the nodes in the terrain input files to determine which two rows (latitudes or northings) straddle the receptor.
- The program then calculates the coordinates of these four points and reads the elevations for these four points.
- A 2-dimensional distance-weighted interpolation is used to determine the elevation at the receptor location based on the elevations at the four nodes determined above.

NED data with a resolution of $^1/_3$ arc-second (roughly 10 meters) were used as inputs to AERMAP. The NED data were obtained from the USGS Seamless Data Server and extends beyond the modeling domain area. This domain is sufficient to properly account for terrain that would factor into the critical hill height calculations.

3.3.1.5 Meteorological data

U.S. EPA's AERMET tool (version 09040; U.S. EPA, 2009) was used to process meteorological data for use with AERMOD. AERMET merges National Weather Service (NWS) surface observations and on-site meteorological data with NWS upper air observations and performs calculations of meteorological parameters required by AERMOD. In addition to the meteorological observations, AERMET further requires the inclusion of land use surface characteristics that are calculated by U.S. EPA's AERSURFACE tool.

The meteorological data used in the sequential modeling consists of on-site hourly surface observations collected by Lehigh from a 10-meter tower located near the southwestern property boundary. As outlined in the modeling protocol, the meteorological data used in the modeling was collected in 2006, with the raw on-site data provided by Lehigh.

The meteorological instruments were installed at an elevation of 10 meters above ground level (AGL). The tower was equipped with the following instrumentation:

- Wind speed, wind direction, standard deviation of horizontal wind, and ambient temperature at 10 meters.
- Relative humidity was also measured at the tower, however, AERMET is not able to use the on-site relative humidity data. Rather, AERMET uses the surface station relative humidity values. Given the proximity of the surface station these values should be well within the error of the model.

Concurrent surface observations collected by NOAA at the San Jose Airport were used to provide relative humidity, station pressure, and cloud cover data. BAAQMD provided the data in AERMET-ready format.

Concurrent upper air radiosonde data were provided by BAAQMD for the Oakland NWS site (WBAN 23230). The data obtained were in FSL format. The Oakland site is located at latitude 37.75 and longitude -122.22 with an elevation of 6 meters (19.68 feet) according to the RAOB NOAA website and the FSL file header.

Both the surface station and upper air station locations are shown in Figure 1.

U.S. EPA's AERSURFACE tool was used to calculate the surface roughness length, albedo, and Bowen ratio inputs required by AERMET. AERSURFACE was developed by U.S. EPA to identify these parameters within a defined radius from a specified point. In this case, the latitude and longitude of the on-site meteorological tower were input to AERSURFACE along with a 1 kilometer radius per U.S. EPA guidance. USGS National Land Cover Data (NLCD) were acquired for the northern section of California and used as input to AERSURFACE. The parameters were calculated for six compass sectors broken down as follows:

- Sector 1: 50° to 130°
- Sector 2: 130° to 230°
- Sector 3: 230° to 273°
- Sector 4: 273° to 312°
- Sector 5: 312° to 347°
- Sector 6: 347° to 50°

The sectors are the same as those provide by BAAQMD, with one added sector in the southern portion to better define the surface characteristics near the residential areas toward the south of the facility. The surface characteristics were also broken down by month. Seasonal categories were assigned as follows per BAAQMD guidance:

- Late autumn after frost and harvest, or winter with no snow: January, November and December;
- Winter with continuous snow on the ground: No months;
- Transitional spring (partial green coverage, short annuals): February and March;
- Midsummer with lush vegetation: April, May, June and July; and
- Autumn with unharvested cropland: August, September and October.

Average surface moisture was assumed. AERSURFACE input and output files are provided on CDROM per the nomenclature described in Appendix A.

The Lehigh on-site data, San Jose surface data, Oakland upper air data, and AERSURFACE land use data were processed with the AERMET meteorological processor. AERMET input and output files are provided on CDROM per the nomenclature described in Appendix A.

Based on the above approach, the data completeness is 97.85 percent with 188 missing hours. The data meets the U.S. EPA completeness criteria of 90 percent.

A wind rose for the data is provided in Appendix A. The annual wind rose demonstrates that wind direction frequency is generally aligned with the orientation of the nearby mountain ridges and valleys.

3.3.1.6 Source Parameters

Source input parameters are provided in Tables 2 and 3 for point and volume sources, respectively. Lehigh surveyed some of the stacks to validate stack height, stack diameter, and stack orientation (horizontal or vertical).

Twenty-five of a total 68 dust collector sources were considered significant sources in the air dispersion modeling and modeled as individual sources. Significant sources were defined as sources emitting greater than 0.5 percent of total PM10 emissions; these significant sources collectively account for 93 percent of total PM10 emissions from dust collector sources. To simplify the modeling effort without materially changing the results, AMEC modeled the remaining sources (less than 0.5 percent contribution to the total PM10 emission) as a single combined stack (Table 2, Source 999-DC). In addition to the combined source (999-DC), 24 dust collector sources were modeled as point sources. Two additional point sources were used to represent the emergency generators (Source S501 and S502). One dust collector source (7PD7) was modeled as a volume source because the stack released into a building. Figure 2A shows the modeled point sources in the main plant area and nearby buildings. Figure 2B shows the locations of Source 7PD7. .

A number of point sources at the Facility have a horizontal stack orientation. These point sources were set up in AERMOD in accordance with U.S. EPA guidance (Model

Clearinghouse Memo 93-II-09). The U.S. EPA guidance sets the stack's exit velocity to 0.001 meters per second to account for suppression of vertical momentum for the plume and uses an effective stack diameter that maintains the actual flow rate of the plume.

Fugitive emissions were aggregated into 14 volume sources located throughout the Facility (eight sources areas with two subdivided into four subareas). This approach simplifies the modeling by reducing the number of sources to model. A summary of the fugitive emissions and modeled sources are provided in Table 3 and the proposed fugitive volume source layout is on Figure 2B.

All emission rates in AERMOD were set to one gram per second and period and 1-hour plot files were created for each source for use in the HARP analysis.

Modeling input and output files are provided on the enclosed compact disk (Appendix A).

3.3.2 HARP On-Ramp Model

Because the air dispersion modeling was performed outside of HARP, software available from CARB [HARP On-Ramp (version 1.0)] was used to prepare HARP-ready input files. The first file is a "source-receptor" file that contains a list of all of the sources and receptors and their corresponding coordinate locations. The second file contains the dispersion factors (X/Q) for each receptor that correlates the air concentration at each receptor (micrograms per cubic meter; $\mu g/m^3$) per the unit emission rate (1 gram per second [g/s]) from each source. The third file contains the annual average and max hourly emission rates for each chemical from every source. The source-receptor file was generated from source information as described in Section 3.3.1.6 and the receptor grid as described in Section 3.3.1.4. The HARP model predicts the ground-level concentration (GLC) using AERMOD output to estimate exposure and corresponding health risks for all receptors.

For the year to second unit conversion in the annual emissions, HARP On-Ramp uses 8760 seconds per year, essentially assuming all processes emit constantly for the entire year and were modeled correspondingly.

3.3.3 HARP Exposure and Risk Model

HARP incorporates the algorithms and exposure assumptions provided in OEHHA's guidance (2003) for estimating exposures for the AB 2588 program. HARP incorporates the dispersion coefficients predicted by AERMOD and emission rates to predict ground-level concentrations for each receptor. HARP then uses the ground-level concentrations, environmental fate assumptions, exposure parameters, and dose calculation algorithms recommended by OEHHA to estimate potential health effects for all receptors. Exposure assumptions specific to the Facility are presented in Table 7. Standard default assumptions for other parameters are provided in the modeling output (Appendices B and C).

The HARP exposure algorithms are run differently for gaseous chemicals where exposure occurs solely via inhalation (inhalation only chemicals) and particulate chemicals that may accumulate in soil over time (multi-pathway chemicals). For inhalation-only chemicals (39 chemicals), there is only one exposure pathway, and this exposure pathway is evaluated assuming reasonable maximum exposure. The key exposure parameter for this exposure pathway is the inhalation rate. There are two options for the inhalation rate for residential exposure: the Derived OEHHA Method inhalation rate (393 liters per kilogram per day [L/kg-day]; 27.5 m^3/day for a 70 kilogram adult) and the Derived Adjusted Inhalation rate (302 L/kg-day; 21 m^3/day for a 70-kilogram adult). In this evaluation, the Derived adjusted inhalation rate was used consistent with BAAQMD guidance (BAAQMD, 2010).

For multipathway chemicals (30 chemicals), exposure pathways such as ingestion of soil, dermal contact with soil, ingestion of homegrown produce are evaluated because the chemicals can accumulate in soil over time. For these chemicals, a reasonable maximum exposure is estimated for the two most significant exposure pathways and an average exposure is estimated for the other pathways. The rationale for this approach is that it is unlikely that an individual would be exposed at the maximum level for all exposure pathways simultaneously. If inhalation is not one of the two most significant exposure pathways, an average inhalation rate (rather than upper bound inhalation rate discussed in the previous paragraph) of 271 L/kg-day (19 m^3/day for a 70-kilogram adult) is used to estimate exposure for residential receptors. Other default parameters for multipathway chemicals include a 0.02 meter per second (m/s) deposition rate and a 0.052 fraction of ingested produce presumed to be homegrown, which were used to evaluate exposure via these non-inhalation pathways (OEHHA, 2003).

Worker exposure is evaluated using a single inhalation rate (149 L/kg-day or 10.4 m^3/day) for both inhalation-only and multipathway chemicals. Worker exposure also considers exposure frequency and duration that is different than for residents based on a work schedule of 49 weeks per year for 5 days per week for 8 hours per day for 40 years.

As required by BAAQMD guidance (BAAQMD, 2010), a 9-year child exposure period was used for sensitive receptors (e.g., schools and day care centers) as provided in the OEHHA guidance. The student exposure scenario assumes that exposure occurs via inhalation, dermal absorption, and soil ingestion. The breathing rate is based on a 95th percentile breathing rate (581 L/kg-day for a 15 kilogram child or 8.7 m^3/day). Conservatively, this receptor is assumed to be present for 350 days per year.

3.4 AIR DISPERSION MODELING RESULTS

The MEIR for chronic and acute noncarcinogenic effects and carcinogenic effects was identified as receptor #2085. The MEIW for chronic and acute noncarcinogenic effects and

carcinogenic effects was identified as receptor #10963. Predicted annual average air concentrations at the MEIW and MEIR, sensitive receptor, and census tract locations are presented in Table 8A for the 2008 CEIR emissions and Table 8B for the current low production rates. Predicted maximum hourly air concentrations at these receptors are presented in Table 9. HARP modeling input and output for 2008 CEIR emissions is presented in Appendix B and output for current low production emissions is presented in Appendix C.

4.0 TOXICITY ASSESSMENT

This section describes the toxicity criteria for chemicals evaluated in this updated AB 2588 HRA. The potential health effects associated with each AB 2588 chemical are summarized in Table 10. Of the 69 chemicals evaluated in the HRA, 22 are considered to pose potential acute noncarcinogenic hazards, 52 chemicals are considered to pose potential chronic noncarcinogenic health effects, and 52 are considered to be carcinogenic under AB 2588.

4.1 NONCARCINOGENS

For chronic and acute noncarcinogenic effects, observable biological effects occur only after a threshold dose is reached. To establish health criteria, this threshold dose usually is estimated from the no-observed adverse effect level (NOAEL) or the lowest-observed adverse effect level (LOAEL) determined in studies of chronic exposure in animals by applying a series of uncertainty (safety) factors. For chemicals identified for evaluation in AB 2588, OEHHA and CARB provide “reference exposure levels” (RELs) that represent levels of exposure below which adverse effects are not expected to occur with a substantial margin of safety. These RELs typically include uncertainty factors ranging from 10 to 1,000 to account for limitations in the quality or quantity of available data used to develop the RELs. RELs were published for inhalation exposure based on an acceptable air concentration (micrograms per cubic meter; $\mu g/m^3$) and for chronic, non-inhalation exposure based on an acceptable oral dose (milligrams per kilogram per day; mg/kg-day).

For the purpose of evaluating cumulative effects of chemical exposure, OEHHA has categorized end points for adverse health effects for acute and chronic exposure. Only effects of chemicals on the same end point are considered additive. Potential end points for acute and chronic toxicological effects have been classified into thirteen categories in the OEHHA guidelines: alimentary (gastrointestinal and liver), bone, cardiovascular, developmental, endocrine system, eyes, hematologic, immune system, kidney, central nervous system, reproductive, respiratory, and skin. The RELs for potential chronic and acute health effects and respective toxicological end points for the chemicals emitted from the Facility are presented in Table 11. As noted in the table, the REL for mercury via non-inhalation exposure was eliminated based on information from OEHHA provided by BAAQMD.

4.2 CARCINOGENS

Regulatory guidance assumes that chemicals classified as carcinogens should be treated as if they have no threshold (U.S. EPA, 1989). This approach means that only a zero dose is assumed to result in zero risk (i.e., for all doses, some risk is assumed to be present, increasing linearly with increasing dose). Various mathematical models are used to estimate theoretically plausible responses at these low doses. For chemicals identified for evaluation in AB 2588, the OEHHA guidelines present unit risk values (URVs) that conservatively quantify (i.e., purposely over-predict) the likelihood of a carcinogenic response in an individual receiving a given dose of a chemical. URVs were published for inhalation exposure as the inverse of a concentration in air $(\mu g/m^3)^{-1}$ (OEHHA/ARB, 2009). For chronic, non-inhalation exposure, oral potency factors (OPFs) were published as the inverse of grams of chemical intake per kilogram of body weight per day $(mg/kg/day)^{-1}$ (OEHHA/ARB, 2009). Unlike noncarcinogenic effects, carcinogenic effects are considered additive for all chemicals. The URVs and OPFs for chemicals emitted from the Facility are presented in Table 11.

In 2009, as part of the Technical Support Document for Cancer Potency Factors (TSD) used in the Air Toxics program, OEHHA published age sensitivity factors (OEHHA, 2009) to address potential increased susceptibility to cancer when exposed to certain chemicals as a child or adolescent. Early-in-life susceptibility to some carcinogens has been recognized by the scientific community but the data does not support applying a constant factor to all carcinogens. However, the California legislature directed OEHHA to develop a methodology to address the issue. OEHHA's recommendation is to apply sensitivity factors based on age equally to all carcinogens: A 10-fold increase from the third trimester of pregnancy to 2 years of age and a 3-fold increase from 2 to 16 years of age. When these age sensitivity factors are considered over a 70-year lifetime, the average lifetime age sensitivity factor (LASF) is 1.7. For school children, the age sensitivity factor applied is 3. These factors were applied to health risks calculated in the HRA outside of the HARP model because the HARP model has not yet been updated to address this change.

5.0 RISK CHARACTERIZATION

This final step of the risk assessment integrates the exposure estimates developed for the chemical emissions (Section 3.0) and the health effects data from which toxicity criteria are established (Section 4.0). The risk characterization section addresses both noncarcinogenic and carcinogenic health effects based on inhalation and non-inhalation exposure. Definition of the ZOI and identification of the PMI were based on a detailed receptor grid and fence line receptors. The MEIR and MEIW were located in residential and business areas. The estimates of health risk that typically warrant public notification under AB 2588 are discussed.

5.1 NONCARCINOGENIC HEALTH EFFECTS

Potential chronic and acute noncarcinogenic health effects associated with exposure to chemical emissions from the Facility have been evaluated using the HARP model. For acute inhalation exposure, the HARP model divides the predicted maximum hourly concentration by the appropriate acute REL provided by OEHHA (Table 9). Non-inhalation pathways are not applicable to acute exposures under AB 2588 (OEHHA, 2003). For chronic inhalation exposures, the predicted annual average air concentration for each chemical is divided by the chronic inhalation REL. For chronic non-inhalation exposure, the predicted oral dose is divided by the chronic, oral REL as appropriate. The total hazard quotient reported for a chemical with inhalation and non-inhalation effects is the sum of the individual hazard quotients for inhalation and non-inhalation exposure.

The chronic and acute hazard quotients for inhalation exposure can be described by the equation below:

$$Hazard\ Quotient_{inh} = \frac{GLC_{inh}}{REL_{inh}}$$

Where:

Hazard Quotient$_{inh}$	=	Chemical-specific hazard quotient for inhalation exposure pathways
GLC	=	Ground-level air concentration at a receptor location (µg/m^3)
REL$_{inh}$	=	Inhalation reference exposure level (µg/m^3)

Example Calculation: Chronic Hazard Quotient for Inhalation Exposure to mercury at PMI (receptor #226) 2008 CEIR emissions (Target organ: central nervous system)

$$Hazard\ Quotient_{inh} = \frac{GLC_{mercury}}{REL_{mercury}}$$

Where:

Hazard Quotient$_{inh}$	=	Hazard quotient for mercury for inhalation exposure pathways
GLC$_{mercury}$	=	Ground-level air concentration of mercury at receptor #226 (0.00839 µg/m^3; Table 8A)
REL$_{mercury}$	=	Inhalation reference exposure level for mercury (0.03 µg/m^3; Table 11).

$$Hazard\ Quotient_{inh} = \frac{0.00839\ ug/m^3}{0.03\ ug/m^3}$$
$$= 0.28$$

Therefore, the chronic hazard quotient predicted from inhalation exposure to mercury based on 2008 CEIR emissions at this receptor is 0.28 (Table 12) for effects on the central nervous system.

Chronic and acute noncarcinogenic health effects were also evaluated in terms of their assumed potential additive effect on target organs or systems (e.g., central nervous system). For acute and chronic exposures, up to thirteen target organs or systems were evaluated using the HARP model (described in Section 4.1). The chemicals that may affect the same target organ or system were evaluated by summing the individual hazard quotients to calculate a target organ-specific hazard index (HI). The following sections present the results of the chronic and acute noncarcinogenic evaluations. Chronic and acute hazard indexes less than or equal to 1.0 are considered to be without public health impact with a substantial margin of safety, because exposure at or below the REL is not expected to pose significant adverse health hazards. Hazard indexes greater than 1.0 do not necessarily mean that adverse health effects would be expected. Rather, on a chemical-specific basis, as the hazard index increases above 1 to 10 or higher, the level of regulatory concern and need for control increases.

5.1.1 Chronic Noncarcinogenic Results

Chemical emissions from the Facility are not expected to pose significant chronic noncarcinogenic health effects. Results for chronic noncarcinogenic health effects are presented on Table 12 by chemical and on Table 13 by source. Because chronic hazard indexes were less than 1 at all off-site receptors, a figure was not developed showing the extent.

The highest target organ-specific hazard indexes for the MEIR (receptor #2085) were 0.3 and 0.2, respectively, for the 2008 CEIR emissions and the current low production emissions. The highest target organ-specific hazard indexes for the MEIW (receptor #10963) were 0.1 and 0.09, respectively, for the 2008 CEIR emissions and the current low production emissions. The organ/system endpoint with the highest hazard indexes was the central nervous system. These values for the MEIW and MEIR are well below the BAAQMD regulatory notification level of 1.0.

Predicted chronic noncarcinogenic hazard index at the PMI (receptor #226) was 0.4 for the 2008 CEIR emissions and 0.2 for the current low production emissions. The PMI is located east of the Facility in open space. The organ/system endpoint with the highest hazard index was the central nervous system. The predicted chronic noncarcinogenic hazard index for both

production scenarios is below the regulatory notification level of 1. Therefore, no action would be required by the BAAQMD.

5.1.2 Acute Noncarcinogenic Results

Chemical emissions from the Facility are not expected to pose significant acute noncarcinogenic health effects. As stated previously, there is no difference in maximum emission rates for 2008 CEIR emissions and current low production rate emissions. Results for acute noncarcinogenic health effects are presented on Table 14 by chemical and on Table 15 by source. The geographical area exceeding an acute hazard index of 0.5 is shown on Figure 4. As shown, the area exceeding an acute hazard index of 1 is limited to the open space near the Facility.

The highest target organ-specific hazard indexes for the MEIW (receptor #10963) and MEIR (receptor #2085) were 0.8 and 0.6, respectively. The organ/system endpoint with the highest hazard indexes was the developmental system. These estimated acute hazard indexes are below the BAAQMD regulatory notification level of 1.0.

Predicted acute noncarcinogenic hazard index at the PMI (receptor #130) was 2. The organ/system endpoint with the highest hazard indexes is developmental effects. The predicted acute noncarcinogenic hazard index is greater than the regulatory notification level of 1 for the AB 2588 program. The chemical contributing most significantly to predicted risk is mercury (97 percent of the total at the PMI), which occurs naturally in the raw materials used to make cement. The kiln contributes most significantly to the acute hazard index (99 percent). Because there is no specific off-site receptor at the location of the PMI, no notification would be required by the BAAQMD. The AB 2588 program focuses on long-term exposure for residents, workers, and sensitive receptors, and none are present in the undeveloped land near the Facility.

5.2 CARCINOGENIC HEALTH EFFECTS

In accordance with the OEHHA guidance, cancer risk estimates based on the theoretical upper-bound excess cancer risk should be evaluated for the maximum exposed individuals, and a peak cancer receptor, if different. The guidelines also require cancer risk to be evaluated for sensitive receptors and populations within the ZOI.

For inhalation exposures, the theoretical upper-bound excess cancer risk is estimated assuming that an individual is exposed continuously to the annual average air concentrations over a 70-year lifetime. Once these annual average air concentrations and a corresponding dose (amount of chemical inhaled averaged over a theoretical lifetime) are estimated for each of the receptors of interest, then the cancer risk is calculated for the carcinogenic TACs using the following equation:

$$Cancer\ Risk_{inh} = Dose_{inh} \times CPF_{inh} \times LASF$$

Where:

Cancer $Risk_{inh}$	=	Theoretical upper bound lifetime cancer risk
CPF_{Inh}	=	Cancer Potency Factor for inhalation $(mg/kg\text{-}d)^{-1}$
$Dose_{inh}$	=	Dose through inhalation (mg/kg-d)
LASF	=	Lifetime age sensitivity factor (unitless)

$$Dose_{inh} = GLC \times DBR \times AF \times EF \times ED \times 10^{-6}/AT$$

Where:

GLC	=	Ground-level concentration ($\mu g/m^3$)
DBR	=	Daily Breathing Rate (L/kg-day)
AF	=	Inhalation Absorption Factor (unitless)
EF	=	Exposure Frequency (days/yr)
ED	=	Exposure Duration (years)
10^{-6}	=	two conversion factors (mg/ug and m^3/L)
AT	=	Averaging Time for carcinogens (25,550 days)

Under the Derived Adjusted Method, HARP calculates the inhalation risk using a 80th percentile breathing rate estimate if inhalation is the only pathway evaluated or one of the two dominant (risk-driving) pathways evaluated for a particular chemical. In the example provided, inhalation was not one of the dominant exposure pathways for arsenic for the receptor presented. Therefore, an average breathing rate (versus a high-end value) was used to estimate the dose.

Example Calculation: <u>Dose and Corresponding Cancer Risk for Inhalation Exposure to Arsenic at MEIR (receptor #2085) 2008 CEIR Emissions</u>

$$Dose_{inh} = GLC \times DBR \times AF \times EF \times ED \times 10^{-6}/AT$$

Where:

GLC	=	Ground-level concentration ($2.64x10^{-5}$ $\mu g/m^3$; Table 8A)
DBR	=	Daily Breathing Rate (302 L/kg-day; Table 7)
AF	=	Inhalation Absorption Factor (1; unitless)

EF	=	Exposure Frequency (350 days/yr)
ED	=	Exposure Duration (70 years)
10^{-6}	=	two conversion factors (mg/ug and m^3/L)
AT	=	Averaging Time for carcinogens (25,550 days)

Therefore:

$$\text{Dose}_{\text{inh}} = 2.64 \times 10^{-5} \times 302 \times 350 \text{ x } 70 \times 10^{-6}/25{,}550$$
$$= 7.65 \text{ x}10^{-9} \text{ mg/kg-d}$$

The corresponding cancer risk is estimated as follows:

$$Cancer\ Risk_{inh} = Dose_{inh} \times CPF_{arsenic} \times LASF$$

Where:

Cancer Risk_{inh}	=	Theoretical upper bound lifetime cancer risk associated with inhalation exposure to arsenic
Dose_{Inh}	=	Dose of arsenic at receptor MEIR (receptor #2085) ($7.65\text{x}10^{-9}$ mg/kg-d)
$\text{CPF}_{\text{arsenic}}$	=	Inhalation cancer potency factor for arsenic [12 $(\text{mg/kg-d})^{-1}$; Table 11]
LASF	=	Lifetime age sensitivity factor (1.7)

Therefore:

$$\text{Cancer Risk}_{\text{inh}} = 7.65 \text{ x}10^{-9} (mg/kg-d) \times 12 (mg/kg - \text{d}))^{-1} \times 1.7)$$
$$= 1.56\text{x}10^{-7}$$

For non-inhalation exposures, the theoretical upper-bound excess cancer risk is also estimated assuming that an individual is exposed continuously to the chemicals over a 70-year lifetime. Once the lifetime oral dose from non-inhalation pathways is estimated, then the cancer risk is calculated for the carcinogenic TACs using the following equation:

$$Cancer\ Risk_{non-inh} = Dose_{oral} \times OPF \times LASF$$

Where:

Cancer $\text{Risk}_{\text{non-inh}}$	=	Theoretical upper bound lifetime cancer risk associated with non-inhalation exposure
$\text{Dose}_{\text{Oral}}$	=	Oral Dose (mg/kg/day)
OPF	=	Oral Potency Factor $(\text{mg/kg/day})^{-1}$

LASF = Lifetime Age Sensitivity Factor (unitless)

Example Calculation: Cancer Risk for Non-Inhalation Exposure to Arsenic at MEIR (receptor #2085) 2008 CEIR Emissions

$$Cancer\ Risk_{non-inh} = Dose_{oral-arsenic} \times OPF_{arsenic} \times LASF$$

Where:

Cancer $Risk_{non\text{-}inh}$ = Theoretical upper bound lifetime cancer risk associated with non-inhalation exposure to arsenic

$Dose_{Oral\text{-}arsenic}$ = Oral dose of arsenic at MEIR (receptor #2085) ($2.4x10^{-7}$ mg/kg/day; the sum of dermal contact, ingestion of soil, and ingestion of vegetables pathways; Appendix B)

$OPF_{arsenic}$ = Oral potency factor for arsenic [1.5 $(mg/kg/day)^{-1}$; Table 11]

LASF = Lifetime age sensitivity factor (1.7)

Therefore:

$$Cancer\ Risk_{non-inh} = 2.4x10^{-7} \frac{mg}{kg-d} \times 1.5 \frac{kg-d}{mg} \times 1.7$$

$$= 5.9x10^{-7}$$

The total cancer risk for arsenic exposure is the sum of inhalation and non-inhalation exposures:

$$Cancer\ Risk_{arsenic} = Cancer\ Risk_{non-inh} + Cancer\ Risk_{inh}$$

$$= 5.9x10^{-7} + 1.56x10^{-7}$$

$$=7.4x10^{-7}$$

Therefore, the total cancer risk from exposure to arsenic at the MEIR (receptor #2085) is $7.4x10^{-7}$ (Table 16).

5.2.1 Identification of the Zone Of Impact

The ZOI, as defined by CAPCOA, is the area within which there is a theoretical increased cancer risk of one-in-one million or greater based on a continuous, 70-year lifetime exposure to carcinogenic air emissions from the Facility. The ZOI is not the same as the regulatory notification level ($1x10^{-5}$) above which public notification is required by BAAQMD. The fact that the ZOI extends beyond the Facility boundaries does not imply that the regulatory notification level is exceeded throughout this area (Figure 5). As shown on Figure 5, the ZOI based on the 2008 CEIR is much larger than the ZOI for the current low production emissions. The area

exceeding the regulatory notification level is a small subset of the ZOI. As discussed further in Section 5.2.2, the conclusion is that notification is not required. The results from the HARP model for the receptor grid provides the information necessary to identify the ZOI by generating the isopleths (i.e., a geographical presentation of areas of equal risk) for the one-in-one million theoretical excess cancer risks. The isopleths are based on predicted cancer risks at the receptors and interpolation of the data between these receptors. The ZOI is presented in Figure 5.

The modeling results indicated that the ZOI based on 2008 CEIR emissions extends approximately 13 kilometers east to west and approximately 13 kilometers north to south. The ZOI based on the current low production emissions extends approximately 8 kilometers east to west and 10 kilometers north to south. The predicted carcinogenic risks for all ZOI receptors are presented in Appendix B for 2008 CEIR emissions and Appendix C for current low production emissions.

5.2.2 Estimated Theoretical Cancer Risks at Maximum Exposure Locations

The theoretical carcinogenic risks for the MEIR (receptor #2085) were $1x10^{-5}$ and $8x10^{6}$, respectively, for the 2008 CEIR emissions and the current low production emissions including the LASF.[1] The theoretical carcinogenic risks for the MEIR were $8x10^{-6}$ and $5x10^{6}$, respectively, for the 2008 CEIR emissions and the current low production emissions excluding the LASF. The theoretical carcinogenic risks for the MEIW (receptor #10693) were $1x10^{-6}$ and $7x10^{-7}$, respectively, for the 2008 CEIR emissions and the current low production emissions. LASF are not applied to adult workers. The estimated theoretical excess cancer risk for the MEIR using the 2008 CEIR emissions is at the BAAQMD regulatory notification level of $1x10^{-5}$; however the LASF was not in effect at the time those emissions occurred. The chemicals contributing most significantly to predicted risk at the MEIR are benzene (41 percent) and hexavalent chromium (39 percent). The kiln contributes most significantly to predicted cancer risk (61 percent for2008 CEIR emissions). Potential carcinogenic risk at the MEIR based on the current low production scenario is below the notification level. As such, notification should not be necessary as current and historical conditions do not exceed the notification level except when the LASF was applied to historical conditions. In that case predicted risks were at the notification level. Results for potential carcinogenic risk are presented on Table 16 by chemical and on Table 17 by source.

Predicted cancer risk at the PMI (receptor #226) was $2x10^{-5}$ and $1x10^{-5}$, respectively, for the 2008 CEIR emissions and the current low production emissions including the LASF. The

[1] It is standard risk assessment practice to report cancer risks to one significant figure (U.S. EPA, 1989).

theorectical carcinogenic risks for the PMI were $1x10^{-5}$ and $8x10^{-6}$ excluding the LASF. The predicted cancer risk for both emission scenarios are at or greater than the $1x10^{-5}$ regulatory notification level including the LASF. The chemicals contributing most significantly to predicted risk at the PMI are benzene (26 percent) and hexavalent chromium (55 percent). The kiln contributes most significantly to predicted cancer risk (39 percent for 2008 CEIR emissions). Because there is no specific off-site receptor at the location of the PMI, no action with respect to emissions is required under the AB 2588 program. The AB 2588 program focuses on long-term exposure for residents and workers, and none are present at the PMI for the Facility.

The 2008 CEIR and current low production rate emissions result in predicted cancer risks at the MEIR that are at and well below the notification level of ($1x10^{-5}$), respectively. To identify an annual production rate for clinker and cement that results in predicted cancer risks just below the $1x10^{-5}$ notification level (e.g., $9x10^{-6}$), AMEC tested various adjustments to emission rates using the HARP model to identify a factor that when applied to 2005 production rates (2008 CEIR emissions) would result in a predicted risk below the notification level. Similar to the development of the current low production emission rates, the factor was only applied to sources associated with production and not to some wind-driven fugitive sources such as stockpiles. Based on the evaluation, the optimal production rate for clinker and cement is 68 percent of the 2005 production rates used in the 2008 CEIR. This corresponds to 951,790 short tons of clinker and 994,020 short tons of cement. The annual average emission rates for all sources associated with this production are presented in Table 18, and the summary by individual source is provided in Tables 19A to 19C. Tables 20 and 21 summarize the predicted cancer risk for the PMI ($1x10^{-5}$), MEIR ($9.5x10^{-6}$) and MEIW ($8x10^{-7}$) by chemical and by source, respectively. Appendix D presents the HARP input and output files for the optimal production rate evaluation.

5.2.3 Sensitive Receptors

Carcinogenic risks at the sensitive receptors within the ZOI are presented in Table 22. Sensitive receptors include schools, day care centers, and hospitals. The predicted risks using the 2008 CEIR emissions ranged from $5x10^{-7}$ to $3x10^{-6}$. The predicted risks using the current low production emissions ranged from $3x10^{-7}$ to $2x10^{-6}$. These predicted risks are below $1x10^{-5}$, the level above which notification is required under BAAQMD guidelines.

5.2.4 Population Cancer Burden

Consistent with AB 2588 guidance, cancer burden was estimated within the ZOI for the Facility. Cancer burden is estimated by multiplying the population within the ZOI times the representative cancer risk for that population (# in one million exposures or $\#x10^{-6}$) to estimate potential for increased cancer rates. Cancer burden estimates less than 1 indicate that no additional cases of cancer related to the exposure would be observed. If a small number of

persons are exposed, the probability is that no member of the community will contract cancer related to the exposure. Census tracts and census data are used for the population estimates and potential cancer risk at the census tract centroid (geographical center) is multiplied by that population.

The cancer burden for a census block is calculated in Table 23 as the product of the predicted cancer risk and the population as follows:

Census Block Cancer Burden = Population × Predicted Risk at Census Block Location

The total population cancer burden is the sum of the cancer burden across all census block locations within the ZOI. There are 44 census tracts relevant to the ZOI for the Facility with a residential population of 280,020. Using this population and the cancer risk predicted at the centroid for the census tract, the cancer burden estimated for the ZOI of the Facility was 0.3 based on the 2008 CEIR emissions and 0.2 based on current low production emissions. In both cases, the LASF was included in the calculation. Values less than one indicate that over a 70-year period under the worst-case exposure assumptions, no member of the community would be expected to contract cancer based on exposure to Facility emissions.

6.0 CONCLUSIONS

Based on the information provided for this HRA, the following conclusions can be made regarding the chemical emissions from the Facility. Two scenarios were evaluated. Emissions based on 2005 production rates (reported in 2008 CEIR) and emissions based on an average of 2008/2009 production rates (current low production conditions).

Chronic Noncarcinogenic Health Hazards

The highest target organ-specific hazard indexes for the MEIR (receptor #2085) were 0.3 and 0.2, respectively, based on 2008 CEIR emissions and the current low production scenario. The highest target organ-specific hazard indexes for the MEIW (receptor #10963) were 0.1 and 0.09, respectively, based on 2008 CEIR emissions and the current low production scenario. The organ/system endpoint with the highest hazard indexes was the central nervous system. These values for the MEIW and MEIR are below the BAAQMD regulatory notification level of 1.0, indicating notification is not required.

Predicted chronic noncarcinogenic hazard index at the PMI (receptor #226) was 0.4 and 0.2, respectively, based on the 2008 CEIR emissions and the current low production scenario. The organ/system endpoint with the highest hazard index was the central nervous system. The predicted chronic noncarcinogenic hazard indexes are below the regulatory notification level of 1, indicating notification is not required. The chemical contributing most significantly to predicted chronic hazard index at the PMI is mercury (75 percent), which occurs naturally in

the raw materials used to make cement. The kiln contributes most significantly to the chronic hazard index (84 percent).

Acute Noncarcinogenic Health Hazards

The highest target organ-specific hazard indexes for the MEIW (receptor #10963) and MEIR (receptor #2085) were 0.6 and 0.8, respectively. The organ/system endpoint with the highest hazard indexes was the developmental endpoint. These estimated acute hazard indexes are well below the BAAQMD regulatory notification level of 1.0, indicating notification is not required.

Predicted acute noncarcinogenic hazard index at the PMI (receptor #130) was 2.
The organ/system endpoint with the highest hazard indexes was the developmental endpoint. The predicted acute noncarcinogenic hazard index is greater than the regulatory notification level of 1. The chemical contributing most significantly to predicted risk is mercury (97 percent of the total at the PMI), which occurs naturally in the raw materials used to make cement. The kiln contributes most significantly to the chronic hazard index (99 percent). Because there is no specific off-site receptor at the location of the PMI, notification would not be required by the BAAQMD. The AB 2588 program focuses on exposure for residents and workers, and none are present at the PMI for the Facility.

Potential Carcinogenic Risks

The theoretical carcinogenic risks for the MEIR (receptor #2085) were $1x10^{-5}$ and $8x10^{-6}$, respectively, for 2008 CEIR emissions and current low production emissions, including the lifetime age sensitivity factor (LASF) for carcinogens published by OEHHA in 2009 (OEHHA, 2009). If the LASF is excluded the theoretical carcinogenic risks for the MEIR would be $8x10^{-6}$ and $5x10^{-6}$, respectively, for the 2008 CEIR emissions and current low production emissions. The theoretical carcinogenic risks for the MEIW (receptor #10963) were $1x10^{-6}$ and $7x10^{-7}$, respectively, for 2008 CEIR emissions and current low production emissions. The LASF does not apply to an adult worker. Considering the MEIR and MEIW scenarios, only the estimated theoretical excess cancer risk for the MEIR based on the 2008 CEIR emissions including the LASF (which was not in effect when the emissions occurred) were at the BAAQMD regulatory notification level of $1x10^{-5}$. Predicted cancer risks were below the notification level for the current low production emissions and 2008 CEIR emissions excluding the LASF. Notification is not considered necessary because current conditions do not exceed the notification level as demonstrated by the current low production scenario and 2008 CEIR emissions are at the notification level only when the LASF is applied, which was not in effect at that time. Results for potential carcinogenic risk are presented on Table 16 by chemical and on Table 17 by source.

Predicted cancer risk at the PMI (receptor #226) was $2x10^{-5}$ and $1x10^{-5}$, respectively, based on 2008 CEIR emissions and current low production emissions, including the LASF. If the LASF is excluded the theoretical carcinogenic risks for the MEIR would be $1x10^{-5}$ and $7x10^{-6}$, respectively, for the 2008 CEIR emissions and current low production emissions. The predicted cancer risk at the PMI for 2008 CEIR emissions including the LASF is greater than the $1x10^{-5}$ regulatory notification level. The chemicals contributing most significantly to predicted risk at the PMI are hexavalent chromium (55 percent) and benzene (26 percent). The kiln contributes most significantly to the cancer risk (37 to 39 percent). Because there is no specific off-site receptor at the location of the PMI, no action with respect to emissions should be required. The AB 2588 program focuses on long-term exposure for residents and workers, and none are present at the PMI for the Facility.

If production rates for cement and clinker are 68 percent of the production rate used to develop emissions in the 2008 CEIR (2005 production), predicted cancer risk would be $9.5x10^{-6}$, just below the BAAQMD notification level. Using 68 percent of the 2005 production rates, the optimal production rates would be 951,790 short tons of clinker and 994,020 short tons of cement. The 2008 CEIR emission estimates were based on 2005 production rates that were among the highest over the last 5 years period.

The carcinogenic risk estimated for the sensitive receptors $5x10^{-7}$ to $3x10^{-6}$ for the 2008 CEIR emissions and $3x10^{-7}$ to $2x10^{-6}$ for the current low production emissions are below the BAAQMD regulatory notification level ($1x10^{-5}$). Sensitive receptors include schools, day care centers, and hospitals.

Population Cancer Burden

The predicted excess cancer burden was 0.3 based on 2008 CEIR emissions and 0.2 based on current low production emissions. These results are lower than 1, indicating that over a 70-year period under the worst-case exposure assumptions, no member of the community would be expected to contract cancer based on exposure to Facility emissions. Therefore, the cancer burden calculations indicate that the community as a whole would not have an increased incidence of cancer from emissions at the higher, historical production rates or current operations.

The results of the HRA are based on the operating conditions and chemical usage at the Facility as reported in the 2008 CEIR based on production rates in 2005 and on current low production rates. Significant reductions in production rates and emissions have occurred since 2005, which are reflected in the current low production emission evaluation. Should Facility production, emissions, or toxicity criteria change, the information and conclusions in this report may no longer apply. For example, U.S. EPA has just published a revised NESHAPs regulation for the cement industry, which targets mercury and particulate emissions from

cement production. Future changes at the Facility to meet the NESHAP standards are likely to lower emission rates and potential off-site health risks. At the time production rates are likely to increase to normal levels, the NESHAP requirement will likely be implemented. At the time production increases above 68 percent of 2005 production or within 4 years, whichever comes first, this HRA will be revised to reflect current conditions at the Facility at that time.

The conclusions presented in this report are professional opinions based solely upon the data described in this report. They are intended exclusively for the purpose outlined herein and the site location and project indicated.

7.0 REFERENCES

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TABLES

TABLE ES-1

SUMMARY OF PREDICTED OFF-SITE HUMAN HEALTH RISKS
Lehigh Southwest Cement Company
Cupertino Facility

Description	Cancer Risk		Cancer Risk including LASF[2]		Chronic Noncancer Hazard Index		Acute Noncancer Hazard Index
	Average 2008/2009 Production (Current Low Production)	2005 Production (2008 CEIR)	Average 2008/2009 Production (Current Low Production)	2005 Production (2008 CEIR)	Average 2008/2009 Production (Current Low Production)	2005 Production (2008 CEIR)	Applicable to Either Production Rate
Regulatory Notification Level [1]	1E-05	1E-05	1E-05	1E-05	1.0	1.0	1.0
Maximum Exposed Individual Resident (MEIR)	5E-06	8E-06	8E-06	1E-05	2E-01	3E-01	0.6
Does total exceed regulatory notification level?	No	No	No	No	No	No	No
Maximum Exposed Individual Worker (MEIW)	--	--	7E-07	1E-06	9E-02	1E-01	0.8
Does total exceed regulatory notification level?	--	--	No	No	No	No	No
Point of Maximum Impact (PMI)[3]	8E-06	1E-05	1E-05	2E-05	2E-01	4E-01	2.0
Does total exceed regulatory notification level?	No	No	No	Yes	No	No	Yes

Notes

1. Regulatory notification level is the threshold above which public notification would be required by BAAQMD.
2. The LASF (1.7) incorporates the potential increased sensitivity of children to carcinogens compared to adults averaged over a 70-year lifetime.
3. Notification would not be required at the PMI because a permanent receptor is not present at this location.

Abbreviations

-- = Not applicable to MEIW
LASF = Lifetime age sensitivity factor

TABLE ES-2

ANNUAL AVERAGE AND MAXIMUM HOURLY EMISSION RATES
Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Annual Average (lb/yr)		Maximum Hourly (lb/hr)
		2008 CEIR	Current Low Production	
75070	Acetaldehyde	1.16E+03	6.71E+02	1.68E-01
107028	Acrolein	4.49E+01	2.61E+01	6.51E-03
7440382	Arsenic	2.30E+00	1.37E+00	5.17E-04
56553	Benz[a]anthracene	1.31E-02	7.60E-03	1.90E-06
71432	Benzene	9.65E+03	5.60E+03	1.40E+00
50328	Benzo[a]pyrene	2.95E-04	1.71E-04	4.27E-08
205992	Benzo[b]fluoranthene	1.87E-03	1.08E-03	2.71E-07
207089	Benzo[k]fluoranthene	2.95E-04	1.71E-04	4.27E-08
100447	Benzyl chloride	1.01E+02	5.87E+01	1.47E-02
7440417	Beryllium	7.35E-01	4.44E-01	1.53E-04
106990	1,3-Butadiene	9.18E+01	5.33E+01	1.33E-02
7440439	Cadmium	1.04E+00	6.28E-01	2.35E-04
56235	Carbon tetrachloride	6.16E+01	3.57E+01	8.94E-03
108907	Chlorobenzene	5.54E+02	3.21E+02	8.04E-02
67663	Chloroform	2.87E+01	1.66E+01	4.16E-03
18540299	Chromium VI	2.19E+00	1.29E+00	3.99E-04
218019	Chrysene	3.86E-02	2.24E-02	5.60E-06
7440508	Copper	1.51E+01	9.25E+00	3.69E-03
1175	Crystalline silica	1.04E+03	7.27E+02	3.36E-01
53703	Dibenz[a,h]anthracene	2.95E-04	1.71E-04	4.27E-08
106467	p-Dichlorobenzene	5.89E+01	3.42E+01	8.54E-03
75343	1,1-Dichloroethane	1.98E+01	1.15E+01	2.87E-03
78875	1,2-Dichloropropane	2.71E+01	1.57E+01	3.94E-03
542756	1,3-Dichloropropene	1.11E+02	6.45E+01	1.61E-02
9901	Diesel PM	2.47E+01	2.47E+01	9.73E-01
75003	Ethyl chloride	3.87E+01	2.25E+01	5.62E-03
100414	Ethylbenzene	9.59E+02	5.56E+02	1.39E-01
106934	Ethylene dibromide	6.02E+01	3.49E+01	8.73E-03
107062	Ethylene dichloride	2.38E+01	1.38E+01	3.45E-03
50000	Formaldehyde	6.31E+01	3.66E+01	9.15E-03
35822469	1,2,3,4,6,7,8-HpCDD	9.63E-06	5.58E-06	1.40E-09
67562394	1,2,3,4,6,7,8-HpCDF	4.67E-06	2.71E-06	6.77E-10
55673897	1,2,3,4,7,8,9-HpCDF	1.20E-06	6.98E-07	1.75E-10
39227286	1,2,3,4,7,8-HxCDD	2.69E-06	1.56E-06	3.90E-10
57653857	1,2,3,6,7,8-HxCDD	2.65E-06	1.54E-06	3.85E-10
19408743	1,2,3,7,8,9-HxCDD	2.75E-06	1.59E-06	3.98E-10
70648269	1,2,3,4,7,8-HxCDF	4.07E-06	2.36E-06	5.90E-10
57117449	1,2,3,6,7,8-HxCDF	3.81E-06	2.21E-06	5.52E-10
72918219	1,2,3,7,8,9-HxCDF	1.28E-06	7.44E-07	1.86E-10
60851345	2,3,4,6,7,8-HxCDF	2.34E-06	1.36E-06	3.40E-10
7647010	Hydrochloric acid	1.07E+05	6.22E+04	1.55E+01
193395	Indeno[1,2,3-c,d] pyrene	2.19E-04	1.27E-04	3.17E-08

TABLE ES-2

ANNUAL AVERAGE AND MAXIMUM HOURLY EMISSION RATES
Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Annual Average (lb/yr)		Maximum Hourly (lb/hr)
		2008 CEIR	Current Low Production	
7439921	Lead	1.94E+00	1.16E+00	3.96E-04
7439965	Manganese	3.99E+00	2.32E+00	5.79E-04
7439976	Mercury	5.82E+02	3.37E+02	8.44E-02
74839	Methyl bromide	6.25E+02	3.63E+02	9.07E-02
71556	Methyl chloroform (1,1,1-trichlorethane)	3.21E+01	1.86E+01	4.65E-03
75092	Methylene chloride	1.29E+02	7.48E+01	1.87E-02
91203	Naphthalene	1.39E+02	8.04E+01	2.01E-02
7440020	Nickel	5.19E+01	3.10E+01	1.07E-02
3268879	1,2,3,4,6,7,8,9-OCDD	2.02E-05	1.17E-05	2.92E-09
39001020	1,2,3,4,6,7,8,9-OCDF	4.61E-06	2.67E-06	6.69E-10
40321764	1,2,3,7,8-PeCDD	2.37E-06	1.38E-06	3.44E-10
57117416	1,2,3,7,8-PeCDF	1.83E-05	1.06E-05	2.66E-09
57117314	2,3,4,7,8-PeCDF	2.74E-05	1.59E-05	3.98E-09
127184	Perchloroethylene	5.31E+01	3.08E+01	7.70E-03
7782492	Selenium	5.38E+00	3.17E+00	9.17E-04
100425	Styrene	2.43E+02	1.41E+02	3.52E-02
1746016	2,3,7,8-TCDD	2.33E-06	1.35E-06	3.38E-10
51207319	2,3,7,8-TCDF	1.15E-04	6.69E-05	1.67E-08
79345	1,1,2,2-Tetrachloroethane	4.03E+01	2.34E+01	5.85E-03
108883	Toluene	8.65E+03	5.01E+03	1.25E+00
79005	1,1,2-Trichloroethane	5.34E+01	3.10E+01	7.75E-03
79016	Trichloroethylene	4.21E+01	2.44E+01	6.10E-03
1314621	Vanadium	1.47E+02	8.69E+01	3.06E-02
75014	Vinyl chloride	1.42E+02	8.22E+01	2.06E-02
75354	Vinylidene chloride	3.89E+01	2.25E+01	5.64E-03
95476	o-Xylene	1.36E+03	7.89E+02	1.97E-01
1330207	Xylenes (mixed)	6.94E+03	4.03E+03	1.01E+00

Abbreviations
lb/yr = pounds per year
lb/hr = pounds per hour

TABLE ES-3

HEALTH EFFECT CATEGORIES FOR CHEMICALS EMITTED FROM THE FACILITY[1]

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Primary Emission Category[2]	Carcinogenic Risk	Chronic Noncarcinogenic Effects	Acute Noncarcinogenic Effects
75070	Acetaldehyde	Kiln	•	•	•
107028	Acrolein	Kiln		•	•
7440382	Arsenic	Raw material	•	•	•
56553	Benz[a]anthracene	Kiln	•		
71432	Benzene	Kiln	•	•	•
50328	Benzo[a]pyrene	Kiln	•		
205992	Benzo[b]fluoranthene	Kiln	•		
207089	Benzo[k]fluoranthene	Kiln	•		
100447	Benzyl chloride	Kiln	•		•
7440417	Beryllium	Raw material	•	•	
106990	1,3-Butadiene	Kiln	•	•	
7440439	Cadmium	Raw material	•	•	
56235	Carbon tetrachloride	Kiln	•	•	•
108907	Chlorobenzene	Kiln		•	
67663	Chloroform	Kiln	•	•	•
18540299	Chromium VI	Byproduct of manufacturing	•	•	
218019	Chrysene	Kiln	•		
7440508	Copper	Raw material			•
1175	Crystalline silica	Raw material		•	
53703	Dibenz[a,h]anthracene	Kiln	•		
106467	p-Dichlorobenzene	Kiln	•	•	
75343	1,1-Dichloroethane	Kiln	•		
78875	1,2-Dichloropropane	Kiln	•		
542756	1,3-Dichloropropene	Kiln	•		
9901	Diesel PM	Stationary sources	•	•	
75003	Ethyl chloride	Kiln		•	
100414	Ethylbenzene	Kiln	•	•	
106934	Ethylene dibromide	Kiln	•	•	
107062	Ethylene dichloride	Kiln	•	•	
50000	Formaldehyde	Kiln	•	•	•
35822469	1,2,3,4,6,7,8-HpCDD	Kiln	•	•	
67562394	1,2,3,4,6,7,8-HpCDF	Kiln	•	•	

TABLE ES-3

HEALTH EFFECT CATEGORIES FOR CHEMICALS EMITTED FROM THE FACILITY[1]

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Primary Emission Category[2]	Carcinogenic Risk	Chronic Noncarcinogenic Effects	Acute Noncarcinogenic Effects
55673897	1,2,3,4,7,8,9-HpCDF	Kiln	•	•	
39227286	1,2,3,4,7,8-HxCDD	Kiln	•	•	
57653857	1,2,3,6,7,8-HxCDD	Kiln	•	•	
19408743	1,2,3,7,8,9-HxCDD	Kiln	•	•	
70648269	1,2,3,4,7,8-HxCDF	Kiln	•	•	
57117449	1,2,3,6,7,8-HxCDF	Kiln	•	•	
72918219	1,2,3,7,8,9-HxCDF	Kiln	•	•	
60851345	2,3,4,6,7,8-HxCDF	Kiln	•	•	
7647010	Hydrochloric acid	Kiln		•	•
193395	Indeno[1,2,3-c,d]pyrene	Kiln	•		
7439921	Lead	Raw material	•		
7439965	Manganese	Raw material		•	
7439976	Mercury	Raw material		•	•
74839	Methyl bromide	Kiln		•	•
71556	Methyl chloroform	Kiln		•	•
75092	Methylene chloride	Kiln	•	•	•
91203	Naphthalene	Kiln	•	•	
7440020	Nickel	Raw material	•	•	•
3268879	1,2,3,4,6,7,8,9-OCDD	Kiln	•	•	
39001020	1,2,3,4,6,7,8,9-OCDF	Kiln	•	•	
40321764	1,2,3,7,8-PeCDD	Kiln	•	•	
57117416	1,2,3,7,8-PeCDF	Kiln	•	•	
57117314	2,3,4,7,8-PeCDF	Kiln	•	•	
127184	Perchloroethylene	Kiln	•	•	•
7782492	Selenium	Raw material		•	
100425	Styrene	Kiln		•	•
1746016	2,3,7,8-TCDD	Kiln	•	•	
51207319	2,3,7,8-TCDF	Kiln	•	•	
79345	1,1,2,2-Tetrachloroethane	Kiln	•		
108883	Toluene	Kiln		•	•
79005	1,1,2-Trichloroethane	Kiln	•		
79016	Trichloroethylene	Kiln	•	•	

TABLE ES-3

HEALTH EFFECT CATEGORIES FOR CHEMICALS EMITTED FROM THE FACILITY[1]

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Primary Emission Category[2]	Carcinogenic Risk	Chronic Noncarcinogenic Effects	Acute Noncarcinogenic Effects
1314621	Vanadium	Raw material			•
75014	Vinyl chloride	Kiln	•		•
75354	Vinylidene chloride	Kiln		•	
95476	o-Xylene	Kiln		•	•
1330207	Xylenes (mixed)	Kiln		•	•

Notes

1. Categories designated by the Office of Environmental Health Hazard Assessment (OEHHA) for each chemical.
2. An emission category is presented for each chemical to provide information on where the chemicals originate in the cement manufacturing process. The same chemical may originate from different parts of the manufacturing process, but only the primary source of the chemical is provided.

   Kiln - A byproduct of natural gas combustion to heat the kiln for the manufacture of cement and other chemicals identified during a source test of the kiln.

   Raw material - A chemical that occurs naturally in the raw materials used to manufacture cement.

   Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emissions occur during material handling and storage.

   Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators and welding equipment.

Abbreviations

HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzofuran
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzofuran
OCDD = Octachlorodibenzo-p-dioxin
OCDF = Octachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzofuran
TCDD = Tetrachlorodibenzo-p-dioxin
TCDF = Tetrachlorodibenzofuran

TABLE ES-4

ESTIMATE OF EXCESS CANCER BURDEN
FOR CENSUS TRACT IN ZONE OF IMPACT[1]
Lehigh Southwest Cement Company
Cupertino Facility

Description	Model ID #[2]	2008 CEIR			Current Low Production		
		Residential Cancer Risk	Resident Population	Residential Cancer Burden[3]	Residential Cancer Risk	Resident Population	Residential Cancer Burden[3,4]
Census Tract 506202	11986	1.0E-06	6849	6.9E-03	6.0E-07	6849	4.1E-03
Census Tract 507401	11745	1.0E-06	5599	5.9E-03	6.3E-07	5599	3.5E-03
Census Tract 507402	11593	7.6E-07	4035	3.1E-03	4.6E-07	4035	1.8E-03
Census Tract 507500	11587	8.9E-07	5846	5.2E-03	5.4E-07	5846	3.2E-03
Census Tract 507600	10977	1.5E-06	5773	8.5E-03	8.7E-07	5773	5.0E-03
Census Tract 507701	10973	2.2E-06	3670	7.9E-03	1.3E-06	3670	4.8E-03
Census Tract 507702	10975	3.5E-06	6252	2.2E-02	2.1E-06	6252	1.3E-02
Census Tract 507703	10972	5.1E-06	6959	3.5E-02	3.1E-06	6959	2.2E-02
Census Tract 507805	10971	2.1E-06	4525	9.3E-03	1.2E-06	4525	5.6E-03
Census Tract 507806	12167	1.5E-06	5396	8.1E-03	9.1E-07	5396	4.9E-03
Census Tract 507807	10974	2.1E-06	3041	6.4E-03	1.3E-06	3041	3.9E-03
Census Tract 507808	10976	2.6E-06	5238	1.3E-02	1.5E-06	5238	8.0E-03
Census Tract 507903	12059	1.3E-06	4809	6.3E-03	7.9E-07	4809	3.8E-03
Census Tract 507904	12062	1.1E-06	3375	3.6E-03	6.4E-07	3375	2.2E-03
Census Tract 507905	12054	1.9E-06	5448	1.0E-02	1.1E-06	5448	6.1E-03
Census Tract 507906	12056	1.6E-06	4437	7.2E-03	9.8E-07	4437	4.3E-03
Census Tract 508001	12134	1.2E-06	6320	7.3E-03	7.0E-07	6320	4.4E-03
Census Tract 508002	12137	8.5E-07	8272	7.1E-03	5.2E-07	8272	4.3E-03
Census Tract 508101	12170	1.1E-06	5882	6.2E-03	6.4E-07	5882	3.7E-03
Census Tract 508203	11075	8.7E-07	4797	4.2E-03	5.3E-07	4797	2.5E-03
Census Tract 508204	11076	8.5E-07	4025	3.4E-03	5.1E-07	4025	2.1E-03
Census Tract 508301	11069	2.1E-06	4298	9.1E-03	1.3E-06	4298	5.5E-03
Census Tract 508304	11073	1.1E-06	7672	8.8E-03	7.0E-07	7672	5.3E-03
Census Tract 508401	11181	1.5E-06	6352	9.2E-03	8.8E-07	6352	5.6E-03
Census Tract 508403	11128	1.3E-06	2638	3.5E-03	8.0E-07	2638	2.1E-03
Census Tract 508404	11184	1.2E-06	5111	6.1E-03	7.2E-07	5111	3.7E-03
Census Tract 508601	11240	1.1E-06	3519	3.8E-03	6.6E-07	3519	2.3E-03
Census Tract 509105	11264	1.2E-06	5624	6.9E-03	7.4E-07	5624	4.1E-03

TABLE ES-4

ESTIMATE OF EXCESS CANCER BURDEN
FOR CENSUS TRACT IN ZONE OF IMPACT[1]
Lehigh Southwest Cement Company
Cupertino Facility

Description	Model ID #[2]	2008 CEIR			Current Low Production		
		Residential Cancer Risk	Resident Population	Residential Cancer Burden[3]	Residential Cancer Risk	Resident Population	Residential Cancer Burden[3,4]
Census Tract 509106	11266	9.8E-07	4004	3.9E-03	6.0E-07	4004	2.4E-03
Census Tract 509107	11265	1.1E-06	5018	5.6E-03	6.8E-07	5018	3.4E-03
Census Tract 509600	11345	9.4E-07	2371	2.2E-03	5.7E-07	2371	1.3E-03
Census Tract 509700	11318	1.0E-06	3122	3.2E-03	6.2E-07	3122	1.9E-03
Census Tract 509801	11259	1.2E-06	4926	5.7E-03	7.0E-07	4926	3.5E-03
Census Tract 509802	11261	1.3E-06	2557	3.3E-03	7.8E-07	2557	2.0E-03
Census Tract 509901	11204	1.8E-06	2030	3.6E-03	1.1E-06	2030	2.2E-03
Census Tract 509902	11207	1.6E-06	4686	7.4E-03	9.5E-07	4686	4.5E-03
Census Tract 510001	11149	2.2E-06	5973	1.3E-02	1.3E-06	5973	7.8E-03
Census Tract 510002	11067	2.7E-06	3550	9.4E-03	1.6E-06	3550	5.7E-03
Census Tract 510100	10970	3.6E-06	2947	1.1E-02	2.2E-06	2947	6.5E-03
Census Tract 510200	11201	1.4E-06	4207	5.9E-03	8.6E-07	4207	3.6E-03
Census Tract 510300	11255	9.1E-07	3752	3.4E-03	5.5E-07	3752	2.1E-03
Census Tract 511701	11197	1.1E-06	3719	4.1E-03	6.7E-07	3719	2.5E-03
Census Tract 511702	10969	2.6E-06	2637	6.8E-03	1.6E-06	2637	4.1E-03
Census Tract 511703	10968	2.7E-06	6759	1.8E-02	1.7E-06	6759	1.1E-02
Total			208020	3.4E-01		208020	2.1E-01

Notes

1. The boundaries of some census tracts extend beyond zone of impact, making cancer burden estimate conservative for smaller zone of impact.
2. Receptor identifier in the HARP model.
3. A cancer burden less than one indicates that over a 70-year period under the worst-case exposure assumptions, no member of the community would be expected to contract cancer based on exposure to Facility emissions.
3. Census tracts outside the smaller zone of impact for the current low production emissions were included to be conservative.

TABLE 1

ANNUAL AVERAGE AND MAXIMUM HOURLY EMISSION RATES
Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Annual Average (lb/yr)		Maximum Hourly (lb/hr)
		2008 CEIR	Current Low Production	
75070	Acetaldehyde	1.16E+03	6.71E+02	1.68E-01
107028	Acrolein	4.49E+01	2.61E+01	6.51E-03
7440382	Arsenic	2.30E+00	1.37E+00	5.17E-04
56553	Benz[a]anthracene	1.31E-02	7.60E-03	1.90E-06
71432	Benzene	9.65E+03	5.60E+03	1.40E+00
50328	Benzo[a]pyrene	2.95E-04	1.71E-04	4.27E-08
205992	Benzo[b]fluoranthene	1.87E-03	1.08E-03	2.71E-07
207089	Benzo[k]fluoranthene	2.95E-04	1.71E-04	4.27E-08
100447	Benzyl chloride	1.01E+02	5.87E+01	1.47E-02
7440417	Beryllium	7.35E-01	4.44E-01	1.53E-04
106990	1,3-Butadiene	9.18E+01	5.33E+01	1.33E-02
7440439	Cadmium	1.04E+00	6.28E-01	2.35E-04
56235	Carbon tetrachloride	6.16E+01	3.57E+01	8.94E-03
108907	Chlorobenzene	5.54E+02	3.21E+02	8.04E-02
67663	Chloroform	2.87E+01	1.66E+01	4.16E-03
18540299	Chromium VI	2.19E+00	1.29E+00	3.99E-04
218019	Chrysene	3.86E-02	2.24E-02	5.60E-06
7440508	Copper	1.51E+01	9.25E+00	3.69E-03
1175	Crystalline silica	1.04E+03	7.27E+02	3.36E-01
53703	Dibenz[a,h]anthracene	2.95E-04	1.71E-04	4.27E-08
106467	p-Dichlorobenzene	5.89E+01	3.42E+01	8.54E-03
75343	1,1-Dichloroethane	1.98E+01	1.15E+01	2.87E-03
78875	1,2-Dichloropropane	2.71E+01	1.57E+01	3.94E-03
542756	1,3-Dichloropropene	1.11E+02	6.45E+01	1.61E-02
9901	Diesel PM	2.47E+01	2.47E+01	9.73E-01
75003	Ethyl chloride	3.87E+01	2.25E+01	5.62E-03
100414	Ethylbenzene	9.59E+02	5.56E+02	1.39E-01
106934	Ethylene dibromide	6.02E+01	3.49E+01	8.73E-03
107062	Ethylene dichloride	2.38E+01	1.38E+01	3.45E-03
50000	Formaldehyde	6.31E+01	3.66E+01	9.15E-03
35822469	1,2,3,4,6,7,8-HpCDD	9.63E-06	5.58E-06	1.40E-09
67562394	1,2,3,4,6,7,8-HpCDF	4.67E-06	2.71E-06	6.77E-10
55673897	1,2,3,4,7,8,9-HpCDF	1.20E-06	6.98E-07	1.75E-10
39227286	1,2,3,4,7,8-HxCDD	2.69E-06	1.56E-06	3.90E-10
57653857	1,2,3,6,7,8-HxCDD	2.65E-06	1.54E-06	3.85E-10
19408743	1,2,3,7,8,9-HxCDD	2.75E-06	1.59E-06	3.98E-10
70648269	1,2,3,4,7,8-HxCDF	4.07E-06	2.36E-06	5.90E-10
57117449	1,2,3,6,7,8-HxCDF	3.81E-06	2.21E-06	5.52E-10
72918219	1,2,3,7,8,9-HxCDF	1.28E-06	7.44E-07	1.86E-10
60851345	2,3,4,6,7,8-HxCDF	2.34E-06	1.36E-06	3.40E-10
7647010	Hydrochloric acid	1.07E+05	6.22E+04	1.55E+01
193395	Indeno[1,2,3-c,d] pyrene	2.19E-04	1.27E-04	3.17E-08
7439921	Lead	1.94E+00	1.16E+00	3.96E-04

TABLE 1

ANNUAL AVERAGE AND MAXIMUM HOURLY EMISSION RATES
Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Annual Average (lb/yr)		Maximum Hourly (lb/hr)
		2008 CEIR	Current Low Production	
7439965	Manganese	3.99E+00	2.32E+00	5.79E-04
7439976	Mercury	5.82E+02	3.37E+02	8.44E-02
74839	Methyl bromide	6.25E+02	3.63E+02	9.07E-02
71556	Methyl chloroform (1,1,1-trichlorethane)	3.21E+01	1.86E+01	4.65E-03
75092	Methylene chloride	1.29E+02	7.48E+01	1.87E-02
91203	Naphthalene	1.39E+02	8.04E+01	2.01E-02
7440020	Nickel	5.19E+01	3.10E+01	1.07E-02
3268879	1,2,3,4,6,7,8,9-OCDD	2.02E-05	1.17E-05	2.92E-09
39001020	1,2,3,4,6,7,8,9-OCDF	4.61E-06	2.67E-06	6.69E-10
40321764	1,2,3,7,8-PeCDD	2.37E-06	1.38E-06	3.44E-10
57117416	1,2,3,7,8-PeCDF	1.83E-05	1.06E-05	2.66E-09
57117314	2,3,4,7,8-PeCDF	2.74E-05	1.59E-05	3.98E-09
127184	Perchloroethylene	5.31E+01	3.08E+01	7.70E-03
7782492	Selenium	5.38E+00	3.17E+00	9.17E-04
100425	Styrene	2.43E+02	1.41E+02	3.52E-02
1746016	2,3,7,8-TCDD	2.33E-06	1.35E-06	3.38E-10
51207319	2,3,7,8-TCDF	1.15E-04	6.69E-05	1.67E-08
79345	1,1,2,2-Tetrachloroethane	4.03E+01	2.34E+01	5.85E-03
108883	Toluene	8.65E+03	5.01E+03	1.25E+00
79005	1,1,2-Trichloroethane	5.34E+01	3.10E+01	7.75E-03
79016	Trichloroethylene	4.21E+01	2.44E+01	6.10E-03
1314621	Vanadium	1.47E+02	8.69E+01	3.06E-02
75014	Vinyl chloride	1.42E+02	8.22E+01	2.06E-02
75354	Vinylidene chloride	3.89E+01	2.25E+01	5.64E-03
95476	o-Xylene	1.36E+03	7.89E+02	1.97E-01
1330207	Xylenes (mixed)	6.94E+03	4.03E+03	1.01E+00

Abbreviations
lb/yr = pounds per year
lb/hr = pounds per hour

TABLE 2

POINT SOURCE INPUT PARAMETERS [1]
Lehigh Southwest Cement Company
Cupertino Facility

Baghouse BAAQMD Permit #	DC ID	Model ID	Source	Material	Operating Schedule [2]			UTM NAD83 Coordinates		Stack ID	Stack Height [2] (ft)	Stack Height [2] (m)	Stack Orientation [3] (V/H)	Stack Shape (Round / Rect)	Stack Dimensions		Stack Diameter [4]		Temp [2]		Stack Flow [2]	Exit Velocity [5]
					weeks/ year	days/ week	hours/ day	X (meters)	Y (meters)						(in)	(in)	(ft)	(m)	(^{o}F)	(K)	(acfm)	(m/s)
A-114	1-DC-4	1D4	Additive Bin Transfer Facilities Area 1	Additive	52	7	24	580519.84	4130340.0	P114	75	22.9	H	Rect	16	18	1.6	0.49	Ambient[6]		8,000	20.32
A-121	2-DC-1	2D1	Tertiary Scalping Screen/ Tertiary Crusher	56% High Grade 44% Mid Grade	52	7	16	580100.0	4130360	P121	98	29.9	H	Rect	25	22	2.2	0.67	Ambient[6]		16,500	21.95
A-131	3-DC-1	3D1	Rock Sampling System Area 3	56% High Grade 44% Mid Grade	52	7	16	580463.6	4130288.8	P131	75	22.9	H	Rect	16.5	14	1.4	0.44	Ambient[6]		6,000	19.00
A-134	3-DC-4	3D4	Preblend Storage Bin	5% Additive 95% All Grade Limestone	52	7	24	580526.71	4130340.81	P134	98	29.9	H	Rect	16	18	1.6	0.49	Ambient[6]		8,000	20.32
A-135	3-DC-5	3D5	High-grade Storage Bins	High Grade Limestone	52	7	24	580527.83	4130344.70	P135	98	29.9	H	Rect	16	18	1.6	0.49	Ambient[6]		8,000	20.32
A-141	4-DC-7/22	Kiln	Raw Mill/Kiln [7]	5% Additive 53% High Grade	52	7	24	580559.2	4130330.4	P141	60	18.3	V	Rect	25	22	2.2	0.67	320	433.2	12,000	15.96
A-142	4-DC-23/38									P142												
A-143	4-DC-3	4D3	Raw Mill 1 Separator System	5% Additive 53% High Grade 42% Mid Grade	52	7	24	580576.59	4130371.43	P143	80	24.4	H	Rect	25	22	2.2	0.67	210	372.0	10,000	13.30
A-144	4-DC-4	4D4	Raw Mill 2 Separator System	5% Additive 53% High Grade 42% Mid Grade	52	7	24	580565.99	4130352.64	P144	80	24.4	H	Rect	25	22	2.2	0.67	210	372.0	10,000	13.30
A-151	5-DC-1	5D1	Homogenizer	5% Additive 53% High Grade 42% Mid Grade	52	7	24	580580.90	4130398.80	P151	135	41.1	H	Rect	22	20	2.0	0.60	180	355.4	20,000	33.25
A-152	5-DC-2	5D2	Homogenizer	5% Additive 53% High Grade 42% Mid Grade	52	7	24	580592.91	4130382.67	P152	135	41.1	H	Rect	28	25	2.5	0.76	180	355.4	20,000	20.90
A-153	5-DC-3	5D3	Kiln Feed System	5% Additive 53% High Grade 42% Mid Grade	52	7	24	580567.70	4130405.68	P153	195	59.4	H	Rect	28	25	2.5	0.76	180	355.4	18,000	18.81
A-161	5-DC-11/20	5D11_20	Clinker Cooler	Clinker	52	7	24	580600.00	4130480.00	P161	75	22.9	H	Rect	25	22	2.2	0.67	425	491.5	135,000	179.6
A-164	5-DC-23	5D23	Clinker Silo B	Clinker	52	7	24	580578.70	4130502.97	P164	80	24.4	H	Rect	20	23	2.0	0.61	120	322.0	10,000	15.90
A-165	5-DC-27	5D27	Clinker Transfer System	Clinker	52	7	24	580545.00	4130450.00	P165	80	24.4	H	Rect	11	13	1.1	0.34	120	322.0	4,000	20.46
	5-DC-28	5D28						580365.00	4130490.00			24.4	H	Round	--	--	1.1	0.33				22.04
A-171	5-DC-5	5D5	Kiln/Kiln Coal System	Coke	52	7	24	580581.17	4130366.90	P171	60	18.3	H	Round	--	--	2.5	0.76	140	333.2	24,000	24.84
A-172	5-DC-6	5D6	Kiln/Precalciner Coal Mill	Coke	52	7	24	580604.44	4130354.86	P172	60	18.3	H	Round	--	--	2.5	0.76	140	333.2	24,000	24.84
A-13	6-DC-1	6D1	Roll Press Clinker Surge Bin and Feeder	Clinker	52	7	24	580237.77	4130623.27	P14	10	3.0	H	Rect	13	14.5	1.3	0.39	80	299.8	5,000	19.40
A-210	6-DC-17	6D17	Finish Mill 6-GM-1	Cement	52	7	21	580265.00	4130620.00	P210	17	5.2	H	Round	--	--	2.5	0.76	230	383.2	20,000	20.70
A-211	6-DC-12/18	6D12	Separator 6-SE-2	Cement	52	7	21	580295.54	4130619.71	P211	8	2.4	H (45 deg)	Rect	39	39	3.7	1.12	168	348.7	80,000	38.48
A-218	6-DC-19	6D19	6-GM-1 Air Separator	Cement	52	7	21	580299.17	4130640.77	P218	15	4.6	H	Rect	65	73	6.5	1.97	200	366.5	150,000	23.12
A-220	6-DC-8	6D8	6-GM-2 Mill and Peripherals	Cement	52	7	21	580247.4	4130599.7	--	107	32.6	H	Rect	28.5	24	2.5	0.75	220	377.6	17,000	18.18
A-230	6-DC-2	6D2	Roller Press and Peripherals	Cement	52	7	21	580236.6	4130621.2	P230	34	10.4	H	Rect	21	25	2.2	0.66	150	338.7	15,000	20.90
A-384	8-DC-31	8D31	Rock Plant 2 Conveyors/Rock Plant 2 Screens - 16 & 17	Low Grade Limestone	50	5	8	580404.9	4129863.4	P184	25	7.6	V	Round	--	--	2.5	0.76	Ambient[6]		17,000	17.59
S501	--	S501	Emergency Diesel Generator	Diesel fuel	20 hours/yr			580323.8	4130432.7	P443	12	3.7	H	Round	--	--	1.1	0.34	120	322.0	5350	28.60
S502	--	S502	Emergency Diesel Generator	Diesel fuel	20 hours/yr			580497.3	4130398.5	P444	3	0.9	H	Round	--	--	1	0.30	180	355.4	15000	97.02
--	999-DC	999D	Pseudo Stack for Remaining Dust Collector Emissions [8]	--	--	--	--	580446.50	4130451.60	--	58	17.6	H	--	--	--	--	0.35	100	310.9	4270	7.80

TABLE 2

POINT SOURCE INPUT PARAMETERS [1]
Lehigh Southwest Cement Company
Cupertino Facility

Notes

1. Input parameters were provided by the facility; AMEC has not measured any source parameters.
2. Information obtained from Hanson Permanente Cement Inspection Report #562, March 10, 2005. Document received after CEIR prepared.
3. Vertical (V) or horizontal (H) orientation of the stack.
4. Provided by facility personnel; if stack is rectangular, equivalent diameter is calculated from stack dimensions as follows: Diameter (ft) = 2 x (Stack dimensions (in x in) / 144 in/ft / pi)$^{1/2}$
5. If stack orientation is horizontal, stack is modeled with a 0.001 meter per second (m/s) velocity. Other stack velocities calculated as follows: Stack flow (acfm or ft^3/min) x 0.02832 ft^3/m^3 / stack area (m^2) / 60 sec/min; the model assumes all point source stacks are round, therefore, the stack area was calculated as follows: Stack area (m^2) = pi (3.14) x (stack diameter (m) / 2)^2
6. Sources operate at ambient temperature which varies seasonally. A value of 0 K was entered into the model for these sources.
7. The kiln emission source is comprised of 32 equivalent stacks, 30 of which operate at any one time.
8. Dust collector sources with an insignificant contribution to particulate (dust) emissions were not modeled individually (per the HRA Protocol, AMEC, 2010). Instead, related emissions were combined and modeled from a single representative stack with average parameters in a central facility location.

Abbreviations

DC = Dust collector
UTM NAD 83 = Universal Transverse Mercator; North American Datum 1983
-- = not applicable
Rect = Rectangular
ft = feet
in = inches

TABLE 3

FUGITIVE VOLUME SOURCE INPUT PARAMETERS

Lehigh Southwest Cement Company

Cupertino Facility

Modeled Volume Source Group[1]	Source[2]	CEIR Table	Material	Operating Schedule			UTM NAD83 Coordinates[3]		Dimensions (meters)		
				weeks/ year	days/ week	hours/ day	X (meters)	Y (meters)	side length	initial lateral dimension	release height
1 / 2	Material Handling	12A	Primary crushed limestone (medium grade)	52	7	10	578187.53	4130775.88	640.48	148.95	7
1 / 2	Blasting	12A		52	7	10					
1 / 2	Bulldozing	12A		52	7	10	578895.69	4130829.41	674.83	156.94	
1 / 2	Grading	12A		52	7	10					
1 / 2	Dust Entrainment - Unpaved Roads	12B	Unpaved road dust in mine (sample 015)	52	7	10					
1 / 2	Wind Erosion - Unpaved Roads	12B	Unpaved road dust in mine (sample 015)	52	7	24					
1 / 2	Wind Erosion - Mine Area	12C	Primary crushed limestone (medium grade)	52	7	24					
3	Crushing and screening process fugitives	7B	27% High Grade 25% All Grade 48% Low Grade	52	7	24	579745.28	4130737.49	670.78	156	7
4	Cement facility process fugitives	7A	Various	52	7	24	580319.09	4130874.87	458.64	106.66	7
4	Natural Gypsum Stockpile (located in a covered bldg)	11	Natural Gypsum	52	7	24					
4	Pozzolan Stockpile (located in a covered bldg)	11	Pozzolan	52	7	24					
5	Rock plant process fugitives	7C	Low grade	52	7	24	579904.89	4130218.23	359.64	83.64	7
5	Primary Crushed Limestone Stockpile (High Grade)	11	Primary crushed limestone (high grade)	52	7	24					
5	Primary Crushed Limestone Stockpile (Medium Grade)	11	Primary crushed limestone (medium grade)	52	7	24					
6	Dust entrainment from unpaved roads	10	Unpaved road dust	52	7	10	580395.86	4130333.39	614.21	142.84	7
6	Dust entrainment from paved roads	10	Paved road dust	52	7	10					
6	Wind erosion from unpaved roads	10	Unpaved road dust	52	7	24					
6	Bauxite Stockpile	11	Bauxite	52	7	24					
6	Iron Ore Stockpile	11	Iron Ore	52	7	24					
6	Coal Stockpile	11	Coal	52	7	24					
6	Coke Stockpile	11	Coke	52	7	24					
6	Clinker Stockpile	11	Clinker	52	7	24					
6	Gasoline dispensing	8	--	2,500 hours/year							
6 / 7[4]	Diesel dispensing	8	--	2,500 hours/year			580441.3	412849.5	371.692	86.46	7

TABLE 3

FUGITIVE VOLUME SOURCE INPUT PARAMETERS

Lehigh Southwest Cement Company

Cupertino Facility

Modeled Volume Source Group[1]	Source[2]	CEIR Table	Material	Operating Schedule			UTM NAD83 Coordinates[3]		Dimensions (meters)		
				weeks/ year	days/ week	hours/ day	X (meters)	Y (meters)	side length	initial lateral dimension	release height
5 / 6 / 7	Gasoline welding stationary IC engines	9B	--	100 hours/year			multiple				7
5 / 6 / 7	Diesel welding stationary IC engines	9B	--	202 hours/year			multiple				7
5 / 7 / 8	Quarry Overburden Stockpile	11	Quarry overburden (low grade)	52	7	24	multiple				7
8	Slag Stockpile	11	Slag	52	7	24	580731.26	4130822.35	351.56	81.76	7
8	Low Grade Limestone Stockpile (Non-Process)	B	Primary crushed limestone (medium grade)	52	7	24					
7PD7	East Silo Top Cement Distribution Tower (A-435; 7-PDC-7)	6A	Cement	52	7	24	580498.7	4130590.8	4.00	0.93	32

Notes

1. Emissions for sources which overlap multiple areas are shared equally between volume sources with the exception of the welding equipment (Group 5: 25%; Group 6: 60%; Group 7: 15%).
2. Stockpile emissions include that from wind erosion and material handling.
3. The coordinates provided correspond to the center of the volume source.
4. Values for volume source 7 are presented.

Source Group Descriptions

1	Mine Operations
2	Mine Operations
3	Rock Crushing Operations
4	Cement Processing
5	Rock Plant
6	Plant Operations
7	Quarry Operations
8	Non-Process Storage

Abbreviations

UTM NAD 83 = Universal Transverse Mercator; North American Datum 1983

-- = not applicable

TABLE 4A

ANNUAL AVERAGE EMISSION RATES - KILN

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	2008 CEIR	Current Low Production
75070	Acetaldehyde	1.16E+03	6.71E+02
107028	Acrolein	4.49E+01	2.61E+01
7440382	Arsenic	7.60E-01	4.41E-01
56553	Benz[a]anthracene	1.31E-02	7.60E-03
71432	Benzene	9.65E+03	5.60E+03
50328	Benzo[a]pyrene	2.95E-04	1.71E-04
205992	Benzo[b]fluoranthene	1.87E-03	1.08E-03
207089	Benzo[k]fluoranthene	2.95E-04	1.71E-04
100447	Benzyl chloride	1.01E+02	5.87E+01
7440417	Beryllium	3.80E-01	2.21E-01
106990	1,3-Butadiene	9.18E+01	5.33E+01
7440439	Cadmium	3.80E-01	2.21E-01
56235	Carbon tetrachloride	6.16E+01	3.57E+01
108907	Chlorobenzene	5.54E+02	3.21E+02
67663	Chloroform	2.87E+01	1.66E+01
18540299	Chromium VI	3.36E-01	1.95E-01
218019	Chrysene	3.86E-02	2.24E-02
7440508	Copper	4.24E+00	2.46E+00
1175	Crystalline silica	0.00E+00	0.00E+00
53703	Dibenz[a,h]anthracene	2.95E-04	1.71E-04
106467	p-Dichlorobenzene	5.89E+01	3.42E+01
75343	1,1-Dichloroethane	1.98E+01	1.15E+01
78875	1,2-Dichloropropane	2.71E+01	1.57E+01
542756	1,3-Dichloropropene	1.11E+02	6.45E+01
9901	Diesel PM	0.00E+00	0.00E+00
75003	Ethyl chloride	3.87E+01	2.25E+01
100414	Ethylbenzene	9.59E+02	5.56E+02
106934	Ethylene dibromide	6.02E+01	3.49E+01
107062	Ethylene dichloride	2.38E+01	1.38E+01
50000	Formaldehyde	6.31E+01	3.66E+01
35822469	1,2,3,4,6,7,8-HpCDD	9.63E-06	5.58E-06
67562394	1,2,3,4,6,7,8-HpCDF	4.67E-06	2.71E-06
55673897	1,2,3,4,7,8,9-HpCDF	1.20E-06	6.98E-07
39227286	1,2,3,4,7,8-HxCDD	2.69E-06	1.56E-06
57653857	1,2,3,6,7,8-HxCDD	2.65E-06	1.54E-06
19408743	1,2,3,7,8,9-HxCDD	2.75E-06	1.59E-06
70648269	1,2,3,4,7,8-HxCDF	4.07E-06	2.36E-06
57117449	1,2,3,6,7,8-HxCDF	3.81E-06	2.21E-06
72918219	1,2,3,7,8,9-HxCDF	1.28E-06	7.44E-07

TABLE 4A

ANNUAL AVERAGE EMISSION RATES - KILN

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	2008 CEIR	Current Low Production
60851345	2,3,4,6,7,8-HxCDF	2.34E-06	1.36E-06
7647010	Hydrochloric acid	1.07E+05	6.22E+04
193395	Indeno[1,2,3-c,d] pyrene	2.19E-04	1.27E-04
7439921	Lead	8.86E-01	5.14E-01
7439965	Manganese	3.99E+00	2.32E+00
7439976	Mercury	5.81E+02	3.37E+02
74839	Methyl bromide	6.25E+02	3.63E+02
71556	Methyl chloroform	3.21E+01	1.86E+01
75092	Methylene chloride	1.29E+02	7.48E+01
91203	Naphthalene	1.39E+02	8.04E+01
7440020	Nickel	6.53E+00	3.78E+00
3268879	1,2,3,4,6,7,8,9-OCDD	2.02E-05	1.17E-05
39001020	1,2,3,4,6,7,8,9-OCDF	4.61E-06	2.67E-06
40321764	1,2,3,7,8-PeCDD	2.37E-06	1.38E-06
57117416	1,2,3,7,8-PeCDF	1.83E-05	1.06E-05
57117314	2,3,4,7,8-PeCDF	2.74E-05	1.59E-05
127184	Perchloroethylene	5.31E+01	3.08E+01
7782492	Selenium	4.25E+00	2.47E+00
100425	Styrene	2.43E+02	1.41E+02
1746016	2,3,7,8-TCDD	2.33E-06	1.35E-06
51207319	2,3,7,8-TCDF	1.15E-04	6.69E-05
79345	1,1,2,2-Tetrachloroethane	4.03E+01	2.34E+01
108883	Toluene	8.65E+03	5.01E+03
79005	1,1,2-Trichloroethane	5.34E+01	3.10E+01
79016	Trichloroethylene	4.21E+01	2.44E+01
1314621	Vanadium	3.80E+00	2.21E+00
75014	Vinyl chloride	1.42E+02	8.22E+01
75354	Vinylidene chloride	3.89E+01	2.25E+01
95476	o-Xylene	1.36E+03	7.89E+02
1330207	Xylenes (mixed)	6.94E+03	4.03E+03

TABLE 4B

ANNUAL AVERAGE EMISSION RATES BY SOURCE GROUP FOR 2008 CEIR - DUST COLLECTORS

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Emission Source Group																							
		1D4	2D1	3D1	3D4	3D5	4D3	4D4	5D1	5D2	5D3	5D5	5D6	5D11_20	5D23	5D27	5D28	6D17	6D19	6D2	6D1218	6D1	6D8	7PD7	8D31	999DC
7440382	Arsenic	6.33E-02	3.62E-02	1.67E-02	1.81E-02	1.73E-02	2.31E-02	2.36E-02	3.00E-02	3.00E-02	5.41E-02	2.82E-02	2.79E-02	1.58E-01	2.74E-02	7.20E-03	7.20E-03	3.05E-02	3.43E-02	3.07E-02	1.89E-02	3.25E-02	2.01E-02	1.52E-02	6.05E-03	1.77E-01
7440417	Beryllium	6.78E-03	5.89E-03	2.72E-03	2.87E-03	2.77E-03	3.58E-03	3.66E-03	4.66E-03	4.66E-03	8.38E-03	1.69E-02	1.67E-02	2.55E-02	4.43E-03	1.16E-03	1.16E-03	5.22E-03	5.88E-03	5.26E-03	3.24E-03	5.26E-03	3.44E-03	2.61E-03	3.63E-03	2.83E-02
7440439	Cadmium	1.13E-02	1.48E-02	6.84E-03	9.79E-03	4.61E-03	8.74E-03	8.92E-03	1.14E-02	1.14E-02	2.04E-02	2.82E-02	2.79E-02	4.25E-02	7.39E-03	1.94E-03	1.94E-03	8.71E-03	9.80E-03	8.77E-03	5.40E-03	8.77E-03	5.74E-03	4.35E-03	6.05E-03	5.06E-02
7440473	Chromium (total)	1.25E-01	2.73E-01	1.26E-01	1.58E-01	1.01E-01	1.57E-01	1.60E-01	2.03E-01	2.03E-01	3.66E-01	2.05E-01	2.02E-01	2.65E+00	4.60E-01	1.21E-01	1.21E-01	4.51E-01	5.07E-01	4.54E-01	2.80E-01	5.46E-01	2.97E-01	2.26E-01	1.16E-01	1.97E+00
18540299	Chromium VI	4.52E-04	3.50E-03	1.62E-03	3.09E-03	3.69E-04	1.96E-03	2.00E-03	2.54E-03	2.54E-03	4.58E-03	2.26E-03	2.23E-03	4.08E-01	7.09E-02	1.86E-02	1.86E-02	1.20E-01	1.35E-01	1.21E-01	7.45E-02	8.42E-02	7.91E-02	6.01E-02	4.84E-04	3.89E-01
7440508	Copper	2.76E-01	2.70E-01	1.25E-01	1.32E-01	1.26E-01	1.63E-01	1.66E-01	2.11E-01	2.11E-01	3.81E-01	1.44E-01	1.43E-01	6.57E-01	1.14E-01	3.00E-02	3.00E-02	1.55E-01	1.74E-01	1.56E-01	9.61E-02	1.36E-01	1.02E-01	7.75E-02	6.77E-02	9.23E-01
1175	Crystalline silica	1.47E+00	9.49E+00	4.38E+00	5.42E+00	3.46E+00	5.30E+00	5.41E+00	6.89E+00	6.89E+00	1.24E+01	2.30E-01	2.27E-01	3.47E-01	6.03E-02	1.58E-02	1.58E-02	4.26E-01	4.80E-01	4.30E-01	2.64E-01	7.16E-02	2.81E-01	2.13E-01	1.80E+01	1.56E+01
7439921	Lead	3.07E-02	1.41E-02	6.52E-03	9.89E-03	4.61E-03	9.34E-03	9.53E-03	1.21E-02	1.21E-02	2.18E-02	2.82E-02	2.79E-02	1.19E-01	2.07E-02	5.44E-03	5.44E-03	2.16E-02	2.43E-02	2.18E-02	1.34E-02	2.46E-02	1.42E-02	1.08E-02	6.29E-03	1.11E-01
7439976	Mercury	1.94E-03	2.46E-03	1.14E-03	2.02E-03	4.43E-04	1.46E-03	1.49E-03	1.89E-03	1.89E-03	3.41E-03	8.80E-02	8.69E-02	3.40E-04	5.91E-05	1.55E-05	1.55E-05	6.97E-05	7.84E-05	7.02E-05	4.32E-05	7.02E-05	4.59E-05	3.48E-05	9.67E-04	3.72E-03
7440020	Nickel	1.94E+00	3.37E-01	1.56E-01	2.62E-01	1.29E-01	2.84E-01	2.89E-01	3.68E-01	3.68E-01	6.63E-01	8.57E+00	8.47E+00	2.55E+00	4.43E-01	1.16E-01	1.16E-01	7.49E-01	8.42E-01	7.55E-01	4.64E-01	5.26E-01	4.93E-01	3.74E-01	1.11E-01	4.61E+00
7782492	Selenium	2.26E-02	1.96E-02	9.06E-03	9.56E-03	9.23E-03	1.19E-02	1.22E-02	1.55E-02	1.55E-02	2.79E-02	5.64E-02	5.57E-02	8.50E-02	1.48E-02	3.88E-03	3.88E-03	1.74E-02	1.96E-02	1.75E-02	1.08E-02	1.75E-02	1.15E-02	8.71E-03	1.21E-02	9.38E-02
1314621	Vanadium	5.87E+00	1.59E+00	7.33E-01	8.59E-01	8.12E-01	1.17E+00	1.19E+00	1.52E+00	1.52E+00	2.74E+00	2.48E+01	2.45E+01	1.38E+01	2.40E+00	6.32E-01	6.32E-01	2.51E+00	2.82E+00	2.53E+00	1.55E+00	2.85E+00	1.65E+00	1.25E+00	9.19E-02	1.51E+01

TABLE 4C

ANNUAL AVERAGE EMISSION RATES BY SOURCE GROUP FOR CURRENT LOW PRODUCTION - DUST COLLECTORS

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Emission Source Group																							
		1D4	2D1	3D1	3D4	3D5	4D3	4D4	5D1	5D2	5D3	5D5	5D6	5D11_20	5D23	5D27	5D28	6D17	6D19	6D2	6D1218	6D1	6D8	7PD7	8D31	999DC
7440382	Arsenic	3.67E-02	2.10E-02	9.69E-03	1.05E-02	1.01E-02	1.34E-02	1.37E-02	1.74E-02	1.74E-02	3.14E-02	1.64E-02	1.62E-02	9.14E-02	1.59E-02	4.17E-03	4.17E-03	1.77E-02	1.99E-02	1.78E-02	1.10E-02	1.89E-02	1.16E-02	8.84E-03	3.51E-03	1.02E-01
7440417	Beryllium	3.93E-03	3.42E-03	1.58E-03	1.66E-03	1.61E-03	2.08E-03	2.12E-03	2.70E-03	2.70E-03	4.86E-03	9.81E-03	9.69E-03	1.48E-02	2.57E-03	6.76E-04	6.76E-04	3.03E-03	3.41E-03	3.05E-03	1.88E-03	3.05E-03	2.00E-03	1.51E-03	2.10E-03	1.64E-02
7440439	Cadmium	6.55E-03	8.60E-03	3.97E-03	5.68E-03	2.68E-03	5.07E-03	5.17E-03	6.59E-03	6.59E-03	1.19E-02	1.64E-02	1.62E-02	2.47E-02	4.29E-03	1.13E-03	1.13E-03	5.05E-03	5.68E-03	5.09E-03	3.13E-03	5.09E-03	3.33E-03	2.52E-03	3.51E-03	2.93E-02
7440473	Chromium (total)	7.27E-02	1.58E-01	7.30E-02	9.17E-02	5.83E-02	9.08E-02	9.27E-02	1.18E-01	1.18E-01	2.12E-01	1.19E-01	1.17E-01	1.53E+00	2.67E-01	7.01E-02	7.01E-02	2.62E-01	2.94E-01	2.64E-01	1.62E-01	3.17E-01	1.72E-01	1.31E-01	6.73E-02	1.14E+00
18540299	Chromium VI	2.62E-04	2.03E-03	9.38E-04	1.79E-03	2.14E-04	1.14E-03	1.16E-03	1.48E-03	1.48E-03	2.66E-03	1.31E-03	1.29E-03	2.37E-01	4.11E-02	1.08E-02	1.08E-02	6.97E-02	7.84E-02	7.02E-02	4.32E-02	4.89E-02	4.59E-02	3.48E-02	2.81E-04	2.26E-01
7440508	Copper	1.60E-01	1.57E-01	7.24E-02	7.67E-02	7.28E-02	9.44E-02	9.63E-02	1.23E-01	1.23E-01	2.21E-01	8.38E-02	8.27E-02	3.81E-01	6.63E-02	1.74E-02	1.74E-02	8.99E-02	1.01E-01	9.06E-02	5.57E-02	7.87E-02	5.92E-02	4.49E-02	3.93E-02	5.36E-01
1175	Crystalline silica	8.55E-01	5.50E+00	2.54E+00	3.14E+00	2.01E+00	3.07E+00	3.14E+00	3.99E+00	3.99E+00	7.19E+00	1.33E-01	1.32E-01	2.01E-01	3.50E-02	9.19E-03	9.19E-03	2.47E-01	2.78E-01	2.49E-01	1.53E-01	4.15E-02	1.63E-01	1.24E-01	1.04E+01	9.07E+00
7439921	Lead	1.78E-02	8.20E-03	3.78E-03	5.73E-03	2.68E-03	5.42E-03	5.53E-03	7.04E-03	7.04E-03	1.27E-02	1.64E-02	1.62E-02	6.90E-02	1.20E-02	3.15E-03	3.15E-03	1.25E-02	1.41E-02	1.26E-02	7.76E-03	1.42E-02	8.25E-03	6.26E-03	3.65E-03	6.46E-02
7439976	Mercury	1.13E-03	1.43E-03	6.59E-04	1.17E-03	2.57E-04	8.45E-04	8.63E-04	1.10E-03	1.10E-03	1.98E-03	5.10E-02	5.04E-02	1.97E-04	3.43E-05	9.01E-06	9.01E-06	4.04E-05	4.54E-05	4.07E-05	2.50E-05	4.07E-05	2.66E-05	2.02E-05	5.61E-04	2.16E-03
7440020	Nickel	1.13E+00	1.96E-01	9.02E-02	1.52E-01	7.49E-02	1.64E-01	1.68E-01	2.14E-01	2.14E-01	3.85E-01	4.97E+00	4.91E+00	1.48E+00	2.57E-01	6.76E-02	6.76E-02	4.34E-01	4.89E-01	4.38E-01	2.69E-01	3.05E-01	2.86E-01	2.17E-01	6.45E-02	2.68E+00
7782492	Selenium	1.31E-02	1.14E-02	5.25E-03	5.54E-03	5.35E-03	6.93E-03	7.07E-03	9.00E-03	9.00E-03	1.62E-02	3.27E-02	3.23E-02	4.93E-02	8.57E-03	2.25E-03	2.25E-03	1.01E-02	1.14E-02	1.02E-02	6.26E-03	1.02E-02	6.65E-03	5.05E-03	7.01E-03	5.44E-02
1314621	Vanadium	3.41E+00	9.22E-01	4.25E-01	4.98E-01	4.71E-01	6.79E-01	6.93E-01	8.82E-01	8.82E-01	1.59E+00	1.44E+01	1.42E+01	8.02E+00	1.39E+00	3.66E-01	3.66E-01	1.45E+00	1.64E+00	1.47E+00	9.02E-01	1.66E+00	9.58E-01	7.27E-01	5.33E-02	8.73E+00

TABLE 4D

ANNUAL AVERAGE EMISSION RATES BY SOURCE GROUP FOR FUGITIVE AND OTHER POINT SOURCES - 2008 CEIR AND CURRENT LOW PRODUCTION RATES

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

		2008 CEIR																Current Low Production													
CAS No.	**Chemical**	**S501**	**S502**	**1**	**2**	**3**	**4A**	**4B**	**4C**	**4D**	**5**	**6A**	**6B**	**6C**	**6D**	**7**	**8**	**S501**	**S502**	**1**	**2**	**3**	**4A**	**4B**	**4C**	**4D**	**5**	**6A**	**6B**	**6C**	**6D**	**7**	**8**
7440382	Arsenic	-	-	8.04E-02	8.04E-02	1.07E-01	4.65E-02	4.65E-02	4.65E-02	4.65E-02	3.04E-02	2.92E-02	2.92E-02	2.92E-02	2.92E-02	2.80E-03	4.21E-03	-	-	5.54E-02	5.54E-02	6.23E-02	2.70E-02	2.70E-02	2.70E-02	2.70E-02	1.93E-02	2.07E-02	2.07E-02	2.07E-02	2.07E-02	2.67E-03	4.07E-03
71432	Benzene	-	-	-	-	-	-	-	-	-	-	2.28E-03	2.28E-03	2.28E-03	2.28E-03	1.35E-04	-	-	-	-	-	-	-	-	-	-	-	1.32E-03	1.32E-03	1.32E-03	1.32E-03	7.83E-05	-
7440417	Beryllium	-	-	3.02E-02	3.02E-02	2.69E-02	6.76E-03	6.76E-03	6.76E-03	6.76E-03	1.75E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.68E-03	6.08E-03	-	-	2.01E-02	2.01E-02	1.56E-02	3.93E-03	3.93E-03	3.93E-03	3.93E-03	1.10E-02	8.03E-03	8.03E-03	8.03E-03	8.03E-03	1.60E-03	6.01E-03
7440439	Cadmium	-	-	5.03E-02	5.03E-02	5.79E-02	1.65E-02	1.65E-02	1.65E-02	1.65E-02	3.03E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	2.80E-03	4.04E-03	-	-	3.35E-02	3.35E-02	3.36E-02	9.55E-03	9.55E-03	9.55E-03	9.55E-03	1.92E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	2.67E-03	3.91E-03
18540299	Chromium VI	-	-	4.02E-03	4.02E-03	1.06E-02	3.30E-02	3.30E-02	3.30E-02	3.30E-02	2.34E-03	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.24E-04	3.23E-04	-	-	2.68E-03	2.68E-03	6.17E-03	1.92E-02	1.92E-02	1.92E-02	1.92E-02	1.47E-03	1.89E-02	1.89E-02	1.89E-02	1.89E-02	2.13E-04	3.13E-04
7440508	Copper	-	-	9.23E-01	9.23E-01	8.84E-01	3.14E-01	3.14E-01	3.14E-01	3.14E-01	3.37E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.13E-02	3.54E-02	-	-	6.18E-01	6.18E-01	5.13E-01	1.82E-01	1.82E-01	1.82E-01	1.82E-01	2.13E-01	2.75E-01	2.75E-01	2.75E-01	2.75E-01	2.99E-02	3.39E-02
1175	Crystalline silica	-	-	2.30E+02	2.30E+02	8.69E+01	7.93E+00	7.93E+00	7.93E+00	7.93E+00	8.66E+01	6.63E+01	6.63E+01	6.63E+01	6.63E+01	8.30E+00	8.51E+00	-	-	1.50E+02	1.50E+02	5.04E+01	4.60E+00	4.60E+00	4.60E+00	4.60E+00	5.43E+01	5.78E+01	5.78E+01	5.78E+01	5.78E+01	7.92E+00	8.12E+00
9901	Diesel PM	3.14E+00	6.28E+00	-	-	-	-	-	-	-	3.83E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	-	3.14E+00	6.28E+00	-	-	-	-	-	-	-	3.83E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	-
7439921	Lead	-	-	5.03E-02	5.03E-02	5.69E-02	2.37E-02	2.37E-02	2.37E-02	2.37E-02	3.04E-02	4.40E-02	4.40E-02	4.40E-02	4.40E-02	2.91E-03	4.15E-03	-	-	3.35E-02	3.35E-02	3.30E-02	1.38E-02	1.38E-02	1.38E-02	1.38E-02	1.90E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	2.77E-03	4.02E-03
7439976	Mercury	-	-	1.15E-02	1.15E-02	9.63E-03	1.60E-02	1.60E-02	1.60E-02	1.60E-02	4.71E-03	2.05E-03	2.05E-03	2.05E-03	2.05E-03	4.47E-04	1.49E-03	-	-	7.69E-03	7.69E-03	5.58E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	2.96E-03	1.58E-03	1.58E-03	1.58E-03	1.58E-03	4.27E-04	1.46E-03
7440020	Nickel	-	-	1.59E+00	1.59E+00	1.21E+00	6.11E-01	6.11E-01	6.11E-01	6.11E-01	5.40E-01	9.67E-01	9.67E-01	9.67E-01	9.67E-01	5.14E-02	5.59E-02	-	-	1.05E+00	1.05E+00	7.02E-01	3.55E-01	3.55E-01	3.55E-01	3.55E-01	3.39E-01	7.18E-01	7.18E-01	7.18E-01	7.18E-01	4.91E-02	5.35E-02
7782492	Selenium	-	-	1.01E-01	1.01E-01	8.97E-02	2.47E-02	2.47E-02	2.47E-02	2.47E-02	5.85E-02	2.04E-02	2.04E-02	2.04E-02	2.04E-02	5.59E-03	8.08E-03	-	-	6.71E-02	6.71E-02	5.20E-02	1.43E-02	1.43E-02	1.43E-02	1.43E-02	3.67E-02	1.88E-02	1.88E-02	1.88E-02	1.88E-02	5.34E-03	7.82E-03
108883	Toluene	-	-	-	-	-	-	-	-	-	-	8.97E-03	8.97E-03	8.97E-03	8.97E-03	5.40E-03	-	-	-	-	-	-	-	-	-	-	-	5.20E-03	5.20E-03	5.20E-03	5.20E-03	3.13E-03	-
1314621	Vanadium	-	-	1.83E+00	1.83E+00	4.07E+00	2.59E+00	2.59E+00	2.59E+00	2.59E+00	5.73E-01	2.38E+00	2.38E+00	2.38E+00	2.38E+00	4.25E-02	6.37E-02	-	-	1.24E+00	1.24E+00	2.36E+00	1.50E+00	1.50E+00	1.50E+00	1.50E+00	3.85E-01	1.64E+00	1.64E+00	1.64E+00	1.64E+00	4.06E-02	6.17E-02
1330207	Xylenes (mixed)	-	-	-	-	-	-	-	-	-	-	1.31E-02	1.31E-02	1.31E-02	1.31E-02	4.89E-02	-	-	-	-	-	-	-	-	-	-	-	7.63E-03	7.63E-03	7.63E-03	7.63E-03	2.84E-02	-

TABLE 5A

MAXIMUM HOURLY EMISSION RATES - KILN

Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in pounds per year (lbs/hr)

CAS No.	Chemical	Value
75070	Acetaldehyde	1.68E-01
107028	Acrolein	6.51E-03
7440382	Arsenic	1.10E-04
7440393	Barium	1.42E-03
56553	Benz[a]anthracene	1.90E-06
71432	Benzene	1.40E+00
50328	Benzo[a]pyrene	4.27E-08
205992	Benzo[b]fluoranthene	2.71E-07
207089	Benzo[k]fluoranthene	4.27E-08
100447	Benzyl chloride	1.47E-02
7440417	Beryllium	5.52E-05
106990	1,3-Butadiene	1.33E-02
7440439	Cadmium	5.52E-05
56235	Carbon tetrachloride	8.94E-03
108907	Chlorobenzene	8.04E-02
67663	Chloroform	4.16E-03
7440473	Chromium (total)	8.04E-04
18540299	Chromium VI	4.87E-05
218019	Chrysene	5.60E-06
7440508	Copper	6.15E-04
1175	Crystalline silica	0.00E+00
53703	Dibenz[a,h]anthracene	4.27E-08
106467	p-Dichlorobenzene	8.54E-03
75343	1,1-Dichloroethane	2.87E-03
78875	1,2-Dichloropropane	3.94E-03
542756	1,3-Dichloropropene	1.61E-02
9901	Diesel PM	0.00E+00
75003	Ethyl chloride	5.62E-03
100414	Ethylbenzene	1.39E-01
106934	Ethylene dibromide	8.73E-03
107062	Ethylene dichloride	3.45E-03
50000	Formaldehyde	9.15E-03
87683	Hexachlorobutadiene	1.52E-02
35822469	1,2,3,4,6,7,8-HpCDD	1.40E-09
67562394	1,2,3,4,6,7,8-HpCDF	6.77E-10
55673897	1,2,3,4,7,8,9-HpCDF	1.75E-10
39227286	1,2,3,4,7,8-HxCDD	3.90E-10
57653857	1,2,3,6,7,8-HxCDD	3.85E-10
19408743	1,2,3,7,8,9-HxCDD	3.98E-10
70648269	1,2,3,4,7,8-HxCDF	5.90E-10
57117449	1,2,3,6,7,8-HxCDF	5.52E-10
72918219	1,2,3,7,8,9-HxCDF	1.86E-10

TABLE 5A

MAXIMUM HOURLY EMISSION RATES - KILN

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/hr)

CAS No.	Chemical	Value
60851345	2,3,4,6,7,8-HxCDF	3.40E-10
7647010	Hydrochloric acid	1.55E+01
193395	Indeno[1,2,3-c,d] pyrene	3.17E-08
7439921	Lead	1.28E-04
7439965	Manganese	5.79E-04
7439976	Mercury	8.43E-02
74839	Methyl bromide	9.07E-02
71556	Methyl chloroform	4.65E-03
75092	Methylene chloride	1.87E-02
91203	Naphthalene	2.01E-02
7440020	Nickel	9.46E-04
3268879	1,2,3,4,6,7,8,9-OCDD	2.92E-09
39001020	1,2,3,4,6,7,8,9-OCDF	6.69E-10
40321764	1,2,3,7,8-PeCDD	3.44E-10
57117416	1,2,3,7,8-PeCDF	2.66E-09
57117314	2,3,4,7,8-PeCDF	3.98E-09
127184	Perchloroethylene	7.70E-03
7782492	Selenium	6.17E-04
7440224	Silver	1.07E-04
100425	Styrene	3.52E-02
1746016	2,3,7,8-TCDD	3.38E-10
51207319	2,3,7,8-TCDF	1.67E-08
79345	1,1,2,2-Tetrachloroethane	5.85E-03
7440280	Thallium	6.17E-04
108883	Toluene	1.25E+00
79005	1,1,2-Trichloroethane	7.75E-03
79016	Trichloroethylene	6.10E-03
1314621	Vanadium	5.52E-04
75014	Vinyl chloride	2.06E-02
75354	Vinylidene chloride	5.64E-03
95476	o-Xylene	1.97E-01
1330207	Xylenes (mixed)	1.01E+00

TABLE 5B

MAXIMUM HOURLY EMISSION RATES BY SOURCE GROUP - DUST COLLECTORS

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/hr)

CAS No.	Chemical	Emission Source Group																							
		1D4	2D1	3D1	3D4	3D5	4D3	4D4	5D1	5D2	5D3	5D5	5D6	5D11_20	5D23	5D27	5D28	6D17	6D19	6D2	6D1218	6D1	6D8	7PD7	8D31	999DC
7440382	Arsenic	9.60E-06	6.33E-06	2.37E-06	3.41E-06	3.22E-06	4.36E-06	4.36E-06	4.36E-06	4.36E-06	7.84E-06	4.13E-06	4.13E-06	2.28E-05	3.97E-06	1.59E-06	1.59E-06	4.50E-06	5.06E-06	5.63E-06	3.60E-06	5.96E-06	3.83E-06	2.25E-06	1.82E-06	4.16E-05
7440417	Beryllium	1.03E-06	1.03E-06	3.86E-07	5.40E-07	5.14E-07	6.75E-07	6.75E-07	6.75E-07	6.75E-07	1.22E-06	2.48E-06	2.48E-06	3.70E-06	6.43E-07	2.57E-07	2.57E-07	7.71E-07	8.68E-07	9.64E-07	6.17E-07	9.64E-07	6.56E-07	3.86E-07	1.09E-06	6.52E-06
7440439	Cadmium	1.71E-06	2.59E-06	9.71E-07	1.84E-06	8.57E-07	1.65E-06	1.65E-06	1.65E-06	1.65E-06	2.96E-06	4.13E-06	4.13E-06	6.16E-06	1.07E-06	4.29E-07	4.29E-07	1.29E-06	1.45E-06	1.61E-06	1.03E-06	1.61E-06	1.09E-06	6.43E-07	1.82E-06	1.15E-05
7440473	Chromium (total)	1.90E-05	4.76E-05	1.79E-05	2.98E-05	1.87E-05	2.95E-05	2.95E-05	2.95E-05	2.95E-05	5.31E-05	2.99E-05	2.99E-05	3.84E-04	6.67E-05	2.67E-05	2.67E-05	6.66E-05	7.49E-05	8.33E-05	5.33E-05	1.00E-04	5.66E-05	3.33E-05	3.50E-05	4.37E-04
18540299	Chromium VI	6.86E-08	6.12E-07	2.29E-07	5.81E-07	6.86E-08	3.69E-07	3.69E-07	3.69E-07	3.69E-07	6.64E-07	3.30E-07	3.30E-07	5.92E-05	1.03E-05	4.11E-06	4.11E-06	1.77E-05	2.00E-05	2.22E-05	1.42E-05	1.54E-05	1.51E-05	8.87E-06	1.46E-07	8.40E-05
7440508	Copper	4.18E-05	4.72E-05	1.77E-05	2.49E-05	2.33E-05	3.07E-05	3.07E-05	3.07E-05	3.07E-05	5.52E-05	2.11E-05	2.11E-05	9.53E-05	1.66E-05	6.63E-06	6.63E-06	2.29E-05	2.57E-05	2.86E-05	1.83E-05	2.49E-05	1.95E-05	1.14E-05	2.04E-05	2.12E-04
1175	Crystalline silica	2.24E-04	1.66E-03	6.21E-04	1.02E-03	6.43E-04	9.98E-04	9.98E-04	9.98E-04	9.98E-04	1.80E-03	3.37E-05	3.37E-05	5.03E-05	8.74E-06	3.50E-06	3.50E-06	6.29E-05	7.08E-05	7.87E-05	5.04E-05	1.31E-05	5.35E-05	3.15E-05	5.41E-03	3.77E-03
7439921	Lead	4.66E-06	2.47E-06	9.26E-07	1.86E-06	8.57E-07	1.76E-06	1.76E-06	1.76E-06	1.76E-06	3.17E-06	4.13E-06	4.13E-06	1.73E-05	3.00E-06	1.20E-06	1.20E-06	3.19E-06	3.59E-06	3.99E-06	2.55E-06	4.50E-06	2.71E-06	1.59E-06	1.89E-06	2.62E-05
7439976	Mercury	2.95E-07	4.30E-07	1.61E-07	3.80E-07	8.23E-08	2.75E-07	2.75E-07	2.75E-07	2.75E-07	4.94E-07	1.29E-05	1.29E-05	4.93E-08	8.57E-09	3.43E-09	3.43E-09	1.03E-08	1.16E-08	1.29E-08	8.23E-09	1.29E-08	8.74E-09	5.14E-09	2.91E-07	1.30E-06
7440020	Nickel	2.95E-04	5.89E-05	2.21E-05	4.93E-05	2.40E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	9.61E-05	1.25E-03	1.25E-03	3.70E-04	6.43E-05	2.57E-05	2.57E-05	1.11E-04	1.24E-04	1.38E-04	8.85E-05	9.64E-05	9.40E-05	5.53E-05	3.35E-05	1.11E-03
7782492	Selenium	3.43E-06	3.43E-06	1.29E-06	1.80E-06	1.71E-06	2.25E-06	2.25E-06	2.25E-06	2.25E-06	4.05E-06	8.25E-06	8.25E-06	1.23E-05	2.14E-06	8.57E-07	8.57E-07	2.57E-06	2.89E-06	3.21E-06	2.06E-06	3.21E-06	2.19E-06	1.29E-06	3.64E-06	2.17E-05
1314621	Vanadium	8.91E-04	2.78E-04	1.04E-04	1.62E-04	1.51E-04	2.20E-04	2.20E-04	2.20E-04	2.20E-04	3.97E-04	3.63E-03	3.63E-03	2.00E-03	3.49E-04	1.39E-04	1.39E-04	3.70E-04	4.17E-04	4.63E-04	2.96E-04	5.23E-04	3.15E-04	1.85E-04	2.77E-05	3.60E-03

TABLE 5C

MAXIMUM HOURLY EMISSION RATES BY SOURCE GROUP - FUGITIVE AND OTHER POINT SOURCES

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/hr)

CAS No.	Chemical	Emission Source Group															
		S501	S502	1	2	3	4A	4B	4C	4D	5	6A	6B	6C	6D	7	8
7440382	Arsenic	-	-	3.22E-05	3.22E-05	9.69E-06	2.83E-05	2.83E-05	2.83E-05	2.83E-05	1.88E-05	8.76E-06	8.76E-06	8.76E-06	8.76E-06	1.12E-06	1.68E-06
71432	Benzene	-	-	-	-	-	-	-	-	-	-	9.10E-07	9.10E-07	9.10E-07	9.10E-07	5.40E-08	-
7440417	Beryllium	-	-	1.21E-05	1.21E-05	2.43E-06	4.37E-06	4.37E-06	4.37E-06	4.37E-06	1.10E-05	2.33E-06	2.33E-06	2.33E-06	2.33E-06	6.71E-07	2.43E-06
7440439	Cadmium	-	-	2.01E-05	2.01E-05	5.22E-06	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.88E-05	3.86E-06	3.86E-06	3.86E-06	3.86E-06	1.12E-06	1.62E-06
7440473	Chromium (total)	-	-	4.09E-04	4.09E-04	9.69E-05	2.22E-04	2.22E-04	2.22E-04	2.22E-04	3.49E-04	1.28E-04	1.28E-04	1.28E-04	1.28E-04	2.15E-05	2.53E-05
18540299	Chromium VI	-	-	1.61E-06	1.61E-06	9.60E-07	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.47E-06	5.03E-06	5.03E-06	5.03E-06	5.03E-06	8.95E-08	1.29E-07
7440508	Copper	-	-	3.69E-04	3.69E-04	7.98E-05	1.99E-04	1.99E-04	1.99E-04	1.99E-04	2.10E-04	8.57E-05	8.57E-05	8.57E-05	8.57E-05	1.25E-05	1.42E-05
1175	Crystalline silica	-	-	9.19E-02	9.19E-02	7.84E-03	5.97E-03	5.97E-03	5.97E-03	5.97E-03	5.45E-02	9.96E-03	9.96E-03	9.96E-03	9.96E-03	3.32E-03	3.40E-03
9901	Diesel PM	2.99E-01	5.98E-01	-	-	-	-	-	-	-	1.90E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	-
7439921	Lead	-	-	2.01E-05	2.01E-05	5.13E-06	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.91E-05	1.23E-05	1.23E-05	1.23E-05	1.23E-05	1.16E-06	1.66E-06
7439976	Mercury	-	-	4.61E-06	4.61E-06	8.69E-07	3.62E-06	3.62E-06	3.62E-06	3.62E-06	2.95E-06	4.95E-07	4.95E-07	4.95E-07	4.95E-07	1.79E-07	5.94E-07
7440020	Nickel	-	-	6.36E-04	6.36E-04	1.09E-04	3.38E-04	3.38E-04	3.38E-04	3.38E-04	3.39E-04	2.62E-04	2.62E-04	2.62E-04	2.62E-04	2.06E-05	2.24E-05
7782492	Selenium	-	-	4.02E-05	4.02E-05	8.09E-06	1.50E-05	1.50E-05	1.50E-05	1.50E-05	3.67E-05	2.32E-06	2.32E-06	2.32E-06	2.32E-06	2.24E-06	3.23E-06
108883	Toluene	-	-	-	-	-	-	-	-	-	-	3.59E-06	3.59E-06	3.59E-06	3.59E-06	2.16E-06	-
1314621	Vanadium	-	-	7.34E-04	7.34E-04	3.67E-04	1.46E-03	1.46E-03	1.46E-03	1.46E-03	3.30E-04	7.56E-04	7.56E-04	7.56E-04	7.56E-04	1.70E-05	2.55E-05
1330207	Xylenes (mixed)	-	-	-	-	-	-	-	-	-	-	5.25E-06	5.25E-06	5.25E-06	5.25E-06	1.96E-05	-

TABLE 6

LOCATION OF KEY OFF-SITE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type	Description	Elevation (meters)	UTM Coordinates[1]
11986	Census Location	Census Tract 506202	69.76	589300 , 4128400
11745	Census Location	Census Tract 507401	90.85	587200 , 4127200
11593	Census Location	Census Tract 507402	90.84	588400 , 4126400
11587	Census Location	Census Tract 507500	107.11	586600 , 4126400
10977	Census Location	Census Tract 507600	264.77	583844 , 4126181.25
10973	Census Location	Census Tract 507701	99.92	584046.1 , 4130743.158
10975	Census Location	Census Tract 507702	125.75	583904.04 , 4129096.077
10972	Census Location	Census Tract 507703	125.19	582339.3 , 4130693.211
10971	Census Location	Census Tract 507805	85.69	583712.2 , 4132349.844
12167	Census Location	Census Tract 507806	76.35	585300 , 4131600
10974	Census Location	Census Tract 507807	88.5	585016.9 , 4130016.362
10976	Census Location	Census Tract 507808	96.81	585157.5 , 4128925.409
12059	Census Location	Census Tract 507903	72.43	587800 , 4128800
12062	Census Location	Census Tract 507904	70.02	588700 , 4128800
12054	Census Location	Census Tract 507905	79.89	586300 , 4128800
12056	Census Location	Census Tract 507906	80.1	586900 , 4128800
12134	Census Location	Census Tract 508001	69.37	586800 , 4130100
12137	Census Location	Census Tract 508002	62.66	588300 , 4130100
12170	Census Location	Census Tract 508101	61.6	586800 , 4131600
11075	Census Location	Census Tract 508203	51.92	586500 , 4133500
11076	Census Location	Census Tract 508204	47.97	587000 , 4133500
11069	Census Location	Census Tract 508301	70.92	583500 , 4133500
11073	Census Location	Census Tract 508304	58.92	585500 , 4133500
11181	Census Location	Census Tract 508401	55.41	583500 , 4135500
11128	Census Location	Census Tract 508403	52.04	585000 , 4134500
11184	Census Location	Census Tract 508404	46.27	585000 , 4135500
11240	Census Location	Census Tract 508601	37.91	585000 , 4136500
11264	Census Location	Census Tract 509105	42.03	583000 , 4137000

TABLE 6

LOCATION OF KEY OFF-SITE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type	Description	Elevation (meters)	UTM Coordinates[1]
11266	Census Location	Census Tract 509106	38.94	584000 , 4137000
11265	Census Location	Census Tract 509107	41.72	583500 , 4137000
11345	Census Location	Census Tract 509600	27.33	581500 , 4138500
11318	Census Location	Census Tract 509700	32.84	582000 , 4138000
11259	Census Location	Census Tract 509801	41.66	580500 , 4137000
11261	Census Location	Census Tract 509802	40.35	581500 , 4137000
11204	Census Location	Census Tract 509901	49.81	581000 , 4136000
11207	Census Location	Census Tract 509902	50.81	582500 , 4136000
11149	Census Location	Census Tract 510001	60.29	581500 , 4135000
11067	Census Location	Census Tract 510002	71.62	582500 , 4133500
10970	Census Location	Census Tract 510100	78.58	581455.3 , 4133175.275
11201	Census Location	Census Tract 510200	58.2	579500 , 4136000
11255	Census Location	Census Tract 510300	61.37	578500 , 4137000
11197	Census Location	Census Tract 511701	138.43	577500 , 4136000
10969	Census Location	Census Tract 511702	95.76	580171.6 , 4134226.711
10968	Census Location	Census Tract 511703	143.72	579150.4 , 4133424.369
10993	Daycare	Children's House of Los Altos 770 Berry Avenue	58.5	580371.2 , 4135348.2
12356	Daycare	Delight Montessori School 20299 Stevens Creek Blvd, Cupertino 95014	67.41	586056 , 4131148
10994	Daycare	Foothill Preschool 2100 Woods Lane	82.69	581783.8 , 4132851.4
10979	Daycare	Growing Tree Learning Center 12000 Saratoga-Sunnyvale Road	92.3	585829.8 , 4127886.1
12357	Daycare	Happy Days Child Development Center 10115 Saich Way, Cupertino 95014	77.78	585270 , 4131331.5
10989	Daycare	Kindercare Learning Center 1515 S. De Anza Boulevard	91.39	585720.8 , 4128214.5

TABLE 6

LOCATION OF KEY OFF-SITE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type	Description	Elevation (meters)	UTM Coordinates[1]
10995	Daycare	Los Altos Christian Preschool 625 Magdalena Avenue	60.44	579699 , 4135147.9
10996	Daycare	Los Altos United Methodist Church 655 Magdalena Avenue	59.57	579789.9 , 4135231.1
10990	Daycare	Play & Learn Preschool Daycare 10067 Byrne Avenue	103.93	583372.6 , 4130990.7
10987	Daycare	Regnart Child Development Center 1180 Yorkshire Drive	111.85	584472 , 4128982.4
10986	Daycare	YMCA-Blue Hills 12300 De Sanka Avenue	90.71	586336.2 , 4127491.8
10988	Daycare	YMCA-Lincoln 21710 McClellan Road	107.46	583832.3 , 4130282.4
10991	Daycare	YMCA-Stevens Creek 10300 Ainsworth Drive	106.93	582895.9 , 4131583.8
12358	Hospital	El Camino Hospital 2500 Grant Rd, Mountain View 94040	48.47	581492 , 4136173
10957	School	Academy for Educational Excellence	130.46	582503 , 4130103
12359	School	Blach Intermediate School 1120 Covington Rd, Los Altos 94024	54.91	581289 , 4135590
12360	School	Blue Hills Elementary School 12300 De Sanka Ave Saratoga 95070	90.67	586337 , 4127495
12361	School	Creekside Private School 10300 Creston Dr. Cupertino 95014	85.81	583251 , 4132945
12362	School	Cupertino Junior High School 1650 S. Bernardo Ave, Sunnyvale 94087	79.28	583348 , 4132945
12363	School	De Anza College Child Development Center 21250 Stevens Creek Boulevard Cupertino 95014	91.84	584608 , 4130709
12364	School	Delor Montessori School 1510 Lewiston Drive, Sunnyvale 94087	65.71	584621 , 4133352

TABLE 6

LOCATION OF KEY OFF-SITE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type	Description	Elevation (meters)	UTM Coordinates[1]
12365	School	Faria Elementary School 10155 Barbara Lane, Cupertino 95014	84.22	585052 , 4130891
12366	School	Garden Gate Elementary School 10500 Ann Arbor Avenue, Cupertino 95014	79.64	584603 , 4132007
12367	School	Homestead High School 21370 Homestead Rd, Cupertino 95014	77.56	584167 , 4132593
12368	School	Kennedy Middle School 821 Bubb Rd, Cupertino 95014	106.21	584043 , 4129779
12369	School	Lawson Middle School 10401 Vista Drive, Cupertino 95014	66.98	586100 , 4131615
12370	School	Loyola School 770 Berry Avenue, Los Altos 94024	60.02	580364 , 4135237
12371	School	Mc Auliffe Elementary School 12211 Titus Ave, Saratoga 95070	83.78	587693 , 4127696
12372	School	Miramonte School 1175 Altamead Drive, Los Altos 94024	56.49	581344 , 4135423
10992	School	Montclaire Elementary and School-Age Child Development Center 1160 St. Joseph Avenue, Los Altos 94024	78.4	581300.9 , 4133301.3
12373	School	Montebello Elementary School 10301 Vista Drive, Cupertino 95014	65.99	586227 , 4131544
12374	School	Nimitz Elementary School 545 Cheyenne Drive, Sunnyvale 94087	56.89	585405 , 4133790
12375	School	Oak Elementary School 1501 Oak Avenue, Los Altos 94024	59.6	582218 , 4134902
12376	School	Prospect High School 18900 Prospect Rd, Saratoga 95070	78.68	588436 , 4127778
12377	School	St. Simon Elementary School 1840 Grant Road, Los Altos 94024	72.5	581553 , 4133763

TABLE 6

LOCATION OF KEY OFF-SITE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type	Description	Elevation (meters)	UTM Coordinates[1]
10958	School	Stevens Creek Elementary School 10300 Ainsworth Drive, Cupertino 95014	107.48	582896 , 4131568
12378	School	Villa Montessori School 20900 Stevens Creek Blvd, Cupertino 95014	81.19	585133 , 4131043
12379	School	Waldorf School-Peninsula 11311 Mora Drive, Los Altos 94024	100.27	580133 , 4133320
12380	School	West Valley Elementary School 1635 Belleville Way , Sunnyvale 94087	74.89	583118 , 4133107
2085	MEIR	Residential area near San Jacinto Road	228.43	581893.8 , 4129919.6
10963	MEIW	Gates of Heaven Cemetery 22555 Cristo Rey Dr, Los Altos Hills	126.75	581014.7 , 4131626
129	PMI	Cancer	161.94	580996.5 , 4130924.3
226	PMI	Chronic Noncancer	200.5	581698 , 4130001
130	PMI	Acute Noncancer	160.42	581005 , 4130898

Note

1. Universal Transverse Mercator Coordinate System

Abbreviations

MEIW = Maximum Exposed Individual Worker

MEIR = Maximum Exposed Individual Resident

PMI = Point of Maximum Impact

TABLE 7

HARP RISK MODELING AND EXPOSURE ASSESSMENT OPTIONS

Lehigh Southwest Cement Company
Cupertino Facility

Parameter Description	Assumption	Rationale
Residential Cancer and Chronic (70-year) Exposure - Inhalation	Use 80th percentile breathing rate - (302 L/kg-day or 21 m^3/day for a 70-kilogram adult)	Derived Adjusted[1] Method per CARB, 2003 and BAAQMD, 2010
Residential Cancer and Chronic Exposure (70-year) - Breathing Rate (Inhalation is not a dominant pathway)	271 L/kg-day (19 m^3/day for a 70-kilogram adult)	Average Daily Breathing Rate per OEHHA, 2003
Student Cancer and Chronic (9-year) Exposure - Inhalation	Use 95th percentile breathing rate - (581 L/kg-day for a 15-kilogram child)	Derived OEHHA Method 9-year Child Resident per BAAQMD, 2010
Worker Cancer and Chronic Exposure - Inhalation	149 L/kg-day (10.4 m^3/day for a 70-kilogram adult)	OEHHA, 2003; corresponds to 1.3 m^3/hr for an 8-hour day[2]
Worker Exposure for Carcinogenic and Chronic Exposure - Exposure Frequency/Duration	49 wks/yr, 5 days/wk, 8 hrs/day, 40 yrs	HARP Model default worker schedule; OEHHA, 2003
Deposition Rate	0.02 m/s	Controlled sources; OEHHA, 2003
Fraction of Homegrown produce ingested	0.052	Default urban per OEHHA, 2003

TABLE 7

HARP RISK MODELING AND EXPOSURE ASSESSMENT OPTIONS

Lehigh Southwest Cement Company
Cupertino Facility

Notes

1. Uses maximum predicted exposure for two most significant exposure pathways and average exposure for remaining pathways.
2. OEHHA guidance provides only a point estimate (the value presented) for worker exposure, unlike the range of inhalation rates provided for residential exposure.

Abbreviations

BAAQMD = Bay Area Air Quality Management District
CARB = California Air Resouces Board
HARP = Hotspots Analysis Reporting Program
hours/yr = hours per year
L/kg-day = liter per kilogram bodyweight per day
m^3/day = cubic meters per day
m/s = meters per second
OEHHA = Office of Environmental Health Hazard Assessment

TABLE 8A
SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - 2008 CEIR
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																					
	2085 [1]	10963	129	226	130	10993	12356	10994	10979	12357	10989	10995	10996	10990	10987	10986	10988	10991	12358	10957	12359	12360
Chemical	MEIR	MEIW	PMI	PMI	PMI	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Hospital	School	School	School
Acetaldehyde	1.38E-02	5.23E-03	1.32E-02	1.67E-02	1.33E-02	1.04E-03	7.19E-04	2.13E-03	1.05E-03	9.33E-04	1.29E-03	1.23E-03	1.07E-03	1.66E-03	2.34E-03	9.36E-04	1.78E-03	1.78E-03	9.44E-04	4.33E-03	1.01E-03	9.37E-04
Acrolein	5.33E-04	2.02E-04	5.13E-04	6.48E-04	5.17E-04	4.01E-05	2.78E-05	8.24E-05	4.05E-05	3.61E-05	4.98E-05	4.75E-05	4.13E-05	6.42E-05	9.05E-05	3.62E-05	6.87E-05	6.90E-05	3.65E-05	1.68E-04	3.89E-05	3.63E-05
Arsenic	2.64E-05	2.60E-05	5.01E-05	3.27E-05	5.03E-05	5.04E-06	2.90E-06	9.92E-06	3.40E-06	3.63E-06	3.88E-06	5.09E-06	4.87E-06	7.00E-06	6.39E-06	2.95E-06	6.92E-06	7.69E-06	3.99E-06	1.48E-05	4.60E-06	2.95E-06
Benz(a)anthracene	1.56E-07	5.90E-08	1.50E-07	1.89E-07	1.51E-07	1.17E-08	8.12E-09	2.40E-08	1.18E-08	1.05E-08	1.45E-08	1.38E-08	1.21E-08	1.87E-08	2.64E-08	1.06E-08	2.01E-08	2.01E-08	1.07E-08	4.89E-08	1.14E-08	1.06E-08
Benzene	1.15E-01	4.35E-02	1.10E-01	1.39E-01	1.11E-01	8.62E-03	5.98E-03	1.77E-02	8.70E-03	7.76E-03	1.07E-02	1.02E-02	8.89E-03	1.38E-02	1.94E-02	7.78E-03	1.48E-02	1.48E-02	7.85E-03	3.60E-02	8.36E-03	7.80E-03
Benzo(a)pyrene	3.50E-09	1.33E-09	3.37E-09	4.26E-09	3.39E-09	2.63E-10	1.83E-10	5.41E-10	2.66E-10	2.37E-10	3.27E-10	3.12E-10	2.72E-10	4.22E-10	5.95E-10	2.38E-10	4.52E-10	4.54E-10	2.40E-10	1.10E-09	2.56E-10	2.38E-10
Benzo(b)fluoranthene	2.22E-08	8.43E-09	2.14E-08	2.70E-08	2.15E-08	1.67E-09	1.16E-09	3.43E-09	1.69E-09	1.50E-09	2.08E-09	1.98E-09	1.72E-09	2.67E-09	3.77E-09	1.51E-09	2.86E-09	2.88E-09	1.52E-09	6.98E-09	1.62E-09	1.51E-09
Benzo(k)fluoranthene	3.50E-09	1.33E-09	3.37E-09	4.26E-09	3.39E-09	2.63E-10	1.83E-10	5.41E-10	2.66E-10	2.37E-10	3.27E-10	3.12E-10	2.72E-10	4.22E-10	5.95E-10	2.38E-10	4.52E-10	4.54E-10	2.40E-10	1.10E-09	2.56E-10	2.38E-10
Benzyl chloride	1.20E-03	4.55E-04	1.15E-03	1.46E-03	1.16E-03	9.02E-05	6.26E-05	1.85E-04	9.11E-05	8.13E-05	1.12E-04	1.07E-04	9.30E-05	1.44E-04	2.04E-04	8.15E-05	1.55E-04	1.55E-04	8.22E-05	3.77E-04	8.75E-05	8.16E-05
Beryllium	8.74E-06	7.22E-06	1.47E-05	1.09E-05	1.47E-05	1.42E-06	8.26E-07	2.79E-06	1.01E-06	1.04E-06	1.18E-06	1.50E-06	1.42E-06	1.99E-06	1.97E-06	8.83E-07	1.98E-06	2.19E-06	1.14E-06	4.34E-06	1.30E-06	8.83E-07
1,3-Butadiene	1.09E-03	4.14E-04	1.05E-03	1.32E-03	1.06E-03	8.20E-05	5.69E-05	1.68E-04	8.28E-05	7.39E-05	1.02E-04	9.70E-05	8.45E-05	1.31E-04	1.85E-04	7.41E-05	1.41E-04	1.41E-04	7.47E-05	3.43E-04	7.95E-05	7.42E-05
Cadmium	1.24E-05	1.19E-05	2.26E-05	1.54E-05	2.28E-05	2.33E-06	1.32E-06	4.57E-06	1.57E-06	1.65E-06	1.80E-06	2.41E-06	2.31E-06	3.19E-06	2.96E-06	1.36E-06	3.15E-06	3.53E-06	1.83E-06	6.75E-06	2.12E-06	1.36E-06
Carbon tetrachloride	7.32E-04	2.78E-04	7.03E-04	8.89E-04	7.09E-04	5.50E-05	3.82E-05	1.13E-04	5.56E-05	4.96E-05	6.84E-05	6.51E-05	5.67E-05	8.81E-05	1.24E-04	4.97E-05	9.43E-05	9.47E-05	5.01E-05	2.30E-04	5.34E-05	4.98E-05
Chlorobenzene	6.58E-03	2.50E-03	6.33E-03	7.99E-03	6.37E-03	4.95E-04	3.43E-04	1.02E-03	5.00E-04	4.46E-04	6.15E-04	5.86E-04	5.10E-04	7.92E-04	1.12E-03	4.47E-04	8.48E-04	8.52E-04	4.51E-04	2.07E-03	4.80E-04	4.48E-04
Chloroform	3.41E-04	1.29E-04	3.28E-04	4.14E-04	3.30E-04	2.56E-05	1.78E-05	5.26E-05	2.59E-05	2.31E-05	3.19E-05	3.03E-05	2.64E-05	4.10E-05	5.78E-05	2.32E-05	4.39E-05	4.41E-05	2.34E-05	1.07E-04	2.49E-05	2.32E-05
Chromium VI	2.13E-05	2.27E-05	4.54E-05	2.72E-05	4.55E-05	4.49E-06	2.62E-06	8.94E-06	2.96E-06	3.33E-06	3.29E-06	4.00E-06	3.90E-06	6.56E-06	5.59E-06	2.54E-06	6.46E-06	7.16E-06	3.57E-06	1.43E-05	4.15E-06	2.54E-06
Chrysene	4.59E-07	1.74E-07	4.41E-07	5.57E-07	4.44E-07	3.45E-08	2.39E-08	7.08E-08	3.48E-08	3.11E-08	4.29E-08	4.08E-08	3.55E-08	5.52E-08	7.78E-08	3.11E-08	5.91E-08	5.94E-08	3.14E-08	1.44E-07	3.34E-08	3.12E-08
Copper	1.82E-04	1.97E-04	3.66E-04	2.32E-04	3.67E-04	3.83E-05	2.14E-05	7.49E-05	2.49E-05	2.66E-05	2.83E-05	3.93E-05	3.78E-05	5.20E-05	4.61E-05	2.15E-05	5.09E-05	5.78E-05	2.98E-05	1.08E-04	3.47E-05	2.15E-05
Crystalline silica	1.41E-02	1.90E-02	3.20E-02	1.97E-02	3.22E-02	4.31E-03	2.17E-03	7.65E-03	2.50E-03	2.64E-03	2.77E-03	4.58E-03	4.46E-03	5.25E-03	4.34E-03	2.12E-03	5.00E-03	5.92E-03	3.18E-03	1.03E-02	3.78E-03	2.12E-03
Dibenz(a,h)anthracene	3.50E-09	1.33E-09	3.37E-09	4.26E-09	3.39E-09	2.63E-10	1.83E-10	5.41E-10	2.66E-10	2.37E-10	3.27E-10	3.12E-10	2.72E-10	4.22E-10	5.95E-10	2.38E-10	4.52E-10	4.54E-10	2.40E-10	1.10E-09	2.56E-10	2.38E-10
p-Dichlorobenzene	7.00E-04	2.65E-04	6.73E-04	8.50E-04	6.78E-04	5.26E-05	3.65E-05	1.08E-04	5.31E-05	4.74E-05	6.54E-05	6.23E-05	5.42E-05	8.42E-05	1.19E-04	4.75E-05	9.02E-05	9.06E-05	4.79E-05	2.20E-04	5.10E-05	4.76E-05
1,1-Dichloroethane	2.35E-04	8.92E-05	2.26E-04	2.86E-04	2.28E-04	1.77E-05	1.23E-05	3.63E-05	1.79E-05	1.59E-05	2.20E-05	2.09E-05	1.82E-05	2.83E-05	3.99E-05	1.60E-05	3.03E-05	3.04E-05	1.61E-05	7.39E-05	1.72E-05	1.60E-05
1,2-Dichloropropane	3.22E-04	1.22E-04	3.09E-04	3.91E-04	3.12E-04	2.42E-05	1.68E-05	4.97E-05	2.44E-05	2.18E-05	3.01E-05	2.86E-05	2.50E-05	3.88E-05	5.46E-05	2.19E-05	4.15E-05	4.17E-05	2.20E-05	1.01E-04	2.35E-05	2.19E-05
1,3-Dichloropropene	1.32E-03	5.00E-04	1.27E-03	1.60E-03	1.28E-03	9.91E-05	6.88E-05	2.04E-04	1.00E-04	8.93E-05	1.23E-04	1.17E-04	1.02E-04	1.59E-04	2.24E-04	8.95E-05	1.70E-04	1.71E-04	9.03E-05	4.14E-04	9.62E-05	8.97E-05
Diesel PM	4.11E-04	5.21E-04	1.08E-03	6.41E-04	1.08E-03	1.01E-04	5.59E-05	1.76E-04	6.62E-05	7.00E-05	7.45E-05	9.32E-05	9.24E-05	1.40E-04	1.20E-04	5.65E-05	1.30E-04	1.59E-04	7.75E-05	2.85E-04	9.47E-05	5.65E-05
Ethyl chloride	4.60E-04	1.74E-04	4.42E-04	5.58E-04	4.45E-04	3.46E-05	2.40E-05	7.10E-05	3.49E-05	3.11E-05	4.30E-05	4.09E-05	3.56E-05	5.53E-05	7.80E-05	3.12E-05	5.92E-05	5.95E-05	3.15E-05	1.44E-04	3.35E-05	3.13E-05
Ethylbenzene	1.14E-02	4.32E-03	1.10E-02	1.38E-02	1.10E-02	8.56E-04	5.94E-04	1.76E-03	8.65E-04	7.72E-04	1.06E-03	1.01E-03	8.83E-04	1.37E-03	1.93E-03	7.74E-04	1.47E-03	1.47E-03	7.80E-04	3.58E-03	8.31E-04	7.75E-04
Ethylene dibromide	7.15E-04	2.71E-04	6.87E-04	8.69E-04	6.93E-04	5.38E-05	3.73E-05	1.10E-04	5.43E-05	4.84E-05	6.68E-05	6.36E-05	5.54E-05	8.61E-05	1.21E-04	4.86E-05	9.21E-05	9.26E-05	4.90E-05	2.25E-04	5.22E-05	4.86E-05
Ethylene dichloride	2.83E-04	1.07E-04	2.72E-04	3.43E-04	2.74E-04	2.13E-05	1.48E-05	4.37E-05	2.15E-05	1.91E-05	2.64E-05	2.52E-05	2.19E-05	3.40E-05	4.80E-05	1.92E-05	3.64E-05	3.66E-05	1.94E-05	8.88E-05	2.06E-05	1.92E-05
Formaldehyde	7.50E-04	2.84E-04	7.21E-04	9.10E-04	7.26E-04	5.63E-05	3.91E-05	1.16E-04	5.69E-05	5.08E-05	7.00E-05	6.67E-05	5.81E-05	9.02E-05	1.27E-04	5.09E-05	9.66E-05	9.70E-05	5.13E-05	2.35E-04	5.47E-05	5.10E-05
1,2,3,4,6,7,8-HpCDD	1.14E-10	4.34E-11	1.10E-10	1.39E-10	1.11E-10	8.60E-12	5.97E-12	1.77E-11	8.68E-12	7.75E-12	1.07E-11	1.02E-11	8.87E-12	1.38E-11	1.94E-11	7.77E-12	1.47E-11	1.48E-11	7.84E-12	3.59E-11	8.34E-12	7.78E-12
1,2,3,4,6,7,8-HpCDF	5.55E-11	2.10E-11	5.33E-11	6.74E-11	5.37E-11	4.17E-12	2.89E-12	8.57E-12	4.21E-12	3.76E-12	5.18E-12	4.94E-12	4.30E-12	6.68E-12	9.41E-12	3.77E-12	7.15E-12	7.18E-12	3.80E-12	1.74E-11	4.05E-12	3.77E-12
1,2,3,4,7,8,9-HpCDF	1.43E-11	5.41E-12	1.37E-11	1.73E-11	1.38E-11	1.07E-12	7.44E-13	2.20E-12	1.08E-12	9.66E-13	1.33E-12	1.27E-12	1.10E-12	1.72E-12	2.42E-12	9.68E-13	1.84E-12	1.85E-12	9.76E-13	4.48E-12	1.04E-12	9.70E-13
1,2,3,4,7,8-HxCDD	3.20E-11	1.21E-11	3.07E-11	3.88E-11	3.10E-11	2.40E-12	1.67E-12	4.93E-12	2.43E-12	2.16E-12	2.99E-12	2.84E-12	2.48E-12	3.85E-12	5.42E-12	2.17E-12	4.12E-12	4.14E-12	2.19E-12	1.00E-11	2.33E-12	2.17E-12
1,2,3,4,7,8-HxCDF	4.84E-11	1.83E-11	4.65E-11	5.87E-11	4.68E-11	3.63E-12	2.52E-12	7.47E-12	3.67E-12	3.27E-12	4.52E-12	4.30E-12	3.75E-12	5.82E-12	8.20E-12	3.28E-12	6.23E-12	6.26E-12	3.31E-12	1.52E-11	3.53E-12	3.29E-12
1,2,3,6,7,8-HxCDD	3.15E-11	1.19E-11	3.03E-11	3.82E-11	3.05E-11	2.37E-12	1.64E-12	4.86E-12	2.39E-12	2.13E-12	2.94E-12	2.80E-12	2.44E-12	3.79E-12	5.34E-12	2.14E-12	4.06E-12	4.07E-12	2.16E-12	9.89E-12	2.30E-12	2.14E-12
1,2,3,6,7,8-HxCDF	4.53E-11	1.72E-11	4.35E-11	5.50E-11	4.38E-11	3.40E-12	2.36E-12	6.99E-12	3.44E-12	3.07E-12	4.23E-12	4.03E-12	3.51E-12	5.45E-12	7.68E-12	3.07E-12	5.83E-12	5.86E-12	3.10E-12	1.42E-11	3.30E-12	3.08E-12
1,2,3,7,8,9-HxCDD	3.27E-11	1.24E-11	3.14E-11	3.97E-11	3.16E-11	2.46E-12	1.70E-12	5.04E-12	2.48E-12	2.21E-12	3.05E-12	2.91E-12	2.53E-12	3.93E-12	5.54E-12	2.22E-12	4.21E-12	4.23E-12	2.24E-12	1.03E-11	2.38E-12	2.22E-12
1,2,3,7,8,9-HxCDF	1.52E-11	5.77E-12	1.46E-11	1.85E-11	1.47E-11	1.14E-12	7.93E-13	2.35E-12	1.15E-12	1.03E-12	1.42E-12	1.35E-12	1.18E-12	1.83E-12	2.58E-12	1.03E-12	1.96E-12	1.97E-12	1.04E-12	4.78E-12	1.11E-12	1.03E-12
2,3,4,6,7,8-HxCDF	2.78E-11	1.05E-11	2.67E-11	3.38E-11	2.69E-11	2.09E-12	1.45E-12	4.29E-12	2.11E-12	1.88E-12	2.60E-12	2.47E-12	2.15E-12	3.35E-12	4.72E-12	1.89E-12	3.58E-12	3.60E-12	1.90E-12	8.73E-12	2.03E-12	1.89E-12
Hydrochloric acid	1.3E+00	4.82E-01	1.2E+00	1.5E+00	1.2E+00	9.55E-02	6.63E-02	1.96E-01	9.65E-02	8.61E-02	1.19E-01	1.13E-01	9.85E-02	1.53E-01	2.16E-01	8.63E-02	1.64E-01	1.65E-01	8.71E-02	3.99E-01	9.27E-02	8.65E-02
Indeno(1,2,3-c,d)pyrene	2.60E-09	9.87E-10	2.50E-09	3.16E-09	2.52E-09	1.96E-10	1.36E-10	4.02E-10	1.97E-10	1.76E-10	2.43E-10	2.31E-10	2.02E-10	3.13E-10	4.41E-10	1.77E-10	3.35E-10	3.37E-10	1.78E-10	8.17E-10	1.90E-10	1.77E-10
Lead	2.32E-05	2.06E-05	4.12E-05	2.99E-05	4.14E-05	3.87E-06	2.30E-06	7.87E-06	2.77E-06	2.89E-06	3.19E-06	3.93E-06	3.74E-06	5.63E-06	5.35E-06	2.40E-06	5.55E-06	6.19E-06	3.11E-06	1.23E-05	3.57E-06	2.40E-06
Manganese	4.74E-05	1.80E-05	4.56E-05	5.76E-05	4.59E-05	3.56E-06	2.47E-06	7.32E-06	3.60E-06	3.21E-06	4.43E-06	4.22E-06	3.67E-06	5.71E-06	8.04E-06	3.22E-06	6.11E-06	6.14E-06	3.25E-06	1.49E-05	3.46E-06	3.22E-06
Mercury	6.91E-03	2.62E-03	6.64E-03	8.39E-03	6.69E-03	5.20E-04	3.61E-04	1.07E-03	5.24E-04	4.68E-04	6.46E-04	6.15E-04	5.36E-04	8.32E-04	1.17E-03	4.69E-04	8.90E-04	8.95E-04	4.73E-04	2.17E-03	5.04E-04	4.70E-04
Methyl bromide	7.43E-03	2.82E-03	7.14E-03	9.02E-03	7.19E-03	5.58E-04	3.87E-04	1.15E-03	5.64E-04	5.03E-04	6.94E-04	6.61E-04	5.76E-04	8.94E-04	1.26E-03	5.04E-04	9.57E-04	9.61E-04	5.09E-04	2.33E-03	5.42E-04	5.05E-04

TABLE 8A
SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - 2008 CEIR
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																				
	2085 [1]	10963	129	226	130	10993	12356	10994	10979	12357	10989	10995	10996	10990	10987	10986	10988	10991	12358	10957	12359	12360
Chemical	MEIR	MEIW	PMI	PMI	PMI	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Hospital	School	School	School
Methyl chloroform (1,1,1-trichloroethane)	3.81E-04	1.45E-04	3.67E-04	4.63E-04	3.69E-04	2.87E-05	1.99E-05	5.89E-05	2.89E-05	2.58E-05	3.56E-05	3.39E-05	2.96E-05	4.59E-05	6.47E-05	2.59E-05	4.91E-05	4.94E-05	2.61E-05	1.20E-04	2.78E-05	2.59E-05
Methylene chloride	1.53E-03	5.81E-04	1.47E-03	1.86E-03	1.48E-03	1.15E-04	8.00E-05	2.37E-04	1.16E-04	1.04E-04	1.43E-04	1.36E-04	1.19E-04	1.84E-04	2.60E-04	1.04E-04	1.97E-04	1.98E-04	1.05E-04	4.81E-04	1.12E-04	1.04E-04
Naphthalene	1.65E-03	6.26E-04	1.59E-03	2.01E-03	1.60E-03	1.24E-04	8.62E-05	2.55E-04	1.25E-04	1.12E-04	1.54E-04	1.47E-04	1.28E-04	1.99E-04	2.80E-04	1.12E-04	2.13E-04	2.14E-04	1.13E-04	5.19E-04	1.20E-04	1.12E-04
Nickel	5.62E-04	5.20E-04	1.05E-03	6.75E-04	1.06E-03	1.05E-04	6.21E-05	2.04E-04	7.43E-05	7.84E-05	8.71E-05	1.07E-04	1.02E-04	1.49E-04	1.40E-04	6.56E-05	1.46E-04	1.60E-04	8.41E-05	3.19E-04	9.63E-05	6.57E-05
1,2,3,4,6,7,8,9-OCDD	2.40E-10	9.10E-11	2.31E-10	2.91E-10	2.32E-10	1.80E-11	1.25E-11	3.71E-11	1.82E-11	1.63E-11	2.24E-11	2.13E-11	1.86E-11	2.89E-11	4.07E-11	1.63E-11	3.09E-11	3.11E-11	1.64E-11	7.54E-11	1.75E-11	1.63E-11
1,2,3,4,6,7,8,9-OCDF	5.48E-11	2.08E-11	5.26E-11	6.65E-11	5.30E-11	4.12E-12	2.86E-12	8.46E-12	4.16E-12	3.71E-12	5.12E-12	4.87E-12	4.24E-12	6.59E-12	9.29E-12	3.72E-12	7.06E-12	7.09E-12	3.75E-12	1.72E-11	3.99E-12	3.72E-12
1,2,3,7,8-PeCDD	2.82E-11	1.07E-11	2.71E-11	3.42E-11	2.73E-11	2.12E-12	1.47E-12	4.35E-12	2.14E-12	1.91E-12	2.63E-12	2.50E-12	2.18E-12	3.39E-12	4.78E-12	1.91E-12	3.63E-12	3.64E-12	1.93E-12	8.84E-12	2.05E-12	1.91E-12
1,2,3,7,8-PeCDF	2.17E-10	8.25E-11	2.09E-10	2.64E-10	2.11E-10	1.63E-11	1.13E-11	3.36E-11	1.65E-11	1.47E-11	2.03E-11	1.93E-11	1.69E-11	2.62E-11	3.69E-11	1.48E-11	2.80E-11	2.81E-11	1.49E-11	6.83E-11	1.59E-11	1.48E-11
2,3,4,7,8-PeCDF	3.26E-10	1.23E-10	3.13E-10	3.95E-10	3.15E-10	2.45E-11	1.70E-11	5.03E-11	2.47E-11	2.20E-11	3.04E-11	2.90E-11	2.52E-11	3.92E-11	5.52E-11	2.21E-11	4.19E-11	4.21E-11	2.23E-11	1.02E-10	2.37E-11	2.21E-11
Perchloroethylene	6.31E-04	2.39E-04	6.06E-04	7.66E-04	6.11E-04	4.74E-05	3.29E-05	9.74E-05	4.79E-05	4.27E-05	5.89E-05	5.61E-05	4.89E-05	7.59E-05	1.07E-04	4.28E-05	8.13E-05	8.17E-05	4.32E-05	1.98E-04	4.60E-05	4.29E-05
Selenium	6.34E-05	3.55E-05	7.78E-05	7.73E-05	7.83E-05	7.18E-06	4.45E-06	1.42E-05	5.89E-06	5.66E-06	7.03E-06	7.92E-06	7.25E-06	1.05E-05	1.22E-05	5.20E-06	1.08E-05	1.14E-05	6.03E-06	2.46E-05	6.71E-06	5.21E-06
Styrene	2.89E-03	1.09E-03	2.77E-03	3.51E-03	2.80E-03	2.17E-04	1.51E-04	4.46E-04	2.19E-04	1.96E-04	2.70E-04	2.57E-04	2.24E-04	3.48E-04	4.90E-04	1.96E-04	3.72E-04	3.74E-04	1.98E-04	9.07E-04	2.11E-04	1.96E-04
2,3,7,8-TCDD	2.77E-11	1.05E-11	2.66E-11	3.36E-11	2.68E-11	2.08E-12	1.44E-12	4.27E-12	2.10E-12	1.87E-12	2.59E-12	2.46E-12	2.15E-12	3.33E-12	4.70E-12	1.88E-12	3.57E-12	3.58E-12	1.90E-12	8.69E-12	2.02E-12	1.88E-12
2,3,7,8-TCDF	1.37E-09	5.18E-10	1.31E-09	1.66E-09	1.32E-09	1.03E-10	7.13E-11	2.11E-10	1.04E-10	9.25E-11	1.28E-10	1.22E-10	1.06E-10	1.64E-10	2.32E-10	9.28E-11	1.76E-10	1.77E-10	9.36E-11	4.29E-10	9.96E-11	9.29E-11
1,1,2,2-Tetrachloroethane	4.79E-04	1.82E-04	4.60E-04	5.81E-04	4.64E-04	3.60E-05	2.50E-05	7.39E-05	3.63E-05	3.24E-05	4.47E-05	4.26E-05	3.71E-05	5.76E-05	8.12E-05	3.25E-05	6.17E-05	6.20E-05	3.28E-05	1.50E-04	3.49E-05	3.26E-05
Toluene	1.03E-01	3.90E-02	9.88E-02	1.25E-01	9.95E-02	7.72E-03	5.36E-03	1.59E-02	7.80E-03	6.96E-03	9.60E-03	9.14E-03	7.97E-03	1.24E-02	1.74E-02	6.98E-03	1.32E-02	1.33E-02	7.04E-03	3.23E-02	7.50E-03	6.99E-03
1,1,2-Trichloroethane	6.34E-04	2.41E-04	6.10E-04	7.70E-04	6.14E-04	4.77E-05	3.31E-05	9.80E-05	4.82E-05	4.30E-05	5.93E-05	5.64E-05	4.92E-05	7.64E-05	1.08E-04	4.31E-05	8.17E-05	8.21E-05	4.34E-05	1.99E-04	4.63E-05	4.31E-05
Trichloroethylene	5.00E-04	1.90E-04	4.81E-04	6.07E-04	4.84E-04	3.76E-05	2.61E-05	7.72E-05	3.80E-05	3.39E-05	4.67E-05	4.45E-05	3.88E-05	6.02E-05	8.48E-05	3.40E-05	6.44E-05	6.47E-05	3.43E-05	1.57E-04	3.65E-05	3.40E-05
Vanadium	1.55E-03	1.58E-03	3.19E-03	1.83E-03	3.20E-03	2.99E-04	1.79E-04	6.01E-04	2.10E-04	2.27E-04	2.44E-04	2.94E-04	2.81E-04	4.36E-04	3.94E-04	1.85E-04	4.27E-04	4.66E-04	2.41E-04	9.29E-04	2.76E-04	1.85E-04
Vinyl chloride	1.69E-03	6.40E-04	1.62E-03	2.05E-03	1.63E-03	1.27E-04	8.80E-05	2.60E-04	1.28E-04	1.14E-04	1.58E-04	1.50E-04	1.31E-04	2.03E-04	2.86E-04	1.15E-04	2.17E-04	2.18E-04	1.16E-04	5.30E-04	1.23E-04	1.15E-04
Vinylidene chloride	4.62E-04	1.75E-04	4.44E-04	5.61E-04	4.48E-04	3.47E-05	2.41E-05	7.14E-05	3.51E-05	3.13E-05	4.32E-05	4.11E-05	3.58E-05	5.56E-05	7.84E-05	3.14E-05	5.95E-05	5.98E-05	3.16E-05	1.45E-04	3.37E-05	3.14E-05
o-Xylene	1.62E-02	6.13E-03	1.55E-02	1.96E-02	1.56E-02	1.21E-03	8.43E-04	2.49E-03	1.23E-03	1.09E-03	1.51E-03	1.44E-03	1.25E-03	1.95E-03	2.74E-03	1.10E-03	2.08E-03	2.09E-03	1.11E-03	5.08E-03	1.18E-03	1.10E-03
Xylenes (mixed)	8.25E-02	3.13E-02	7.93E-02	1.00E-01	7.99E-02	6.20E-03	4.30E-03	1.27E-02	6.26E-03	5.58E-03	7.70E-03	7.34E-03	6.39E-03	9.93E-03	1.40E-02	5.60E-03	1.06E-02	1.07E-02	5.65E-03	2.59E-02	6.01E-03	5.61E-03

TABLE 8A
SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - 2008 CEIR
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																				
Chemical	12361 School	12362 School	12363 School	12364 School	12365 School	12366 School	12367 School	12368 School	12369 School	12370 School	12371 School	12372 School	10992 School	12373 School	12374 School	12375 School	12376 School	12377 School	10958 School	12378 School	12379 School	12380 School
Acetaldehyde	1.68E-03	1.39E-03	1.14E-03	8.12E-04	1.01E-03	1.08E-03	1.15E-03	2.50E-03	6.35E-04	9.08E-04	8.95E-04	1.07E-03	2.16E-03	6.93E-04	6.75E-04	1.17E-03	8.65E-04	1.57E-03	1.66E-03	8.67E-04	1.87E-03	1.44E-03
Acrolein	6.51E-05	5.39E-05	4.40E-05	3.14E-05	3.91E-05	4.17E-05	4.45E-05	9.68E-05	2.46E-05	3.51E-05	3.47E-05	4.16E-05	8.36E-05	2.68E-05	2.61E-05	4.51E-05	3.35E-05	6.09E-05	6.41E-05	3.36E-05	7.25E-05	5.56E-05
Arsenic	7.02E-06	5.54E-06	4.59E-06	3.43E-06	3.94E-06	4.22E-06	4.34E-06	7.77E-06	2.74E-06	5.08E-06	2.68E-06	4.81E-06	9.74E-06	2.75E-06	2.72E-06	5.04E-06	2.51E-06	7.61E-06	7.71E-06	3.69E-06	1.04E-05	5.95E-06
Benz(a)anthracene	1.90E-08	1.57E-08	1.28E-08	9.17E-09	1.14E-08	1.22E-08	1.30E-08	2.82E-08	7.17E-09	1.03E-08	1.01E-08	1.21E-08	2.44E-08	7.82E-09	7.62E-09	1.32E-08	9.77E-09	1.78E-08	1.87E-08	9.80E-09	2.11E-08	1.62E-08
Benzene	1.40E-02	1.16E-02	9.46E-03	6.76E-03	8.39E-03	8.96E-03	9.56E-03	2.08E-02	5.28E-03	7.55E-03	7.45E-03	8.93E-03	1.80E-02	5.76E-03	5.61E-03	9.70E-03	7.20E-03	1.31E-02	1.38E-02	7.22E-03	1.56E-02	1.20E-02
Benzo(a)pyrene	4.28E-10	3.54E-10	2.89E-10	2.07E-10	2.57E-10	2.74E-10	2.92E-10	6.36E-10	1.61E-10	2.31E-10	2.28E-10	2.73E-10	5.49E-10	1.76E-10	1.72E-10	2.96E-10	2.20E-10	4.00E-10	4.21E-10	2.21E-10	4.76E-10	3.65E-10
Benzo(b)fluoranthene	2.71E-09	2.25E-09	1.83E-09	1.31E-09	1.63E-09	1.74E-09	1.85E-09	4.03E-09	1.02E-09	1.46E-09	1.44E-09	1.73E-09	3.48E-09	1.12E-09	1.09E-09	1.88E-09	1.39E-09	2.53E-09	2.67E-09	1.40E-09	3.02E-09	2.32E-09
Benzo(k)fluoranthene	4.28E-10	3.54E-10	2.89E-10	2.07E-10	2.57E-10	2.74E-10	2.92E-10	6.36E-10	1.61E-10	2.31E-10	2.28E-10	2.73E-10	5.49E-10	1.76E-10	1.72E-10	2.96E-10	2.20E-10	4.00E-10	4.21E-10	2.21E-10	4.76E-10	3.65E-10
Benzyl chloride	1.46E-04	1.21E-04	9.91E-05	7.07E-05	8.79E-05	9.38E-05	1.00E-04	2.18E-04	5.53E-05	7.91E-05	7.80E-05	9.35E-05	1.88E-04	6.03E-05	5.87E-05	1.02E-04	7.53E-05	1.37E-04	1.44E-04	7.55E-05	1.63E-04	1.25E-04
Beryllium	1.98E-06	1.59E-06	1.31E-06	9.73E-07	1.13E-06	1.20E-06	1.26E-06	2.30E-06	7.72E-07	1.41E-06	8.05E-07	1.37E-06	2.76E-06	7.83E-07	7.75E-07	1.43E-06	7.56E-07	2.14E-06	2.17E-06	1.04E-06	2.94E-06	1.70E-06
1,3-Butadiene	1.33E-04	1.10E-04	9.00E-05	6.43E-05	7.99E-05	8.52E-05	9.10E-05	1.98E-04	5.02E-05	7.19E-05	7.09E-05	8.50E-05	1.71E-04	5.48E-05	5.34E-05	9.23E-05	6.85E-05	1.24E-04	1.31E-04	6.86E-05	1.48E-04	1.14E-04
Cadmium	3.17E-06	2.53E-06	2.10E-06	1.56E-06	1.80E-06	1.91E-06	1.99E-06	3.53E-06	1.24E-06	2.35E-06	1.23E-06	2.22E-06	4.51E-06	1.25E-06	1.24E-06	2.32E-06	1.15E-06	3.52E-06	3.52E-06	1.68E-06	4.92E-06	2.71E-06
Carbon tetrachloride	8.93E-05	7.40E-05	6.04E-05	4.31E-05	5.36E-05	5.72E-05	6.10E-05	1.33E-04	3.37E-05	4.82E-05	4.76E-05	5.70E-05	1.15E-04	3.68E-05	3.58E-05	6.19E-05	4.59E-05	8.35E-05	8.79E-05	4.61E-05	9.94E-05	7.63E-05
Chlorobenzene	8.03E-04	6.65E-04	5.43E-04	3.88E-04	4.82E-04	5.14E-04	5.49E-04	1.19E-03	3.03E-04	4.34E-04	4.28E-04	5.13E-04	1.03E-03	3.31E-04	3.22E-04	5.57E-04	4.13E-04	7.51E-04	7.91E-04	4.14E-04	8.94E-04	6.86E-04
Chloroform	4.16E-05	3.45E-05	2.81E-05	2.01E-05	2.50E-05	2.66E-05	2.84E-05	6.19E-05	1.57E-05	2.25E-05	2.22E-05	2.66E-05	5.34E-05	1.71E-05	1.67E-05	2.88E-05	2.14E-05	3.89E-05	4.10E-05	2.15E-05	4.63E-05	3.56E-05
Chromium VI	6.87E-06	5.19E-06	4.13E-06	3.19E-06	3.53E-06	3.95E-06	3.85E-06	7.30E-06	2.54E-06	4.61E-06	2.31E-06	4.33E-06	8.67E-06	2.50E-06	2.47E-06	4.56E-06	2.17E-06	6.83E-06	7.44E-06	3.39E-06	8.69E-06	5.67E-06
Chrysene	5.60E-08	4.64E-08	3.79E-08	2.70E-08	3.36E-08	3.58E-08	3.82E-08	8.32E-08	2.11E-08	3.02E-08	2.98E-08	3.57E-08	7.19E-08	2.30E-08	2.24E-08	3.88E-08	2.88E-08	5.23E-08	5.51E-08	2.89E-08	6.23E-08	4.78E-08
Copper	5.15E-05	4.10E-05	3.40E-05	2.54E-05	2.91E-05	3.08E-05	3.21E-05	5.57E-05	2.03E-05	3.89E-05	1.93E-05	3.63E-05	7.36E-05	2.02E-05	2.01E-05	3.77E-05	1.80E-05	5.78E-05	5.78E-05	2.74E-05	8.16E-05	4.40E-05
Crystalline silica	5.09E-03	4.14E-03	3.44E-03	2.60E-03	2.92E-03	3.05E-03	3.23E-03	5.13E-03	2.08E-03	4.46E-03	1.85E-03	3.94E-03	7.71E-03	2.03E-03	2.05E-03	3.99E-03	1.69E-03	6.22E-03	5.94E-03	2.80E-03	9.56E-03	4.44E-03
Dibenz(a,h)anthracene	4.28E-10	3.54E-10	2.89E-10	2.07E-10	2.57E-10	2.74E-10	2.92E-10	6.36E-10	1.61E-10	2.31E-10	2.28E-10	2.73E-10	5.49E-10	1.76E-10	1.72E-10	2.96E-10	2.20E-10	4.00E-10	4.21E-10	2.21E-10	4.76E-10	3.65E-10
p-Dichlorobenzene	8.54E-05	7.07E-05	5.78E-05	4.12E-05	5.12E-05	5.47E-05	5.84E-05	1.27E-04	3.22E-05	4.61E-05	4.55E-05	5.45E-05	1.10E-04	3.52E-05	3.42E-05	5.92E-05	4.39E-05	7.98E-05	8.41E-05	4.40E-05	9.50E-05	7.30E-05
1,1-Dichloroethane	2.87E-05	2.38E-05	1.94E-05	1.39E-05	1.72E-05	1.84E-05	1.96E-05	4.27E-05	1.08E-05	1.55E-05	1.53E-05	1.83E-05	3.69E-05	1.18E-05	1.15E-05	1.99E-05	1.48E-05	2.68E-05	2.83E-05	1.48E-05	3.20E-05	2.45E-05
1,2-Dichloropropane	3.93E-05	3.25E-05	2.66E-05	1.90E-05	2.36E-05	2.52E-05	2.68E-05	5.84E-05	1.48E-05	2.12E-05	2.09E-05	2.51E-05	5.04E-05	1.62E-05	1.58E-05	2.72E-05	2.02E-05	3.67E-05	3.87E-05	2.03E-05	4.37E-05	3.36E-05
1,3-Dichloropropene	1.61E-04	1.33E-04	1.09E-04	7.77E-05	9.66E-05	1.03E-04	1.10E-04	2.39E-04	6.07E-05	8.69E-05	8.57E-05	1.03E-04	2.07E-04	6.63E-05	6.45E-05	1.12E-04	8.28E-05	1.50E-04	1.58E-04	8.30E-05	1.79E-04	1.37E-04
Diesel PM	1.40E-04	1.28E-04	8.89E-05	7.21E-05	7.62E-05	8.29E-05	8.60E-05	1.38E-04	5.37E-05	1.06E-04	4.95E-05	1.01E-04	2.11E-04	5.31E-05	5.55E-05	8.36E-05	4.52E-05	1.46E-04	1.59E-04	7.21E-05	2.09E-04	1.47E-04
Ethyl chloride	5.61E-05	4.65E-05	3.80E-05	2.71E-05	3.37E-05	3.59E-05	3.83E-05	8.34E-05	2.12E-05	3.03E-05	2.99E-05	3.58E-05	7.20E-05	2.31E-05	2.25E-05	3.89E-05	2.89E-05	5.25E-05	5.52E-05	2.89E-05	6.25E-05	4.79E-05
Ethylbenzene	1.39E-03	1.15E-03	9.41E-04	6.71E-04	8.34E-04	8.90E-04	9.50E-04	2.07E-03	5.25E-04	7.51E-04	7.40E-04	8.88E-04	1.79E-03	5.73E-04	5.58E-04	9.64E-04	7.15E-04	1.30E-03	1.37E-03	7.17E-04	1.55E-03	1.19E-03
Ethylene dibromide	8.73E-05	7.23E-05	5.90E-05	4.21E-05	5.24E-05	5.59E-05	5.96E-05	1.30E-04	3.29E-05	4.71E-05	4.65E-05	5.57E-05	1.12E-04	3.59E-05	3.50E-05	6.05E-05	4.49E-05	8.16E-05	8.59E-05	4.50E-05	9.71E-05	7.46E-05
Ethylene dichloride	3.45E-05	2.86E-05	2.33E-05	1.67E-05	2.07E-05	2.21E-05	2.36E-05	5.13E-05	1.30E-05	1.86E-05	1.84E-05	2.20E-05	4.43E-05	1.42E-05	1.38E-05	2.39E-05	1.77E-05	3.23E-05	3.40E-05	1.78E-05	3.84E-05	2.95E-05
Formaldehyde	9.15E-05	7.58E-05	6.19E-05	4.42E-05	5.49E-05	5.86E-05	6.25E-05	1.36E-04	3.45E-05	4.94E-05	4.87E-05	5.84E-05	1.17E-04	3.77E-05	3.67E-05	6.34E-05	4.71E-05	8.55E-05	9.01E-05	4.72E-05	1.02E-04	7.82E-05
1,2,3,4,6,7,8-HpCDD	1.40E-11	1.16E-11	9.44E-12	6.74E-12	8.38E-12	8.94E-12	9.54E-12	2.08E-11	5.27E-12	7.54E-12	7.43E-12	8.92E-12	1.79E-11	5.75E-12	5.60E-12	9.68E-12	7.18E-12	1.31E-11	1.37E-11	7.20E-12	1.55E-11	1.19E-11
1,2,3,4,6,7,8-HpCDF	6.77E-12	5.61E-12	4.58E-12	3.27E-12	4.06E-12	4.34E-12	4.63E-12	1.01E-11	2.56E-12	3.66E-12	3.61E-12	4.32E-12	8.69E-12	2.79E-12	2.72E-12	4.69E-12	3.48E-12	6.33E-12	6.66E-12	3.49E-12	7.54E-12	5.78E-12
1,2,3,4,7,8,9-HpCDF	1.74E-12	1.44E-12	1.18E-12	8.40E-13	1.04E-12	1.11E-12	1.19E-12	2.59E-12	6.57E-13	9.39E-13	9.26E-13	1.11E-12	2.23E-12	7.16E-13	6.98E-13	1.21E-12	8.95E-13	1.63E-12	1.71E-12	8.97E-13	1.94E-12	1.49E-12
1,2,3,4,7,8-HxCDD	3.90E-12	3.23E-12	2.64E-12	1.88E-12	2.34E-12	2.50E-12	2.67E-12	5.80E-12	1.47E-12	2.11E-12	2.08E-12	2.49E-12	5.01E-12	1.61E-12	1.56E-12	2.70E-12	2.01E-12	3.65E-12	3.84E-12	2.01E-12	4.34E-12	3.33E-12
1,2,3,4,7,8-HxCDF	5.90E-12	4.89E-12	3.99E-12	2.85E-12	3.54E-12	3.78E-12	4.03E-12	8.77E-12	2.23E-12	3.19E-12	3.14E-12	3.77E-12	7.58E-12	2.43E-12	2.37E-12	4.09E-12	3.04E-12	5.52E-12	5.81E-12	3.04E-12	6.57E-12	5.04E-12
1,2,3,6,7,8-HxCDD	3.84E-12	3.18E-12	2.60E-12	1.86E-12	2.31E-12	2.46E-12	2.63E-12	5.71E-12	1.45E-12	2.07E-12	2.05E-12	2.45E-12	4.93E-12	1.58E-12	1.54E-12	2.66E-12	1.98E-12	3.59E-12	3.78E-12	1.98E-12	4.28E-12	3.28E-12
1,2,3,6,7,8-HxCDF	5.52E-12	4.57E-12	3.74E-12	2.67E-12	3.31E-12	3.54E-12	3.77E-12	8.21E-12	2.09E-12	2.98E-12	2.94E-12	3.53E-12	7.09E-12	2.27E-12	2.22E-12	3.83E-12	2.84E-12	5.16E-12	5.44E-12	2.85E-12	6.15E-12	4.72E-12
1,2,3,7,8,9-HxCDD	3.99E-12	3.30E-12	2.70E-12	1.93E-12	2.39E-12	2.55E-12	2.72E-12	5.93E-12	1.51E-12	2.15E-12	2.12E-12	2.55E-12	5.12E-12	1.64E-12	1.60E-12	2.76E-12	2.05E-12	3.73E-12	3.92E-12	2.06E-12	4.44E-12	3.41E-12
1,2,3,7,8,9-HxCDF	1.86E-12	1.54E-12	1.26E-12	8.96E-13	1.11E-12	1.19E-12	1.27E-12	2.76E-12	7.01E-13	1.00E-12	9.88E-13	1.19E-12	2.38E-12	7.64E-13	7.44E-13	1.29E-12	9.55E-13	1.74E-12	1.83E-12	9.57E-13	2.07E-12	1.59E-12
2,3,4,6,7,8-HxCDF	3.39E-12	2.81E-12	2.29E-12	1.64E-12	2.04E-12	2.17E-12	2.32E-12	5.04E-12	1.28E-12	1.83E-12	1.81E-12	2.17E-12	4.36E-12	1.40E-12	1.36E-12	2.35E-12	1.75E-12	3.17E-12	3.34E-12	1.75E-12	3.78E-12	2.90E-12
Hydrochloric acid	1.55E-01	1.28E-01	1.05E-01	7.49E-02	9.31E-02	9.93E-02	1.06E-01	2.31E-01	5.86E-02	8.38E-02	8.26E-02	9.91E-02	1.99E-01	6.39E-02	6.22E-02	1.08E-01	7.98E-02	1.45E-01	1.53E-01	8.00E-02	1.73E-01	1.33E-01
Indeno(1,2,3-c,d)pyrene	3.18E-10	2.63E-10	2.15E-10	1.53E-10	1.91E-10	2.03E-10	2.17E-10	4.72E-10	1.20E-10	1.71E-10	1.69E-10	2.03E-10	4.08E-10	1.31E-10	1.27E-10	2.20E-10	1.63E-10	2.97E-10	3.13E-10	1.64E-10	3.53E-10	2.71E-10
Lead	5.64E-06	4.47E-06	3.65E-06	2.72E-06	3.14E-06	3.36E-06	3.47E-06	6.38E-06	2.16E-06	3.87E-06	2.18E-06	3.74E-06	7.65E-06	2.18E-06	2.15E-06	3.95E-06	2.04E-06	5.94E-06	6.18E-06	2.92E-06	7.90E-06	4.79E-06
Manganese	5.78E-06	4.79E-06	3.91E-06	2.79E-06	3.47E-06	3.70E-06	3.95E-06	8.60E-06	2.18E-06	3.12E-06	3.08E-06	3.69E-06	7.43E-06	2.38E-06	2.32E-06	4.01E-06	2.98E-06	5.41E-06	5.69E-06	2.98E-06	6.44E-06	4.94E-06
Mercury	8.43E-04	6.98E-04	5.70E-04	4.07E-04	5.06E-04	5.40E-04	5.76E-04	1.25E-03	3.18E-04	4.55E-04	4.49E-04	5.39E-04	1.08E-03	3.47E-04	3.38E-04	5.85E-04	4.34E-04	7.89E-04	8.30E-04	4.35E-04	9.39E-04	7.21E-04
Methyl bromide	9.06E-04	7.50E-04	6.13E-04	4.38E-04	5.44E-04	5.80E-04	6.19E-04	1.35E-03	3.42E-04	4.89E-04	4.82E-04	5.79E-04	1.16E-03	3.73E-04	3.63E-04	6.28E-04	4.66E-04	8.47E-04	8.92E-04	4.67E-04	1.01E-03	7.74E-04

TABLE 8A
SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - 2008 CEIR
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																				
Chemical	12361 School	12362 School	12363 School	12364 School	12365 School	12366 School	12367 School	12368 School	12369 School	12370 School	12371 School	12372 School	10992 School	12373 School	12374 School	12375 School	12376 School	12377 School	10958 School	12378 School	12379 School	12380 School
Methyl chloroform (1,1,1-trichloroethane)	4.65E-05	3.85E-05	3.15E-05	2.25E-05	2.79E-05	2.98E-05	3.18E-05	6.92E-05	1.76E-05	2.51E-05	2.48E-05	2.97E-05	5.98E-05	1.92E-05	1.87E-05	3.23E-05	2.39E-05	4.35E-05	4.58E-05	2.40E-05	5.18E-05	3.98E-05
Methylene chloride	1.87E-04	1.55E-04	1.27E-04	9.03E-05	1.12E-04	1.20E-04	1.28E-04	2.78E-04	7.06E-05	1.01E-04	9.96E-05	1.19E-04	2.40E-04	7.70E-05	7.50E-05	1.30E-04	9.62E-05	1.75E-04	1.84E-04	9.65E-05	2.08E-04	1.60E-04
Naphthalene	2.02E-04	1.67E-04	1.36E-04	9.73E-05	1.21E-04	1.29E-04	1.38E-04	3.00E-04	7.61E-05	1.09E-04	1.07E-04	1.29E-04	2.59E-04	8.30E-05	8.08E-05	1.40E-04	1.04E-04	1.88E-04	1.98E-04	1.04E-04	2.24E-04	1.72E-04
Nickel	1.48E-04	1.20E-04	9.76E-05	7.33E-05	8.45E-05	9.09E-05	9.35E-05	1.69E-04	5.80E-05	1.05E-04	6.01E-05	1.01E-04	2.00E-04	5.92E-05	5.83E-05	1.06E-04	5.65E-05	1.56E-04	1.61E-04	7.81E-05	2.12E-04	1.28E-04
1,2,3,4,6,7,8,9-OCDD	2.93E-11	2.43E-11	1.98E-11	1.41E-11	1.76E-11	1.88E-11	2.00E-11	4.35E-11	1.11E-11	1.58E-11	1.56E-11	1.87E-11	3.76E-11	1.21E-11	1.17E-11	2.03E-11	1.51E-11	2.74E-11	2.88E-11	1.51E-11	3.26E-11	2.50E-11
1,2,3,4,6,7,8,9-OCDF	6.68E-12	5.54E-12	4.52E-12	3.23E-12	4.01E-12	4.28E-12	4.57E-12	9.94E-12	2.52E-12	3.61E-12	3.56E-12	4.27E-12	8.58E-12	2.75E-12	2.68E-12	4.63E-12	3.44E-12	6.25E-12	6.58E-12	3.45E-12	7.44E-12	5.71E-12
1,2,3,7,8-PeCDD	3.44E-12	2.85E-12	2.32E-12	1.66E-12	2.06E-12	2.20E-12	2.35E-12	5.11E-12	1.30E-12	1.86E-12	1.83E-12	2.19E-12	4.41E-12	1.42E-12	1.38E-12	2.38E-12	1.77E-12	3.21E-12	3.38E-12	1.77E-12	3.82E-12	2.94E-12
1,2,3,7,8-PeCDF	2.65E-11	2.20E-11	1.79E-11	1.28E-11	1.59E-11	1.70E-11	1.81E-11	3.94E-11	1.00E-11	1.43E-11	1.41E-11	1.69E-11	3.41E-11	1.09E-11	1.06E-11	1.84E-11	1.36E-11	2.48E-11	2.61E-11	1.37E-11	2.95E-11	2.27E-11
2,3,4,7,8-PeCDF	3.97E-11	3.29E-11	2.69E-11	1.92E-11	2.38E-11	2.54E-11	2.71E-11	5.91E-11	1.50E-11	2.14E-11	2.12E-11	2.54E-11	5.10E-11	1.64E-11	1.59E-11	2.75E-11	2.04E-11	3.71E-11	3.91E-11	2.05E-11	4.42E-11	3.39E-11
Perchloroethylene	7.70E-05	6.38E-05	5.21E-05	3.72E-05	4.62E-05	4.93E-05	5.26E-05	1.14E-04	2.91E-05	4.16E-05	4.10E-05	4.92E-05	9.88E-05	3.17E-05	3.09E-05	5.34E-05	3.96E-05	7.20E-05	7.58E-05	3.97E-05	8.57E-05	6.58E-05
Selenium	1.05E-05	8.56E-06	7.03E-06	5.14E-06	6.14E-06	6.55E-06	6.90E-06	1.37E-05	4.05E-06	6.81E-06	4.86E-06	7.09E-06	1.42E-05	4.25E-06	4.18E-06	7.52E-06	4.63E-06	1.08E-05	1.10E-05	5.50E-06	1.41E-05	8.98E-06
Styrene	3.52E-04	2.92E-04	2.38E-04	1.70E-04	2.11E-04	2.26E-04	2.41E-04	5.24E-04	1.33E-04	1.90E-04	1.88E-04	2.25E-04	4.52E-04	1.45E-04	1.41E-04	2.44E-04	1.81E-04	3.29E-04	3.47E-04	1.82E-04	3.92E-04	3.01E-04
2,3,7,8-TCDD	3.38E-12	2.80E-12	2.29E-12	1.63E-12	2.03E-12	2.16E-12	2.31E-12	5.02E-12	1.28E-12	1.82E-12	1.80E-12	2.16E-12	4.34E-12	1.39E-12	1.35E-12	2.34E-12	1.74E-12	3.16E-12	3.33E-12	1.74E-12	3.76E-12	2.89E-12
2,3,7,8-TCDF	1.67E-10	1.38E-10	1.13E-10	8.05E-11	1.00E-10	1.07E-10	1.14E-10	2.48E-10	6.29E-11	9.00E-11	8.88E-11	1.06E-10	2.14E-10	6.87E-11	6.69E-11	1.16E-10	8.58E-11	1.56E-10	1.64E-10	8.60E-11	1.86E-10	1.42E-10
1,1,2,2-Tetrachloroethane	5.84E-05	4.84E-05	3.95E-05	2.82E-05	3.51E-05	3.74E-05	3.99E-05	8.69E-05	2.21E-05	3.15E-05	3.11E-05	3.73E-05	7.50E-05	2.41E-05	2.34E-05	4.05E-05	3.01E-05	5.46E-05	5.75E-05	3.01E-05	6.50E-05	4.99E-05
Toluene	1.25E-02	1.04E-02	8.48E-03	6.06E-03	7.52E-03	8.03E-03	8.57E-03	1.86E-02	4.73E-03	6.77E-03	6.68E-03	8.01E-03	1.61E-02	5.16E-03	5.03E-03	8.69E-03	6.45E-03	1.17E-02	1.23E-02	6.47E-03	1.40E-02	1.07E-02
1,1,2-Trichloroethane	7.74E-05	6.41E-05	5.24E-05	3.74E-05	4.65E-05	4.96E-05	5.29E-05	1.15E-04	2.92E-05	4.18E-05	4.12E-05	4.94E-05	9.94E-05	3.19E-05	3.11E-05	5.37E-05	3.98E-05	7.24E-05	7.62E-05	3.99E-05	8.62E-05	6.61E-05
Trichloroethylene	6.10E-05	5.06E-05	4.13E-05	2.95E-05	3.66E-05	3.91E-05	4.17E-05	9.08E-05	2.30E-05	3.30E-05	3.25E-05	3.90E-05	7.84E-05	2.51E-05	2.45E-05	4.23E-05	3.14E-05	5.71E-05	6.01E-05	3.15E-05	6.79E-05	5.21E-05
Vanadium	4.37E-04	3.49E-04	2.82E-04	2.13E-04	2.44E-04	2.65E-04	2.68E-04	4.87E-04	1.68E-04	3.01E-04	1.69E-04	2.89E-04	5.83E-04	1.71E-04	1.68E-04	3.05E-04	1.59E-04	4.54E-04	4.72E-04	2.27E-04	5.97E-04	3.73E-04
Vinyl chloride	2.06E-04	1.71E-04	1.39E-04	9.94E-05	1.24E-04	1.32E-04	1.41E-04	3.06E-04	7.77E-05	1.11E-04	1.10E-04	1.31E-04	2.64E-04	8.48E-05	8.26E-05	1.43E-04	1.06E-04	1.92E-04	2.03E-04	1.06E-04	2.29E-04	1.76E-04
Vinylidene chloride	5.64E-05	4.67E-05	3.82E-05	2.72E-05	3.38E-05	3.61E-05	3.85E-05	8.39E-05	2.13E-05	3.04E-05	3.00E-05	3.60E-05	7.24E-05	2.32E-05	2.26E-05	3.91E-05	2.90E-05	5.27E-05	5.55E-05	2.91E-05	6.28E-05	4.82E-05
o-Xylene	1.97E-03	1.63E-03	1.33E-03	9.52E-04	1.18E-03	1.26E-03	1.35E-03	2.93E-03	7.44E-04	1.06E-03	1.05E-03	1.26E-03	2.53E-03	8.12E-04	7.91E-04	1.37E-03	1.01E-03	1.84E-03	1.94E-03	1.02E-03	2.19E-03	1.68E-03
Xylenes (mixed)	1.01E-02	8.33E-03	6.81E-03	4.86E-03	6.04E-03	6.44E-03	6.88E-03	1.50E-02	3.80E-03	5.43E-03	5.36E-03	6.43E-03	1.29E-02	4.14E-03	4.04E-03	6.98E-03	5.18E-03	9.41E-03	9.91E-03	5.19E-03	1.12E-02	8.60E-03

Note

1. Receptor identifier in the HARP model.

Abbreviations

MEIR = Maximum Exposed Individual Resident
MEIW = Maximum Exposed Individual Worker
PMI = Point of Maximum Impact
HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzofuran
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzofuran
OCDD = Octachlorodibenzo-p-dioxin
OCDF = Octachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzofuran

TABLE 8B

SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - CURRENT LOW PRODUCTION

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																					
	2085 [1]	10963	129	226	130	10979	10986	10987	10988	10989	10990	10991	10993	10994	10995	10996	12356	12357	12358	10957	10958	10992
Chemical	MEIR	MEIW	PMI	PMI	PMI	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Hospital	School	School	School
Acetaldehyde	7.97E-03	3.02E-03	7.66E-03	9.68E-03	7.72E-03	6.05E-04	5.41E-04	1.35E-03	1.03E-03	7.45E-04	9.60E-04	1.03E-03	5.99E-04	1.23E-03	7.09E-04	6.18E-04	4.16E-04	5.40E-04	5.46E-04	2.50E-03	9.58E-04	1.25E-03
Acrolein	3.10E-04	1.18E-04	2.98E-04	3.77E-04	3.00E-04	2.35E-05	2.11E-05	5.26E-05	3.99E-05	2.90E-05	3.73E-05	4.01E-05	2.33E-05	4.79E-05	2.76E-05	2.40E-05	1.62E-05	2.10E-05	2.12E-05	9.74E-05	3.72E-05	4.86E-05
Arsenic	1.58E-05	1.59E-05	3.06E-05	1.98E-05	3.07E-05	2.07E-06	1.79E-06	3.87E-06	4.21E-06	2.36E-06	4.27E-06	4.70E-06	3.08E-06	6.05E-06	3.12E-06	2.99E-06	1.77E-06	2.20E-06	2.43E-06	8.99E-06	4.71E-06	5.94E-06
Benz(a)anthracene	9.03E-08	3.42E-08	8.68E-08	1.10E-07	8.75E-08	6.85E-09	6.13E-09	1.53E-08	1.16E-08	8.44E-09	1.09E-08	1.17E-08	6.79E-09	1.39E-08	8.03E-09	7.00E-09	4.71E-09	6.11E-09	6.18E-09	2.84E-08	1.08E-08	1.41E-08
Benzene	6.65E-02	2.52E-02	6.39E-02	8.08E-02	6.44E-02	5.05E-03	4.52E-03	1.13E-02	8.57E-03	6.22E-03	8.01E-03	8.61E-03	5.00E-03	1.03E-02	5.92E-03	5.16E-03	3.47E-03	4.51E-03	4.56E-03	2.09E-02	7.99E-03	1.04E-02
Benzo(a)pyrene	2.03E-09	7.70E-10	1.95E-09	2.47E-09	1.97E-09	1.54E-10	1.38E-10	3.45E-10	2.62E-10	1.90E-10	2.45E-10	2.63E-10	1.53E-10	3.14E-10	1.81E-10	1.57E-10	1.06E-10	1.38E-10	1.39E-10	6.38E-10	2.44E-10	3.18E-10
Benzo(b)fluoranthene	1.28E-08	4.87E-09	1.23E-08	1.56E-08	1.24E-08	9.74E-10	8.71E-10	2.18E-09	1.65E-09	1.20E-09	1.54E-09	1.66E-09	9.64E-10	1.98E-09	1.14E-09	9.94E-10	6.69E-10	8.69E-10	8.79E-10	4.03E-09	1.54E-09	2.01E-09
Benzo(k)fluoranthene	2.03E-09	7.70E-10	1.95E-09	2.47E-09	1.97E-09	1.54E-10	1.38E-10	3.45E-10	2.62E-10	1.90E-10	2.45E-10	2.63E-10	1.53E-10	3.14E-10	1.81E-10	1.57E-10	1.06E-10	1.38E-10	1.39E-10	6.38E-10	2.44E-10	3.18E-10
Benzyl chloride	6.97E-04	2.64E-04	6.70E-04	8.47E-04	6.75E-04	5.29E-05	4.74E-05	1.18E-04	8.98E-05	6.52E-05	8.40E-05	9.03E-05	5.24E-05	1.08E-04	6.20E-05	5.41E-05	3.64E-05	4.72E-05	4.78E-05	2.19E-04	8.38E-05	1.09E-04
Beryllium	5.36E-06	4.68E-06	9.63E-06	6.82E-06	9.70E-06	6.37E-07	5.53E-07	1.23E-06	1.26E-06	7.36E-07	1.27E-06	1.40E-06	9.02E-07	1.78E-06	9.46E-07	8.97E-07	5.22E-07	6.54E-07	7.19E-07	2.75E-06	1.39E-06	1.76E-06
1,3-Butadiene	6.33E-04	2.40E-04	6.09E-04	7.69E-04	6.13E-04	4.81E-05	4.30E-05	1.07E-04	8.16E-05	5.92E-05	7.62E-05	8.20E-05	4.76E-05	9.78E-05	5.63E-05	4.91E-05	3.30E-05	4.29E-05	4.34E-05	1.99E-04	7.61E-05	9.92E-05
Cadmium	7.60E-06	7.57E-06	1.45E-05	9.63E-06	1.46E-05	9.86E-07	8.52E-07	1.85E-06	1.98E-06	1.13E-06	2.02E-06	2.24E-06	1.47E-06	2.89E-06	1.52E-06	1.45E-06	8.30E-07	1.03E-06	1.15E-06	4.25E-06	2.23E-06	2.84E-06
Carbon tetrachloride	4.24E-04	1.61E-04	4.08E-04	5.15E-04	4.11E-04	3.22E-05	2.88E-05	7.20E-05	5.46E-05	3.96E-05	5.11E-05	5.49E-05	3.19E-05	6.55E-05	3.77E-05	3.29E-05	2.21E-05	2.87E-05	2.90E-05	1.33E-04	5.09E-05	6.65E-05
Chlorobenzene	3.81E-03	1.45E-03	3.67E-03	4.63E-03	3.69E-03	2.89E-04	2.59E-04	6.47E-04	4.91E-04	3.56E-04	4.59E-04	4.94E-04	2.87E-04	5.89E-04	3.39E-04	2.96E-04	1.99E-04	2.58E-04	2.61E-04	1.20E-03	4.58E-04	5.98E-04
Chloroform	1.97E-04	7.48E-05	1.90E-04	2.39E-04	1.91E-04	1.50E-05	1.34E-05	3.35E-05	2.54E-05	1.84E-05	2.37E-05	2.55E-05	1.48E-05	3.05E-05	1.75E-05	1.53E-05	1.03E-05	1.34E-05	1.35E-05	6.19E-05	2.37E-05	3.09E-05
Chromium VI	1.28E-05	1.38E-05	2.77E-05	1.66E-05	2.77E-05	1.79E-06	1.53E-06	3.37E-06	3.89E-06	1.98E-06	3.97E-06	4.34E-06	2.70E-06	5.42E-06	2.41E-06	2.35E-06	1.58E-06	2.00E-06	2.15E-06	8.66E-06	4.50E-06	5.24E-06
Chrysene	2.66E-07	1.01E-07	2.56E-07	3.23E-07	2.58E-07	2.02E-08	1.81E-08	4.51E-08	3.43E-08	2.49E-08	3.20E-08	3.44E-08	2.00E-08	4.11E-08	2.37E-08	2.06E-08	1.39E-08	1.80E-08	1.82E-08	8.36E-08	3.20E-08	4.17E-08
Copper	1.13E-04	1.25E-04	2.34E-04	1.47E-04	2.35E-04	1.58E-05	1.36E-05	2.91E-05	3.22E-05	1.79E-05	3.31E-05	3.68E-05	2.43E-05	4.76E-05	2.49E-05	2.40E-05	1.36E-05	1.68E-05	1.88E-05	6.86E-05	3.68E-05	4.66E-05
Crystalline silica	1.02E-02	1.40E-02	2.44E-02	1.49E-02	2.46E-02	1.79E-03	1.51E-03	3.13E-03	3.61E-03	1.99E-03	3.80E-03	4.30E-03	3.01E-03	5.53E-03	3.17E-03	3.09E-03	1.55E-03	1.89E-03	2.24E-03	7.55E-03	4.31E-03	5.49E-03
Dibenz(a,h)anthracene	2.03E-09	7.70E-10	1.95E-09	2.47E-09	1.97E-09	1.54E-10	1.38E-10	3.45E-10	2.62E-10	1.90E-10	2.45E-10	2.63E-10	1.53E-10	3.14E-10	1.81E-10	1.57E-10	1.06E-10	1.38E-10	1.39E-10	6.38E-10	2.44E-10	3.18E-10
p-Dichlorobenzene	4.06E-04	1.54E-04	3.91E-04	4.93E-04	3.94E-04	3.08E-05	2.76E-05	6.89E-05	5.23E-05	3.80E-05	4.89E-05	5.26E-05	3.05E-05	6.27E-05	3.61E-05	3.15E-05	2.12E-05	2.75E-05	2.78E-05	1.28E-04	4.88E-05	6.37E-05
1,1-Dichloroethane	1.37E-04	5.18E-05	1.31E-04	1.66E-04	1.32E-04	1.04E-05	9.28E-06	2.32E-05	1.76E-05	1.28E-05	1.64E-05	1.77E-05	1.03E-05	2.11E-05	1.22E-05	1.06E-05	7.13E-06	9.25E-06	9.36E-06	4.29E-05	1.64E-05	2.14E-05
1,2-Dichloropropane	1.87E-04	7.07E-05	1.79E-04	2.27E-04	1.81E-04	1.42E-05	1.27E-05	3.16E-05	2.40E-05	1.74E-05	2.25E-05	2.41E-05	1.40E-05	2.88E-05	1.66E-05	1.45E-05	9.73E-06	1.26E-05	1.28E-05	5.86E-05	2.24E-05	2.92E-05
1,3-Dichloropropene	7.66E-04	2.91E-04	7.37E-04	9.31E-04	7.42E-04	5.82E-05	5.20E-05	1.30E-04	9.87E-05	7.16E-05	9.22E-05	9.92E-05	5.76E-05	1.18E-04	6.82E-05	5.94E-05	4.00E-05	5.19E-05	5.25E-05	2.41E-04	9.20E-05	1.20E-04
Diesel PM	4.11E-04	5.21E-04	1.08E-03	6.41E-04	1.08E-03	6.62E-05	5.65E-05	1.20E-04	1.30E-04	7.45E-05	1.40E-04	1.59E-04	1.01E-04	1.76E-04	9.32E-05	9.24E-05	5.59E-05	7.00E-05	7.75E-05	2.85E-04	1.59E-04	2.11E-04
Ethyl chloride	2.67E-04	1.01E-04	2.57E-04	3.25E-04	2.59E-04	2.03E-05	1.82E-05	4.53E-05	3.44E-05	2.50E-05	3.22E-05	3.46E-05	2.01E-05	4.13E-05	2.38E-05	2.07E-05	1.39E-05	1.81E-05	1.83E-05	8.40E-05	3.21E-05	4.19E-05
Ethylbenzene	6.61E-03	2.51E-03	6.35E-03	8.02E-03	6.40E-03	5.01E-04	4.49E-04	1.12E-03	8.51E-04	6.17E-04	7.95E-04	8.55E-04	4.96E-04	1.02E-03	5.88E-04	5.12E-04	3.45E-04	4.47E-04	4.52E-04	2.07E-03	7.93E-04	1.03E-03
Ethylene dibromide	4.15E-04	1.57E-04	3.99E-04	5.04E-04	4.02E-04	3.15E-05	2.82E-05	7.03E-05	5.34E-05	3.87E-05	4.99E-05	5.37E-05	3.12E-05	6.40E-05	3.69E-05	3.21E-05	2.16E-05	2.81E-05	2.84E-05	1.30E-04	4.98E-05	6.50E-05
Ethylene dichloride	1.64E-04	6.22E-05	1.58E-04	1.99E-04	1.59E-04	1.24E-05	1.11E-05	2.78E-05	2.11E-05	1.53E-05	1.97E-05	2.12E-05	1.23E-05	2.53E-05	1.46E-05	1.27E-05	8.55E-06	1.11E-05	1.12E-05	5.15E-05	1.97E-05	2.57E-05
Formaldehyde	4.35E-04	1.65E-04	4.18E-04	5.28E-04	4.21E-04	3.30E-05	2.95E-05	7.38E-05	5.60E-05	4.06E-05	5.23E-05	5.63E-05	3.27E-05	6.71E-05	3.87E-05	3.37E-05	2.27E-05	2.94E-05	2.98E-05	1.37E-04	5.22E-05	6.81E-05
1,2,3,4,6,7,8-HpCDD	6.63E-11	2.51E-11	6.37E-11	8.05E-11	6.42E-11	5.03E-12	4.50E-12	1.12E-11	8.54E-12	6.19E-12	7.98E-12	8.58E-12	4.98E-12	1.02E-11	5.90E-12	5.14E-12	3.46E-12	4.49E-12	4.54E-12	2.08E-11	7.96E-12	1.04E-11
1,2,3,4,6,7,8-HpCDF	3.22E-11	1.22E-11	3.09E-11	3.91E-11	3.12E-11	2.44E-12	2.19E-12	5.46E-12	4.15E-12	3.01E-12	3.88E-12	4.17E-12	2.42E-12	4.97E-12	2.86E-12	2.50E-12	1.68E-12	2.18E-12	2.20E-12	1.01E-11	3.87E-12	5.04E-12
1,2,3,4,7,8,9-HpCDF	8.29E-12	3.14E-12	7.97E-12	1.01E-11	8.03E-12	6.29E-13	5.63E-13	1.41E-12	1.07E-12	7.75E-13	9.98E-13	1.07E-12	6.23E-13	1.28E-12	7.38E-13	6.43E-13	4.33E-13	5.62E-13	5.68E-13	2.60E-12	9.96E-13	1.30E-12
1,2,3,4,7,8-HxCDD	1.85E-11	7.03E-12	1.78E-11	2.25E-11	1.80E-11	1.41E-12	1.26E-12	3.14E-12	2.39E-12	1.73E-12	2.23E-12	2.40E-12	1.39E-12	2.86E-12	1.65E-12	1.44E-12	9.67E-13	1.26E-12	1.27E-12	5.82E-12	2.23E-12	2.90E-12
1,2,3,4,7,8-HxCDF	2.80E-11	1.06E-11	2.70E-11	3.40E-11	2.72E-11	2.13E-12	1.90E-12	4.76E-12	3.61E-12	2.62E-12	3.38E-12	3.63E-12	2.11E-12	4.33E-12	2.49E-12	2.17E-12	1.46E-12	1.90E-12	1.92E-12	8.81E-12	3.37E-12	4.39E-12
1,2,3,6,7,8-HxCDD	1.83E-11	6.94E-12	1.76E-11	2.22E-11	1.77E-11	1.39E-12	1.24E-12	3.10E-12	2.36E-12	1.71E-12	2.20E-12	2.37E-12	1.38E-12	2.82E-12	1.63E-12	1.42E-12	9.55E-13	1.24E-12	1.25E-12	5.75E-12	2.20E-12	2.87E-12
1,2,3,6,7,8-HxCDF	2.63E-11	9.96E-12	2.52E-11	3.19E-11	2.54E-11	1.99E-12	1.78E-12	4.45E-12	3.38E-12	2.45E-12	3.16E-12	3.40E-12	1.97E-12	4.05E-12	2.34E-12	2.04E-12	1.37E-12	1.78E-12	1.80E-12	8.25E-12	3.15E-12	4.11E-12
1,2,3,7,8,9-HxCDD	1.89E-11	7.16E-12	1.82E-11	2.29E-11	1.83E-11	1.43E-12	1.28E-12	3.20E-12	2.43E-12	1.77E-12	2.27E-12	2.44E-12	1.42E-12	2.92E-12	1.68E-12	1.46E-12	9.86E-13	1.28E-12	1.29E-12	5.93E-12	2.27E-12	2.96E-12
1,2,3,7,8,9-HxCDF	8.84E-12	3.35E-12	8.50E-12	1.07E-11	8.56E-12	6.71E-13	6.00E-13	1.50E-12	1.14E-12	8.26E-13	1.06E-12	1.14E-12	6.64E-13	1.36E-12	7.86E-13	6.85E-13	4.61E-13	5.99E-13	6.05E-13	2.78E-12	1.06E-12	1.38E-12
2,3,4,6,7,8-HxCDF	1.62E-11	6.13E-12	1.55E-11	1.96E-11	1.56E-11	1.23E-12	1.10E-12	2.74E-12	2.08E-12	1.51E-12	1.95E-12	2.09E-12	1.21E-12	2.49E-12	1.44E-12	1.25E-12	8.43E-13	1.09E-12	1.11E-12	5.08E-12	1.94E-12	2.53E-12
Hydrochloric acid	7.39E-01	2.80E-01	7.10E-01	8.97E-01	7.16E-01	5.61E-02	5.02E-02	1.25E-01	9.52E-02	6.90E-02	8.90E-02	9.56E-02	5.55E-02	1.14E-01	6.57E-02	5.73E-02	3.86E-02	5.00E-02	5.06E-02	2.32E-01	8.88E-02	1.16E-01
Indeno(1,2,3-c,d)pyrene	1.51E-09	5.72E-10	1.45E-09	1.83E-09	1.46E-09	1.15E-10	1.02E-10	2.56E-10	1.94E-10	1.41E-10	1.82E-10	1.95E-10	1.13E-10	2.33E-10	1.34E-10	1.17E-10	7.87E-11	1.02E-10	1.03E-10	4.74E-10	1.81E-10	2.36E-10
Lead	1.42E-05	1.30E-05	2.60E-05	1.85E-05	2.62E-05	1.72E-06	1.49E-06	3.31E-06	3.46E-06	1.97E-06	3.52E-06	3.89E-06	2.41E-06	4.93E-06	2.45E-06	2.34E-06	1.43E-06	1.80E-06	1.93E-06	7.67E-06	3.88E-06	4.78E-06
Manganese	2.76E-05	1.05E-05	2.65E-05	3.35E-05	2.67E-05	2.09E-06	1.87E-06	4.68E-06	3.55E-06	2.58E-06	3.32E-06	3.57E-06	2.07E-06	4.26E-06	2.45E-06	2.14E-06	1.44E-06	1.87E-06	1.89E-06	8.66E-06	3.31E-06	4.32E-06
Mercury	4.01E-03	1.52E-03	3.85E-03	4.86E-03	3.88E-03	3.04E-04	2.72E-04	6.80E-04	5.16E-04	3.74E-04	4.83E-04	5.19E-04	3.01E-04	6.19E-04	3.57E-04	3.11E-04	2.09E-04	2.71E-04	2.75E-04	1.26E-03	4.82E-04	6.28E-04
Methyl bromide	4.31E-03	1.64E-03	4.15E-03	5.24E-03	4.18E-03	3.27E-04	2.93E-04	7.32E-04	5.56E-04	4.03E-04	5.19E-04	5.58E-04	3.24E-04	6.66E-04	3.84E-04	3.34E-04	2.25E-04	2.92E-04	2.95E-04	1.35E-03	5.18E-04	6.76E-04

TABLE 8B

SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - CURRENT LOW PRODUCTION

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																					
	2085 [1]	10963	129	226	130	10979	10986	10987	10988	10989	10990	10991	10993	10994	10995	10996	12356	12357	12358	10957	10958	10992
Chemical	MEIR	MEIW	PMI	PMI	PMI	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Hospital	School	School	School
Methyl chloroform (1,1,1-trichloroethane)	2.21E-04	8.38E-05	2.12E-04	2.68E-04	2.14E-04	1.68E-05	1.50E-05	3.75E-05	2.85E-05	2.06E-05	2.66E-05	2.86E-05	1.66E-05	3.41E-05	1.97E-05	1.71E-05	1.15E-05	1.50E-05	1.51E-05	6.94E-05	2.65E-05	3.46E-05
Methylene chloride	8.89E-04	3.37E-04	8.54E-04	1.08E-03	8.61E-04	6.75E-05	6.03E-05	1.51E-04	1.14E-04	8.30E-05	1.07E-04	1.15E-04	6.68E-05	1.37E-04	7.91E-05	6.89E-05	4.64E-05	6.02E-05	6.09E-05	2.79E-04	1.07E-04	1.39E-04
Naphthalene	9.55E-04	3.62E-04	9.18E-04	1.16E-03	9.25E-04	7.25E-05	6.49E-05	1.62E-04	1.23E-04	8.93E-05	1.15E-04	1.24E-04	7.18E-05	1.47E-04	8.50E-05	7.40E-05	4.98E-05	6.47E-05	6.54E-05	3.00E-04	1.15E-04	1.50E-04
Nickel	3.42E-04	3.25E-04	6.58E-04	4.19E-04	6.61E-04	4.58E-05	4.03E-05	8.62E-05	9.03E-05	5.35E-05	9.25E-05	9.97E-05	6.50E-05	1.27E-04	6.62E-05	6.31E-05	3.83E-05	4.83E-05	5.19E-05	1.98E-04	1.00E-04	1.24E-04
1,2,3,4,6,7,8,9-OCDD	1.39E-10	5.27E-11	1.34E-10	1.69E-10	1.35E-10	1.06E-11	9.44E-12	2.36E-11	1.79E-11	1.30E-11	1.67E-11	1.80E-11	1.04E-11	2.15E-11	1.24E-11	1.08E-11	7.25E-12	9.41E-12	9.52E-12	4.37E-11	1.67E-11	2.18E-11
1,2,3,4,6,7,8,9-OCDF	3.17E-11	1.20E-11	3.05E-11	3.85E-11	3.07E-11	2.41E-12	2.15E-12	5.38E-12	4.09E-12	2.96E-12	3.82E-12	4.11E-12	2.38E-12	4.90E-12	2.82E-12	2.46E-12	1.66E-12	2.15E-12	2.17E-12	9.96E-12	3.81E-12	4.97E-12
1,2,3,7,8-PeCDD	1.64E-11	6.22E-12	1.58E-11	1.99E-11	1.59E-11	1.24E-12	1.11E-12	2.78E-12	2.11E-12	1.53E-12	1.97E-12	2.12E-12	1.23E-12	2.53E-12	1.46E-12	1.27E-12	8.55E-13	1.11E-12	1.12E-12	5.15E-12	1.97E-12	2.57E-12
1,2,3,7,8-PeCDF	1.26E-10	4.78E-11	1.21E-10	1.53E-10	1.22E-10	9.56E-12	8.55E-12	2.14E-11	1.62E-11	1.18E-11	1.52E-11	1.63E-11	9.47E-12	1.94E-11	1.12E-11	9.76E-12	6.57E-12	8.53E-12	8.62E-12	3.96E-11	1.51E-11	1.97E-11
2,3,4,7,8-PeCDF	1.89E-10	7.16E-11	1.82E-10	2.29E-10	1.83E-10	1.43E-11	1.28E-11	3.20E-11	2.43E-11	1.77E-11	2.27E-11	2.44E-11	1.42E-11	2.92E-11	1.68E-11	1.46E-11	9.86E-12	1.28E-11	1.29E-11	5.93E-11	2.27E-11	2.96E-11
Perchloroethylene	3.66E-04	1.39E-04	3.52E-04	4.44E-04	3.54E-04	2.78E-05	2.48E-05	6.21E-05	4.71E-05	3.42E-05	4.40E-05	4.74E-05	2.75E-05	5.65E-05	3.26E-05	2.84E-05	1.91E-05	2.48E-05	2.51E-05	1.15E-04	4.40E-05	5.73E-05
Selenium	3.77E-05	2.19E-05	4.78E-05	4.63E-05	4.81E-05	3.57E-06	3.14E-06	7.36E-06	6.55E-06	4.24E-06	6.40E-06	6.98E-06	4.39E-06	8.68E-06	4.83E-06	4.43E-06	2.71E-06	3.44E-06	3.67E-06	1.50E-05	6.74E-06	8.70E-06
Styrene	1.68E-03	6.35E-04	1.61E-03	2.03E-03	1.62E-03	1.27E-04	1.14E-04	2.84E-04	2.16E-04	1.57E-04	2.02E-04	2.17E-04	1.26E-04	2.59E-04	1.49E-04	1.30E-04	8.74E-05	1.13E-04	1.15E-04	5.26E-04	2.01E-04	2.62E-04
2,3,7,8-TCDD	1.60E-11	6.08E-12	1.54E-11	1.95E-11	1.55E-11	1.22E-12	1.09E-12	2.72E-12	2.07E-12	1.50E-12	1.93E-12	2.08E-12	1.21E-12	2.48E-12	1.43E-12	1.24E-12	8.37E-13	1.09E-12	1.10E-12	5.04E-12	1.93E-12	2.51E-12
2,3,7,8-TCDF	7.95E-10	3.01E-10	7.64E-10	9.65E-10	7.70E-10	6.03E-11	5.40E-11	1.35E-10	1.02E-10	7.43E-11	9.57E-11	1.03E-10	5.97E-11	1.23E-10	7.07E-11	6.16E-11	4.15E-11	5.38E-11	5.44E-11	2.50E-10	9.55E-11	1.25E-10
1,1,2,2-Tetrachloroethane	2.78E-04	1.05E-04	2.67E-04	3.38E-04	2.69E-04	2.11E-05	1.89E-05	4.72E-05	3.58E-05	2.60E-05	3.35E-05	3.60E-05	2.09E-05	4.29E-05	2.47E-05	2.15E-05	1.45E-05	1.88E-05	1.90E-05	8.73E-05	3.34E-05	4.36E-05
Toluene	5.95E-02	2.26E-02	5.72E-02	7.23E-02	5.77E-02	4.52E-03	4.04E-03	1.01E-02	7.67E-03	5.56E-03	7.17E-03	7.70E-03	4.47E-03	9.19E-03	5.30E-03	4.61E-03	3.11E-03	4.03E-03	4.08E-03	1.87E-02	7.15E-03	9.33E-03
1,1,2-Trichloroethane	3.68E-04	1.40E-04	3.54E-04	4.47E-04	3.57E-04	2.80E-05	2.50E-05	6.25E-05	4.75E-05	3.44E-05	4.43E-05	4.77E-05	2.77E-05	5.69E-05	3.28E-05	2.85E-05	1.92E-05	2.49E-05	2.52E-05	1.16E-04	4.42E-05	5.77E-05
Trichloroethylene	2.90E-04	1.10E-04	2.79E-04	3.52E-04	2.81E-04	2.20E-05	1.97E-05	4.92E-05	3.73E-05	2.71E-05	3.49E-05	3.75E-05	2.18E-05	4.48E-05	2.58E-05	2.25E-05	1.51E-05	1.96E-05	1.99E-05	9.11E-05	3.48E-05	4.54E-05
Vanadium	9.23E-04	9.56E-04	1.92E-03	1.10E-03	1.93E-03	1.26E-04	1.11E-04	2.36E-04	2.56E-04	1.46E-04	2.62E-04	2.81E-04	1.80E-04	3.62E-04	1.77E-04	1.69E-04	1.08E-04	1.36E-04	1.45E-04	5.59E-04	2.85E-04	3.51E-04
Vinyl chloride	9.78E-04	3.71E-04	9.40E-04	1.19E-03	9.47E-04	7.42E-05	6.64E-05	1.66E-04	1.26E-04	9.14E-05	1.18E-04	1.27E-04	7.35E-05	1.51E-04	8.70E-05	7.58E-05	5.10E-05	6.62E-05	6.70E-05	3.07E-04	1.17E-04	1.53E-04
Vinylidene chloride	2.67E-04	1.01E-04	2.57E-04	3.25E-04	2.59E-04	2.03E-05	1.82E-05	4.53E-05	3.44E-05	2.50E-05	3.22E-05	3.46E-05	2.01E-05	4.13E-05	2.38E-05	2.07E-05	1.39E-05	1.81E-05	1.83E-05	8.40E-05	3.21E-05	4.19E-05
o-Xylene	9.37E-03	3.55E-03	9.01E-03	1.14E-02	9.08E-03	7.12E-04	6.36E-04	1.59E-03	1.21E-03	8.76E-04	1.13E-03	1.21E-03	7.05E-04	1.45E-03	8.34E-04	7.27E-04	4.89E-04	6.35E-04	6.42E-04	2.94E-03	1.13E-03	1.47E-03
Xylenes (mixed)	4.79E-02	1.82E-02	4.60E-02	5.81E-02	4.64E-02	3.63E-03	3.25E-03	8.12E-03	6.17E-03	4.47E-03	5.76E-03	6.20E-03	3.60E-03	7.39E-03	4.26E-03	3.71E-03	2.50E-03	3.24E-03	3.28E-03	1.50E-02	5.75E-03	7.50E-03

TABLE 8B

SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - CURRENT LOW PRODUCTION

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																					
	12359	12360	12361	12362	12363	12364	12365	12366	12367	12368	12369	12370	12371	12372	12373	12374	12375	12376	12377	12378	12379	12380
Chemical	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School
Acetaldehyde	5.81E-04	5.42E-04	9.73E-04	8.06E-04	6.58E-04	4.70E-04	5.84E-04	6.23E-04	6.65E-04	1.45E-03	3.67E-04	5.25E-04	5.18E-04	6.21E-04	4.01E-04	3.90E-04	6.74E-04	5.00E-04	9.10E-04	5.02E-04	1.08E-03	8.31E-04
Acrolein	2.26E-05	2.11E-05	3.78E-05	3.13E-05	2.56E-05	1.83E-05	2.27E-05	2.42E-05	2.59E-05	5.63E-05	1.43E-05	2.04E-05	2.01E-05	2.42E-05	1.56E-05	1.52E-05	2.62E-05	1.95E-05	3.54E-05	1.95E-05	4.21E-05	3.23E-05
Arsenic	2.81E-06	1.79E-06	4.27E-06	3.38E-06	2.79E-06	2.09E-06	2.40E-06	2.56E-06	2.64E-06	4.71E-06	1.67E-06	3.11E-06	1.62E-06	2.94E-06	1.67E-06	1.65E-06	3.07E-06	1.52E-06	4.65E-06	2.25E-06	6.40E-06	3.63E-06
Benz(a)anthracene	6.59E-09	6.14E-09	1.10E-08	9.13E-09	7.45E-09	5.32E-09	6.61E-09	7.06E-09	7.53E-09	1.64E-08	4.16E-09	5.95E-09	5.87E-09	7.04E-09	4.54E-09	4.42E-09	7.64E-09	5.67E-09	1.03E-08	5.68E-09	1.23E-08	9.41E-09
Benzene	4.85E-03	4.52E-03	8.12E-03	6.72E-03	5.49E-03	3.92E-03	4.87E-03	5.20E-03	5.55E-03	1.21E-02	3.06E-03	4.38E-03	4.32E-03	5.18E-03	3.34E-03	3.26E-03	5.63E-03	4.18E-03	7.59E-03	4.19E-03	9.04E-03	6.94E-03
Benzo(a)pyrene	1.48E-10	1.38E-10	2.48E-10	2.05E-10	1.68E-10	1.20E-10	1.49E-10	1.59E-10	1.69E-10	3.69E-10	9.36E-11	1.34E-10	1.32E-10	1.58E-10	1.02E-10	9.94E-11	1.72E-10	1.28E-10	2.32E-10	1.28E-10	2.76E-10	2.12E-10
Benzo(b)fluoranthene	9.36E-10	8.73E-10	1.57E-09	1.30E-09	1.06E-09	7.56E-10	9.39E-10	1.00E-09	1.07E-09	2.33E-09	5.91E-10	8.45E-10	8.34E-10	1.00E-09	6.45E-10	6.28E-10	1.09E-09	8.05E-10	1.46E-09	8.08E-10	1.74E-09	1.34E-09
Benzo(k)fluoranthene	1.48E-10	1.38E-10	2.48E-10	2.05E-10	1.68E-10	1.20E-10	1.49E-10	1.59E-10	1.69E-10	3.69E-10	9.36E-11	1.34E-10	1.32E-10	1.58E-10	1.02E-10	9.94E-11	1.72E-10	1.28E-10	2.32E-10	1.28E-10	2.76E-10	2.12E-10
Benzyl chloride	5.09E-05	4.74E-05	8.51E-05	7.05E-05	5.76E-05	4.11E-05	5.11E-05	5.45E-05	5.82E-05	1.27E-04	3.21E-05	4.59E-05	4.53E-05	5.43E-05	3.50E-05	3.41E-05	5.90E-05	4.38E-05	7.96E-05	4.39E-05	9.47E-05	7.27E-05
Beryllium	8.26E-07	5.53E-07	1.26E-06	1.01E-06	8.31E-07	6.16E-07	7.14E-07	7.59E-07	7.94E-07	1.44E-06	4.89E-07	8.98E-07	5.02E-07	8.67E-07	4.94E-07	4.90E-07	9.08E-07	4.71E-07	1.37E-06	6.62E-07	1.87E-06	1.08E-06
1,3-Butadiene	4.62E-05	4.31E-05	7.73E-05	6.40E-05	5.23E-05	3.73E-05	4.64E-05	4.95E-05	5.28E-05	1.15E-04	2.92E-05	4.17E-05	4.11E-05	4.93E-05	3.18E-05	3.10E-05	5.36E-05	3.98E-05	7.23E-05	3.99E-05	8.60E-05	6.60E-05
Cadmium	1.33E-06	8.53E-07	2.00E-06	1.60E-06	1.32E-06	9.83E-07	1.13E-06	1.20E-06	1.25E-06	2.20E-06	7.82E-07	1.48E-06	7.68E-07	1.40E-06	7.84E-07	7.78E-07	1.46E-06	7.17E-07	2.22E-06	1.06E-06	3.10E-06	1.71E-06
Carbon tetrachloride	3.09E-05	2.88E-05	5.18E-05	4.29E-05	3.50E-05	2.50E-05	3.11E-05	3.31E-05	3.54E-05	7.70E-05	1.95E-05	2.79E-05	2.76E-05	3.31E-05	2.13E-05	2.08E-05	3.59E-05	2.66E-05	4.84E-05	2.67E-05	5.76E-05	4.42E-05
Chlorobenzene	2.78E-04	2.59E-04	4.65E-04	3.85E-04	3.15E-04	2.25E-04	2.79E-04	2.98E-04	3.18E-04	6.92E-04	1.76E-04	2.51E-04	2.48E-04	2.97E-04	1.92E-04	1.87E-04	3.23E-04	2.39E-04	4.35E-04	2.40E-04	5.18E-04	3.98E-04
Chloroform	1.44E-05	1.34E-05	2.41E-05	1.99E-05	1.63E-05	1.16E-05	1.44E-05	1.54E-05	1.64E-05	3.58E-05	9.08E-06	1.30E-05	1.28E-05	1.54E-05	9.91E-06	9.65E-06	1.67E-05	1.24E-05	2.25E-05	1.24E-05	2.68E-05	2.06E-05
Chromium VI	2.49E-06	1.53E-06	4.14E-06	3.13E-06	2.49E-06	1.92E-06	2.13E-06	2.38E-06	2.33E-06	4.39E-06	1.53E-06	2.77E-06	1.39E-06	2.60E-06	1.51E-06	1.49E-06	2.74E-06	1.30E-06	4.12E-06	2.04E-06	5.24E-06	3.43E-06
Chrysene	1.94E-08	1.81E-08	3.25E-08	2.69E-08	2.20E-08	1.57E-08	1.95E-08	2.08E-08	2.22E-08	4.83E-08	1.23E-08	1.75E-08	1.73E-08	2.07E-08	1.34E-08	1.30E-08	2.25E-08	1.67E-08	3.04E-08	1.67E-08	3.61E-08	2.77E-08
Copper	2.20E-05	1.36E-05	3.27E-05	2.60E-05	2.16E-05	1.61E-05	1.84E-05	1.95E-05	2.03E-05	3.51E-05	1.28E-05	2.47E-05	1.22E-05	2.30E-05	1.28E-05	1.27E-05	2.38E-05	1.13E-05	3.67E-05	1.74E-05	5.17E-05	2.80E-05
Crystalline silica	2.66E-03	1.51E-03	3.69E-03	2.99E-03	2.47E-03	1.86E-03	2.09E-03	2.19E-03	2.31E-03	3.71E-03	1.49E-03	3.11E-03	1.32E-03	2.77E-03	1.45E-03	1.46E-03	2.82E-03	1.20E-03	4.42E-03	2.01E-03	6.65E-03	3.22E-03
Dibenz(a,h)anthracene	1.48E-10	1.38E-10	2.48E-10	2.05E-10	1.68E-10	1.20E-10	1.49E-10	1.59E-10	1.69E-10	3.69E-10	9.36E-11	1.34E-10	1.32E-10	1.58E-10	1.02E-10	9.94E-11	1.72E-10	1.28E-10	2.32E-10	1.28E-10	2.76E-10	2.12E-10
p-Dichlorobenzene	2.96E-05	2.76E-05	4.96E-05	4.11E-05	3.35E-05	2.39E-05	2.98E-05	3.17E-05	3.39E-05	7.37E-05	1.87E-05	2.68E-05	2.64E-05	3.17E-05	2.04E-05	1.99E-05	3.44E-05	2.55E-05	4.64E-05	2.56E-05	5.52E-05	4.24E-05
1,1-Dichloroethane	9.96E-06	9.29E-06	1.67E-05	1.38E-05	1.13E-05	8.05E-06	1.00E-05	1.07E-05	1.14E-05	2.48E-05	6.29E-06	9.00E-06	8.88E-06	1.06E-05	6.87E-06	6.69E-06	1.16E-05	8.58E-06	1.56E-05	8.60E-06	1.86E-05	1.42E-05
1,2-Dichloropropane	1.36E-05	1.27E-05	2.28E-05	1.89E-05	1.54E-05	1.10E-05	1.37E-05	1.46E-05	1.56E-05	3.38E-05	8.59E-06	1.23E-05	1.21E-05	1.45E-05	9.37E-06	9.13E-06	1.58E-05	1.17E-05	2.13E-05	1.17E-05	2.53E-05	1.94E-05
1,3-Dichloropropene	5.59E-05	5.21E-05	9.35E-05	7.75E-05	6.33E-05	4.52E-05	5.61E-05	5.99E-05	6.39E-05	1.39E-04	3.53E-05	5.05E-05	4.98E-05	5.97E-05	3.85E-05	3.75E-05	6.48E-05	4.81E-05	8.74E-05	4.82E-05	1.04E-04	7.99E-05
Diesel PM	9.47E-05	5.65E-05	1.40E-04	1.28E-04	8.89E-05	7.21E-05	7.62E-05	8.29E-05	8.60E-05	1.38E-04	5.37E-05	1.06E-04	4.95E-05	1.01E-04	5.31E-05	5.55E-05	8.36E-05	4.52E-05	1.46E-04	7.21E-05	2.09E-04	1.47E-04
Ethyl chloride	1.95E-05	1.82E-05	3.26E-05	2.70E-05	2.21E-05	1.58E-05	1.96E-05	2.09E-05	2.23E-05	4.85E-05	1.23E-05	1.76E-05	1.74E-05	2.08E-05	1.34E-05	1.31E-05	2.26E-05	1.68E-05	3.05E-05	1.68E-05	3.63E-05	2.79E-05
Ethylbenzene	4.82E-04	4.49E-04	8.06E-04	6.68E-04	5.45E-04	3.89E-04	4.84E-04	5.16E-04	5.51E-04	1.20E-03	3.04E-04	4.35E-04	4.29E-04	5.15E-04	3.32E-04	3.23E-04	5.59E-04	4.15E-04	7.54E-04	4.16E-04	8.97E-04	6.89E-04
Ethylene dibromide	3.02E-05	2.82E-05	5.06E-05	4.19E-05	3.42E-05	2.44E-05	3.04E-05	3.24E-05	3.46E-05	7.52E-05	1.91E-05	2.73E-05	2.69E-05	3.23E-05	2.08E-05	2.03E-05	3.51E-05	2.60E-05	4.73E-05	2.61E-05	5.63E-05	4.32E-05
Ethylene dichloride	1.20E-05	1.12E-05	2.00E-05	1.66E-05	1.35E-05	9.66E-06	1.20E-05	1.28E-05	1.37E-05	2.97E-05	7.55E-06	1.08E-05	1.07E-05	1.28E-05	8.24E-06	8.02E-06	1.39E-05	1.03E-05	1.87E-05	1.03E-05	2.23E-05	1.71E-05
Formaldehyde	3.17E-05	2.96E-05	5.31E-05	4.39E-05	3.59E-05	2.56E-05	3.18E-05	3.40E-05	3.63E-05	7.89E-05	2.00E-05	2.86E-05	2.83E-05	3.39E-05	2.19E-05	2.13E-05	3.68E-05	2.73E-05	4.96E-05	2.74E-05	5.91E-05	4.53E-05
1,2,3,4,6,7,8-HpCDD	4.83E-12	4.51E-12	8.09E-12	6.70E-12	5.47E-12	3.91E-12	4.85E-12	5.18E-12	5.53E-12	1.20E-11	3.05E-12	4.37E-12	4.31E-12	5.17E-12	3.33E-12	3.24E-12	5.61E-12	4.16E-12	7.56E-12	4.17E-12	9.00E-12	6.91E-12
1,2,3,4,6,7,8-HpCDF	2.35E-12	2.19E-12	3.93E-12	3.25E-12	2.66E-12	1.90E-12	2.36E-12	2.52E-12	2.68E-12	5.84E-12	1.48E-12	2.12E-12	2.09E-12	2.51E-12	1.62E-12	1.58E-12	2.72E-12	2.02E-12	3.67E-12	2.03E-12	4.37E-12	3.36E-12
1,2,3,4,7,8,9-HpCDF	6.05E-13	5.64E-13	1.01E-12	8.38E-13	6.85E-13	4.89E-13	6.07E-13	6.48E-13	6.92E-13	1.50E-12	3.82E-13	5.46E-13	5.39E-13	6.46E-13	4.17E-13	4.06E-13	7.01E-13	5.21E-13	9.46E-13	5.22E-13	1.13E-12	8.65E-13
1,2,3,4,7,8-HxCDD	1.35E-12	1.26E-12	2.26E-12	1.87E-12	1.53E-12	1.09E-12	1.36E-12	1.45E-12	1.55E-12	3.36E-12	8.54E-13	1.22E-12	1.20E-12	1.44E-12	9.31E-13	9.07E-13	1.57E-12	1.16E-12	2.11E-12	1.17E-12	2.52E-12	1.93E-12
1,2,3,4,7,8-HxCDF	2.04E-12	1.91E-12	3.42E-12	2.83E-12	2.31E-12	1.65E-12	2.05E-12	2.19E-12	2.34E-12	5.09E-12	1.29E-12	1.85E-12	1.82E-12	2.18E-12	1.41E-12	1.37E-12	2.37E-12	1.76E-12	3.20E-12	1.76E-12	3.81E-12	2.92E-12
1,2,3,6,7,8-HxCDD	1.33E-12	1.24E-12	2.23E-12	1.85E-12	1.51E-12	1.08E-12	1.34E-12	1.43E-12	1.53E-12	3.32E-12	8.43E-13	1.21E-12	1.19E-12	1.43E-12	9.20E-13	8.95E-13	1.55E-12	1.15E-12	2.09E-12	1.15E-12	2.49E-12	1.91E-12
1,2,3,6,7,8-HxCDF	1.91E-12	1.79E-12	3.20E-12	2.65E-12	2.17E-12	1.55E-12	1.92E-12	2.05E-12	2.19E-12	4.76E-12	1.21E-12	1.73E-12	1.71E-12	2.05E-12	1.32E-12	1.29E-12	2.22E-12	1.65E-12	3.00E-12	1.65E-12	3.57E-12	2.74E-12
1,2,3,7,8,9-HxCDD	1.38E-12	1.28E-12	2.31E-12	1.91E-12	1.56E-12	1.11E-12	1.38E-12	1.48E-12	1.58E-12	3.43E-12	8.70E-13	1.24E-12	1.23E-12	1.47E-12	9.49E-13	9.25E-13	1.60E-12	1.19E-12	2.16E-12	1.19E-12	2.57E-12	1.97E-12
1,2,3,7,8,9-HxCDF	6.45E-13	6.01E-13	1.08E-12	8.93E-13	7.30E-13	5.21E-13	6.47E-13	6.91E-13	7.37E-13	1.60E-12	4.07E-13	5.82E-13	5.74E-13	6.89E-13	4.44E-13	4.33E-13	7.48E-13	5.55E-13	1.01E-12	5.56E-13	1.20E-12	9.22E-13
2,3,4,6,7,8-HxCDF	1.18E-12	1.10E-12	1.97E-12	1.63E-12	1.33E-12	9.52E-13	1.18E-12	1.26E-12	1.35E-12	2.93E-12	7.44E-13	1.06E-12	1.05E-12	1.26E-12	8.12E-13	7.91E-13	1.37E-12	1.01E-12	1.84E-12	1.02E-12	2.19E-12	1.68E-12
Hydrochloric acid	5.39E-02	5.03E-02	9.02E-02	7.47E-02	6.10E-02	4.35E-02	5.41E-02	5.77E-02	6.16E-02	1.34E-01	3.40E-02	4.87E-02	4.80E-02	5.76E-02	3.71E-02	3.62E-02	6.25E-02	4.64E-02	8.43E-02	4.65E-02	1.00E-01	7.70E-02
Indeno(1,2,3-c,d)pyrene	1.10E-10	1.03E-10	1.84E-10	1.52E-10	1.25E-10	8.89E-11	1.10E-10	1.18E-10	1.26E-10	2.74E-10	6.95E-11	9.94E-11	9.80E-11	1.18E-10	7.58E-11	7.38E-11	1.28E-10	9.47E-11	1.72E-10	9.50E-11	2.05E-10	1.57E-10
Lead	2.22E-06	1.49E-06	3.52E-06	2.79E-06	2.28E-06	1.69E-06	1.96E-06	2.09E-06	2.16E-06	3.95E-06	1.35E-06	2.42E-06	1.35E-06	2.33E-06	1.35E-06	1.34E-06	2.46E-06	1.26E-06	3.71E-06	1.82E-06	4.94E-06	3.00E-06
Manganese	2.01E-06	1.87E-06	3.36E-06	2.79E-06	2.28E-06	1.62E-06	2.02E-06	2.15E-06	2.30E-06	5.00E-06	1.27E-06	1.82E-06	1.79E-06	2.15E-06	1.39E-06	1.35E-06	2.33E-06	1.73E-06	3.15E-06	1.73E-06	3.74E-06	2.87E-06
Mercury	2.92E-04	2.73E-04	4.89E-04	4.05E-04	3.31E-04	2.36E-04	2.94E-04	3.13E-04	3.34E-04	7.27E-04	1.85E-04	2.64E-04	2.60E-04	3.12E-04	2.01E-04	1.96E-04	3.39E-04	2.52E-04	4.58E-04	2.52E-04	5.45E-04	4.18E-04
Methyl bromide	3.15E-04	2.93E-04	5.26E-04	4.36E-04	3.56E-04	2.54E-04	3.16E-04	3.37E-04	3.60E-04	7.82E-04	1.99E-04	2.84E-04	2.80E-04	3.36E-04	2.17E-04	2.11E-04	3.65E-04	2.71E-04	4.92E-04	2.71E-04	5.86E-04	4.50E-04

TABLE 8B

SUMMARY OF ANNUAL AVERAGE CONCENTRATIONS AT KEY OFF-SITE RECEPTORS - CURRENT LOW PRODUCTION

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																					
	12359	12360	12361	12362	12363	12364	12365	12366	12367	12368	12369	12370	12371	12372	12373	12374	12375	12376	12377	12378	12379	12380
Chemical	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School
Methyl chloroform (1,1,1-trichloroethane)	1.61E-05	1.50E-05	2.70E-05	2.23E-05	1.82E-05	1.30E-05	1.62E-05	1.73E-05	1.84E-05	4.01E-05	1.02E-05	1.46E-05	1.44E-05	1.72E-05	1.11E-05	1.08E-05	1.87E-05	1.39E-05	2.52E-05	1.39E-05	3.00E-05	2.30E-05
Methylene chloride	6.48E-05	6.04E-05	1.08E-04	8.98E-05	7.34E-05	5.24E-05	6.51E-05	6.94E-05	7.41E-05	1.61E-04	4.09E-05	5.85E-05	5.77E-05	6.93E-05	4.47E-05	4.35E-05	7.52E-05	5.58E-05	1.01E-04	5.59E-05	1.21E-04	9.27E-05
Naphthalene	6.97E-05	6.50E-05	1.17E-04	9.65E-05	7.89E-05	5.63E-05	6.99E-05	7.46E-05	7.97E-05	1.73E-04	4.40E-05	6.29E-05	6.21E-05	7.44E-05	4.80E-05	4.67E-05	8.08E-05	6.00E-05	1.09E-04	6.01E-05	1.30E-04	9.96E-05
Nickel	5.95E-05	4.03E-05	9.16E-05	7.43E-05	6.04E-05	4.53E-05	5.22E-05	5.61E-05	5.77E-05	1.04E-04	3.59E-05	6.51E-05	3.68E-05	6.23E-05	3.65E-05	3.59E-05	6.53E-05	3.45E-05	9.72E-05	4.83E-05	1.32E-04	7.91E-05
1,2,3,4,6,7,8,9-OCDD	1.01E-11	9.45E-12	1.70E-11	1.40E-11	1.15E-11	8.19E-12	1.02E-11	1.09E-11	1.16E-11	2.52E-11	6.40E-12	9.16E-12	9.03E-12	1.08E-11	6.99E-12	6.80E-12	1.18E-11	8.73E-12	1.59E-11	8.75E-12	1.89E-11	1.45E-11
1,2,3,4,6,7,8,9-OCDF	2.31E-12	2.16E-12	3.87E-12	3.21E-12	2.62E-12	1.87E-12	2.32E-12	2.48E-12	2.65E-12	5.76E-12	1.46E-12	2.09E-12	2.06E-12	2.47E-12	1.59E-12	1.55E-12	2.68E-12	1.99E-12	3.62E-12	2.00E-12	4.31E-12	3.31E-12
1,2,3,7,8-PeCDD	1.20E-12	1.12E-12	2.00E-12	1.66E-12	1.35E-12	9.66E-13	1.20E-12	1.28E-12	1.37E-12	2.97E-12	7.55E-13	1.08E-12	1.07E-12	1.28E-12	8.24E-13	8.02E-13	1.39E-12	1.03E-12	1.87E-12	1.03E-12	2.23E-12	1.71E-12
1,2,3,7,8-PeCDF	9.18E-12	8.56E-12	1.54E-11	1.27E-11	1.04E-11	7.42E-12	9.22E-12	9.84E-12	1.05E-11	2.28E-11	5.80E-12	8.30E-12	8.18E-12	9.81E-12	6.33E-12	6.16E-12	1.07E-11	7.91E-12	1.44E-11	7.93E-12	1.71E-11	1.31E-11
2,3,4,7,8-PeCDF	1.38E-11	1.28E-11	2.31E-11	1.91E-11	1.56E-11	1.11E-11	1.38E-11	1.48E-11	1.58E-11	3.43E-11	8.70E-12	1.24E-11	1.23E-11	1.47E-11	9.49E-12	9.25E-12	1.60E-11	1.19E-11	2.16E-11	1.19E-11	2.57E-11	1.97E-11
Perchloroethylene	2.67E-05	2.49E-05	4.47E-05	3.70E-05	3.02E-05	2.16E-05	2.68E-05	2.86E-05	3.05E-05	6.64E-05	1.69E-05	2.41E-05	2.38E-05	2.85E-05	1.84E-05	1.79E-05	3.10E-05	2.30E-05	4.18E-05	2.30E-05	4.97E-05	3.82E-05
Selenium	4.10E-06	3.15E-06	6.42E-06	5.22E-06	4.29E-06	3.14E-06	3.74E-06	3.98E-06	4.20E-06	8.25E-06	2.47E-06	4.18E-06	2.93E-06	4.33E-06	2.58E-06	2.54E-06	4.59E-06	2.78E-06	6.60E-06	3.36E-06	8.69E-06	5.49E-06
Styrene	1.22E-04	1.14E-04	2.04E-04	1.69E-04	1.38E-04	9.87E-05	1.23E-04	1.31E-04	1.40E-04	3.04E-04	7.72E-05	1.10E-04	1.09E-04	1.31E-04	8.42E-05	8.20E-05	1.42E-04	1.05E-04	1.91E-04	1.05E-04	2.28E-04	1.75E-04
2,3,7,8-TCDD	1.17E-12	1.09E-12	1.96E-12	1.62E-12	1.32E-12	9.45E-13	1.17E-12	1.25E-12	1.34E-12	2.91E-12	7.39E-13	1.06E-12	1.04E-12	1.25E-12	8.06E-13	7.85E-13	1.36E-12	1.01E-12	1.83E-12	1.01E-12	2.18E-12	1.67E-12
2,3,7,8-TCDF	5.80E-11	5.41E-11	9.70E-11	8.03E-11	6.56E-11	4.68E-11	5.82E-11	6.21E-11	6.63E-11	1.44E-10	3.66E-11	5.24E-11	5.16E-11	6.19E-11	3.99E-11	3.89E-11	6.72E-11	4.99E-11	9.07E-11	5.00E-11	1.08E-10	8.29E-11
1,1,2,2-Tetrachloroethane	2.03E-05	1.89E-05	3.39E-05	2.81E-05	2.29E-05	1.64E-05	2.04E-05	2.17E-05	2.32E-05	5.04E-05	1.28E-05	1.83E-05	1.81E-05	2.17E-05	1.40E-05	1.36E-05	2.35E-05	1.75E-05	3.17E-05	1.75E-05	3.78E-05	2.90E-05
Toluene	4.34E-03	4.05E-03	7.26E-03	6.02E-03	4.91E-03	3.51E-03	4.36E-03	4.65E-03	4.96E-03	1.08E-02	2.74E-03	3.92E-03	3.87E-03	4.64E-03	2.99E-03	2.91E-03	5.04E-03	3.74E-03	6.79E-03	3.75E-03	8.08E-03	6.21E-03
1,1,2-Trichloroethane	2.69E-05	2.50E-05	4.49E-05	3.72E-05	3.04E-05	2.17E-05	2.70E-05	2.88E-05	3.07E-05	6.68E-05	1.70E-05	2.43E-05	2.39E-05	2.87E-05	1.85E-05	1.80E-05	3.12E-05	2.31E-05	4.20E-05	2.32E-05	5.00E-05	3.84E-05
Trichloroethylene	2.11E-05	1.97E-05	3.54E-05	2.93E-05	2.39E-05	1.71E-05	2.12E-05	2.27E-05	2.42E-05	5.26E-05	1.34E-05	1.91E-05	1.88E-05	2.26E-05	1.46E-05	1.42E-05	2.45E-05	1.82E-05	3.31E-05	1.82E-05	3.94E-05	3.02E-05
Vanadium	1.66E-04	1.11E-04	2.63E-04	2.10E-04	1.70E-04	1.28E-04	1.47E-04	1.59E-04	1.61E-04	2.91E-04	1.01E-04	1.81E-04	1.01E-04	1.74E-04	1.02E-04	1.01E-04	1.83E-04	9.47E-05	2.74E-04	1.36E-04	3.60E-04	2.24E-04
Vinyl chloride	7.13E-05	6.65E-05	1.19E-04	9.88E-05	8.07E-05	5.76E-05	7.16E-05	7.64E-05	8.15E-05	1.77E-04	4.50E-05	6.44E-05	6.35E-05	7.62E-05	4.91E-05	4.79E-05	8.27E-05	6.14E-05	1.12E-04	6.15E-05	1.33E-04	1.02E-04
Vinylidene chloride	1.95E-05	1.82E-05	3.26E-05	2.70E-05	2.21E-05	1.58E-05	1.96E-05	2.09E-05	2.23E-05	4.85E-05	1.23E-05	1.76E-05	1.74E-05	2.08E-05	1.34E-05	1.31E-05	2.26E-05	1.68E-05	3.05E-05	1.68E-05	3.63E-05	2.79E-05
o-Xylene	6.84E-04	6.38E-04	1.14E-03	9.47E-04	7.74E-04	5.52E-04	6.86E-04	7.32E-04	7.82E-04	1.70E-03	4.32E-04	6.18E-04	6.09E-04	7.30E-04	4.71E-04	4.59E-04	7.93E-04	5.88E-04	1.07E-03	5.90E-04	1.27E-03	9.77E-04
Xylenes (mixed)	3.49E-03	3.26E-03	5.84E-03	4.84E-03	3.95E-03	2.82E-03	3.51E-03	3.74E-03	3.99E-03	8.69E-03	2.21E-03	3.15E-03	3.11E-03	3.73E-03	2.41E-03	2.34E-03	4.05E-03	3.01E-03	5.46E-03	3.01E-03	6.50E-03	4.99E-03

Notes

1. Receptor identifier in the HARP model.

Abbreviations

MEIR = Maximum Exposed Individual Resident
MEIW = Maximum Exposed Individual Worker
PMI = Point of Maximum Impact
HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzofuran
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzofuran
OCDD = Octachlorodibenzo-p-dioxin
OCDF = Octachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzofuran

TABLE 9
SUMMARY OF MAXIMUM HOURLY CONCENTRATIONS AT KEY OFF-SITE RECEPTORS
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																						
	2085 [1]	10963	129	226	130	10993	12356	10994	10979	12357	10989	10995	10996	10990	10987	10986	10988	10991	12358	10957	12359	12360
Chemical	MEIR	MEIW	PMI	PMI	PMI	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Hospital	School	School	School
Acetaldehyde	7.10E-01	9.35E-01	2.3E+00	9.72E-01	2.4E+00	3.49E-01	2.13E-01	6.12E-01	2.15E-01	2.25E-01	2.16E-01	4.52E-01	3.75E-01	3.25E-01	2.57E-01	1.95E-01	3.58E-01	5.31E-01	3.15E-01	3.05E-01	4.01E-01	1.96E-01
Acrolein	2.75E-02	3.62E-02	8.81E-02	3.77E-02	9.18E-02	1.35E-02	8.26E-03	2.37E-02	8.32E-03	8.73E-03	8.36E-03	1.75E-02	1.45E-02	1.26E-02	9.98E-03	7.56E-03	1.39E-02	2.06E-02	1.22E-02	1.18E-02	1.55E-02	7.61E-03
Arsenic	4.37E-03	4.85E-03	8.19E-03	4.79E-03	8.30E-03	1.65E-03	6.87E-04	2.52E-03	8.24E-04	8.18E-04	7.98E-04	1.34E-03	1.25E-03	1.42E-03	1.06E-03	7.15E-04	1.66E-03	1.94E-03	9.24E-04	2.58E-03	1.14E-03	7.16E-04
Benz(a)anthracene	8.03E-06	1.06E-05	2.57E-05	1.10E-05	2.68E-05	3.94E-06	2.41E-06	6.92E-06	2.43E-06	2.55E-06	2.44E-06	5.12E-06	4.24E-06	3.67E-06	2.91E-06	2.21E-06	4.05E-06	6.01E-06	3.56E-06	3.45E-06	4.53E-06	2.22E-06
Benzene	5.9E+00	7.8E+00	1.9E+01	8.1E+00	2.0E+01	2.9E+00	1.8E+00	5.1E+00	1.8E+00	1.9E+00	1.8E+00	3.8E+00	3.1E+00	2.7E+00	2.2E+00	1.6E+00	3.0E+00	4.4E+00	2.6E+00	2.5E+00	3.3E+00	1.6E+00
Benzo(a)pyrene	1.80E-07	2.38E-07	5.78E-07	2.47E-07	6.02E-07	8.86E-08	5.42E-08	1.55E-07	5.46E-08	5.73E-08	5.48E-08	1.15E-07	9.53E-08	8.25E-08	6.54E-08	4.96E-08	9.11E-08	1.35E-07	8.00E-08	7.75E-08	1.02E-07	4.99E-08
Benzo(b)fluoranthene	1.14E-06	1.51E-06	3.67E-06	1.57E-06	3.82E-06	5.63E-07	3.44E-07	9.87E-07	3.46E-07	3.64E-07	3.48E-07	7.30E-07	6.05E-07	5.23E-07	4.15E-07	3.15E-07	5.78E-07	8.57E-07	5.08E-07	4.92E-07	6.46E-07	3.17E-07
Benzo(k)fluoranthene	1.80E-07	2.38E-07	5.78E-07	2.47E-07	6.02E-07	8.86E-08	5.42E-08	1.55E-07	5.46E-08	5.73E-08	5.48E-08	1.15E-07	9.53E-08	8.25E-08	6.54E-08	4.96E-08	9.11E-08	1.35E-07	8.00E-08	7.75E-08	1.02E-07	4.99E-08
Benzyl chloride	6.21E-02	8.18E-02	1.99E-01	8.51E-02	2.07E-01	3.05E-02	1.87E-02	5.35E-02	1.88E-02	1.97E-02	1.89E-02	3.96E-02	3.28E-02	2.84E-02	2.25E-02	1.71E-02	3.14E-02	4.65E-02	2.76E-02	2.67E-02	3.51E-02	1.72E-02
Beryllium	1.12E-03	1.27E-03	2.17E-03	1.26E-03	2.21E-03	4.35E-04	1.93E-04	6.74E-04	2.17E-04	2.25E-04	2.22E-04	4.07E-04	3.80E-04	3.88E-04	2.98E-04	1.91E-04	4.36E-04	5.22E-04	2.82E-04	6.42E-04	3.47E-04	1.91E-04
1,3-Butadiene	5.62E-02	7.40E-02	1.80E-01	7.70E-02	1.88E-01	2.76E-02	1.69E-02	4.84E-02	1.70E-02	1.78E-02	1.71E-02	3.58E-02	2.97E-02	2.57E-02	2.04E-02	1.54E-02	2.84E-02	4.21E-02	2.49E-02	2.41E-02	3.17E-02	1.55E-02
Cadmium	1.95E-03	2.14E-03	3.44E-03	2.08E-03	3.50E-03	7.26E-04	2.97E-04	1.11E-03	3.48E-04	3.51E-04	3.49E-04	6.30E-04	5.97E-04	6.23E-04	4.73E-04	3.06E-04	7.12E-04	8.33E-04	4.26E-04	1.10E-03	5.20E-04	3.06E-04
Carbon tetrachloride	3.78E-02	4.97E-02	1.21E-01	5.17E-02	1.26E-01	1.86E-02	1.13E-02	3.26E-02	1.14E-02	1.20E-02	1.15E-02	2.41E-02	2.00E-02	1.73E-02	1.37E-02	1.04E-02	1.91E-02	2.83E-02	1.68E-02	1.62E-02	2.13E-02	1.05E-02
Chlorobenzene	3.40E-01	4.47E-01	1.1E+00	4.65E-01	1.1E+00	1.67E-01	1.02E-01	2.93E-01	1.03E-01	1.08E-01	1.03E-01	2.16E-01	1.80E-01	1.55E-01	1.23E-01	9.34E-02	1.72E-01	2.54E-01	1.51E-01	1.46E-01	1.92E-01	9.40E-02
Chloroform	1.76E-02	2.31E-02	5.63E-02	2.41E-02	5.87E-02	8.64E-03	5.28E-03	1.51E-02	5.32E-03	5.58E-03	5.34E-03	1.12E-02	9.29E-03	8.04E-03	6.37E-03	4.83E-03	8.88E-03	1.32E-02	7.80E-03	7.55E-03	9.92E-03	4.86E-03
Chromium VI	3.22E-03	3.25E-03	6.33E-03	3.61E-03	6.41E-03	1.23E-03	6.12E-04	1.75E-03	7.16E-04	8.24E-04	6.94E-04	8.81E-04	8.30E-04	1.32E-03	9.19E-04	5.33E-04	1.42E-03	1.64E-03	7.21E-04	2.45E-03	8.97E-04	5.34E-04
Chrysene	2.37E-05	3.12E-05	7.58E-05	3.24E-05	7.90E-05	1.16E-05	7.11E-06	2.04E-05	7.16E-06	7.51E-06	7.19E-06	1.51E-05	1.25E-05	1.08E-05	8.58E-06	6.50E-06	1.19E-05	1.77E-05	1.05E-05	1.02E-05	1.34E-05	6.55E-06
Copper	3.14E-02	3.54E-02	5.52E-02	3.38E-02	5.59E-02	1.20E-02	4.61E-03	1.79E-02	5.52E-03	5.46E-03	5.42E-03	9.76E-03	9.30E-03	9.94E-03	7.44E-03	4.88E-03	1.15E-02	1.32E-02	6.67E-03	1.80E-02	8.10E-03	4.89E-03
Crystalline silica	2.6E+00	2.8E+00	3.2E+00	2.5E+00	3.3E+00	1.0E+00	3.41E-01	1.3E+00	3.56E-01	4.07E-01	4.15E-01	9.17E-01	9.45E-01	8.30E-01	6.57E-01	3.16E-01	8.92E-01	9.02E-01	6.65E-01	1.51E+00	7.64E-01	3.16E-01
Dibenz(a,h)anthracene	1.80E-07	2.38E-07	5.78E-07	2.47E-07	6.02E-07	8.86E-08	5.42E-08	1.55E-07	5.46E-08	5.73E-08	5.48E-08	1.15E-07	9.53E-08	8.25E-08	6.54E-08	4.96E-08	9.11E-08	1.35E-07	8.00E-08	7.75E-08	1.02E-07	4.99E-08
p-Dichlorobenzene	3.61E-02	4.75E-02	1.16E-01	4.94E-02	1.20E-01	1.77E-02	1.08E-02	3.11E-02	1.09E-02	1.15E-02	1.10E-02	2.30E-02	1.91E-02	1.65E-02	1.31E-02	9.92E-03	1.82E-02	2.70E-02	1.60E-02	1.55E-02	2.04E-02	9.98E-03
1,1-Dichloroethane	1.21E-02	1.60E-02	3.89E-02	1.66E-02	4.05E-02	5.96E-03	3.64E-03	1.04E-02	3.67E-03	3.85E-03	3.69E-03	7.73E-03	6.41E-03	5.54E-03	4.40E-03	3.33E-03	6.12E-03	9.08E-03	5.38E-03	5.21E-03	6.84E-03	3.36E-03
1,2-Dichloropropane	1.66E-02	2.19E-02	5.33E-02	2.28E-02	5.56E-02	8.18E-03	5.00E-03	1.43E-02	5.04E-03	5.29E-03	5.06E-03	1.06E-02	8.80E-03	7.61E-03	6.04E-03	4.58E-03	8.41E-03	1.25E-02	7.39E-03	7.15E-03	9.40E-03	4.61E-03
1,3-Dichloropropene	6.80E-02	8.96E-02	2.18E-01	9.32E-02	2.27E-01	3.34E-02	2.04E-02	5.86E-02	2.06E-02	2.16E-02	2.07E-02	4.33E-02	3.59E-02	3.11E-02	2.47E-02	1.87E-02	3.44E-02	5.09E-02	3.02E-02	2.92E-02	3.84E-02	1.88E-02
Diesel PM	1.0E+01	2.7E+01	2.7E+01	9.6E+00	2.6E+01	5.5E+00	2.2E+00	1.7E+00	2.2E+00	2.6E+00	2.7E+00	4.6E+00	4.4E+00	4.0E+00	3.1E+00	2.0E+00	4.3E+00	4.0E+00	3.2E+00	9.8E+00	4.0E+00	2.0E+00
Ethyl chloride	2.37E-02	3.13E-02	7.61E-02	3.25E-02	7.93E-02	1.17E-02	7.13E-03	2.05E-02	7.18E-03	7.54E-03	7.22E-03	1.51E-02	1.25E-02	1.09E-02	8.61E-03	6.53E-03	1.20E-02	1.78E-02	1.05E-02	1.02E-02	1.34E-02	6.57E-03
Ethylbenzene	5.87E-01	7.73E-01	1.9E+00	8.04E-01	2.0E+00	2.89E-01	1.76E-01	5.06E-01	1.78E-01	1.86E-01	1.79E-01	3.74E-01	3.10E-01	2.68E-01	2.13E-01	1.61E-01	2.97E-01	4.40E-01	2.61E-01	2.52E-01	3.31E-01	1.62E-01
Ethylene dibromide	3.69E-02	4.86E-02	1.18E-01	5.05E-02	1.23E-01	1.81E-02	1.11E-02	3.18E-02	1.12E-02	1.17E-02	1.12E-02	2.35E-02	1.95E-02	1.69E-02	1.34E-02	1.01E-02	1.86E-02	2.76E-02	1.64E-02	1.58E-02	2.08E-02	1.02E-02
Ethylene dichloride	1.46E-02	1.92E-02	4.67E-02	2.00E-02	4.87E-02	7.16E-03	4.38E-03	1.26E-02	4.41E-03	4.63E-03	4.43E-03	9.29E-03	7.70E-03	6.66E-03	5.29E-03	4.01E-03	7.36E-03	1.09E-02	6.47E-03	6.26E-03	8.23E-03	4.03E-03
Formaldehyde	3.87E-02	5.09E-02	1.24E-01	5.30E-02	1.29E-01	1.90E-02	1.16E-02	3.33E-02	1.17E-02	1.23E-02	1.18E-02	2.46E-02	2.04E-02	1.77E-02	1.40E-02	1.06E-02	1.95E-02	2.89E-02	1.72E-02	1.66E-02	2.18E-02	1.07E-02
1,2,3,4,6,7,8-HpCDD	5.91E-09	7.79E-09	1.90E-08	8.10E-09	1.97E-08	2.91E-09	1.78E-09	5.10E-09	1.79E-09	1.88E-09	1.80E-09	3.77E-09	3.13E-09	2.70E-09	2.15E-09	1.63E-09	2.99E-09	4.43E-09	2.62E-09	2.54E-09	3.34E-09	1.64E-09
1,2,3,4,6,7,8-HpCDF	2.86E-09	3.77E-09	9.17E-09	3.92E-09	9.55E-09	1.41E-09	8.59E-10	2.46E-09	8.66E-10	9.08E-10	8.69E-10	1.82E-09	1.51E-09	1.31E-09	1.04E-09	7.86E-10	1.44E-09	2.14E-09	1.27E-09	1.23E-09	1.61E-09	7.91E-10
1,2,3,4,7,8,9-HpCDF	7.39E-10	9.74E-10	2.37E-09	1.01E-09	2.47E-09	3.63E-10	2.22E-10	6.37E-10	2.24E-10	2.35E-10	2.25E-10	4.71E-10	3.91E-10	3.38E-10	2.68E-10	2.03E-10	3.73E-10	5.54E-10	3.28E-10	3.17E-10	4.17E-10	2.05E-10
1,2,3,4,7,8-HxCDD	1.65E-09	2.17E-09	5.28E-09	2.26E-09	5.50E-09	8.10E-10	4.95E-10	1.42E-09	4.99E-10	5.23E-10	5.01E-10	1.05E-09	8.71E-10	7.53E-10	5.98E-10	4.53E-10	8.32E-10	1.23E-09	7.31E-10	7.08E-10	9.30E-10	4.56E-10
1,2,3,4,7,8-HxCDF	2.49E-09	3.28E-09	7.99E-09	3.41E-09	8.32E-09	1.22E-09	7.49E-10	2.15E-09	7.54E-10	7.92E-10	7.58E-10	1.59E-09	1.32E-09	1.14E-09	9.04E-10	6.85E-10	1.26E-09	1.87E-09	1.11E-09	1.07E-09	1.41E-09	6.90E-10
1,2,3,6,7,8-HxCDD	1.63E-09	2.14E-09	5.21E-09	2.23E-09	5.43E-09	7.99E-10	4.88E-10	1.40E-09	4.92E-10	5.17E-10	4.94E-10	1.04E-09	8.60E-10	7.44E-10	5.90E-10	4.47E-10	8.21E-10	1.22E-09	7.22E-10	6.98E-10	9.18E-10	4.50E-10
1,2,3,6,7,8-HxCDF	2.33E-09	3.07E-09	7.47E-09	3.19E-09	7.79E-09	1.15E-09	7.00E-10	2.01E-09	7.06E-10	7.41E-10	7.09E-10	1.49E-09	1.23E-09	1.07E-09	8.46E-10	6.41E-10	1.18E-09	1.75E-09	1.03E-09	1.00E-09	1.32E-09	6.45E-10
1,2,3,7,8,9-HxCDD	1.68E-09	2.21E-09	5.39E-09	2.30E-09	5.61E-09	8.26E-10	5.05E-10	1.45E-09	5.09E-10	5.34E-10	5.11E-10	1.07E-09	8.89E-10	7.69E-10	6.10E-10	4.62E-10	8.49E-10	1.26E-09	7.46E-10	7.22E-10	9.49E-10	4.65E-10
1,2,3,7,8,9-HxCDF	7.86E-10	1.03E-09	2.52E-09	1.08E-09	2.62E-09	3.86E-10	2.36E-10	6.77E-10	2.38E-10	2.50E-10	2.39E-10	5.01E-10	4.15E-10	3.59E-10	2.85E-10	2.16E-10	3.97E-10	5.88E-10	3.49E-10	3.37E-10	4.44E-10	2.17E-10
2,3,4,6,7,8-HxCDF	1.44E-09	1.89E-09	4.60E-09	1.97E-09	4.80E-09	7.06E-10	4.31E-10	1.24E-09	4.35E-10	4.56E-10	4.37E-10	9.15E-10	7.59E-10	6.57E-10	5.21E-10	3.95E-10	7.25E-10	1.08E-09	6.37E-10	6.17E-10	8.11E-10	3.97E-10
Hydrochloric acid	6.6E+01	8.6E+01	2.1E+02	9.0E+01	2.2E+02	3.2E+01	2.0E+01	5.6E+01	2.0E+01	2.1E+01	2.0E+01	4.2E+01	3.5E+01	3.0E+01	2.4E+01	1.8E+01	3.3E+01	4.9E+01	2.9E+01	2.8E+01	3.7E+01	1.8E+01
Indeno(1,2,3-c,d)pyrene	1.34E-07	1.76E-07	4.29E-07	1.83E-07	4.47E-07	6.58E-08	4.02E-08	1.15E-07	4.05E-08	4.25E-08	4.07E-08	8.53E-08	7.08E-08	6.12E-08	4.86E-08	3.68E-08	6.76E-08	1.00E-07	5.94E-08	5.75E-08	7.56E-08	3.71E-08
Lead	3.03E-03	3.48E-03	6.03E-03	3.47E-03	6.15E-03	1.19E-03	5.19E-04	1.84E-03	5.90E-04	6.35E-04	5.92E-04	1.02E-03	9.46E-04	1.09E-03	8.02E-04	5.12E-04	1.18E-03	1.42E-03	7.14E-04	1.85E-03	8.89E-04	5.13E-04

TABLE 9
SUMMARY OF MAXIMUM HOURLY CONCENTRATIONS AT KEY OFF-SITE RECEPTORS
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																						
	2085 [1]	10963	129	226	130	10993	12356	10994	10979	12357	10989	10995	10996	10990	10987	10986	10988	10991	12358	10957	12359	12360
Chemical	MEIR	MEIW	PMI	PMI	PMI	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Daycare	Hospital	School	School	School
Manganese	2.45E-03	3.22E-03	7.84E-03	3.35E-03	8.17E-03	1.20E-03	7.35E-04	2.11E-03	7.40E-04	7.77E-04	7.44E-04	1.56E-03	1.29E-03	1.12E-03	8.87E-04	6.72E-04	1.24E-03	1.83E-03	1.09E-03	1.05E-03	1.38E-03	6.77E-04
Mercury	3.57E-01	4.70E-01	1.14E+00	4.89E-01	1.19E+00	1.75E-01	1.07E-01	3.07E-01	1.08E-01	1.13E-01	1.08E-01	2.27E-01	1.88E-01	1.63E-01	1.29E-01	9.80E-02	1.80E-01	2.67E-01	1.58E-01	1.53E-01	2.01E-01	9.86E-02
Methyl bromide	3.83E-01	5.05E-01	1.23E+00	5.25E-01	1.28E+00	1.88E-01	1.15E-01	3.30E-01	1.16E-01	1.22E-01	1.16E-01	2.44E-01	2.03E-01	1.75E-01	1.39E-01	1.05E-01	1.94E-01	2.87E-01	1.70E-01	1.65E-01	2.16E-01	1.06E-01
Methyl chloroform 1,1,1-trichloroethane)	1.96E-02	2.59E-02	6.30E-02	2.69E-02	6.56E-02	9.65E-03	5.90E-03	1.69E-02	5.94E-03	6.24E-03	5.97E-03	1.25E-02	1.04E-02	8.98E-03	7.13E-03	5.40E-03	9.92E-03	1.47E-02	8.72E-03	8.44E-03	1.11E-02	5.44E-03
Methylene chloride	7.90E-02	1.04E-01	2.53E-01	1.08E-01	2.64E-01	3.88E-02	2.37E-02	6.81E-02	2.39E-02	2.51E-02	2.40E-02	5.03E-02	4.18E-02	3.61E-02	2.87E-02	2.17E-02	3.99E-02	5.92E-02	3.51E-02	3.39E-02	4.46E-02	2.19E-02
Naphthalene	8.49E-02	1.12E-01	2.72E-01	1.16E-01	2.83E-01	4.17E-02	2.55E-02	7.32E-02	2.57E-02	2.70E-02	2.58E-02	5.41E-02	4.49E-02	3.88E-02	3.08E-02	2.33E-02	4.29E-02	6.36E-02	3.77E-02	3.65E-02	4.79E-02	2.35E-02
Nickel	8.45E-02	8.94E-02	1.66E-01	1.00E-01	1.70E-01	3.17E-02	1.53E-02	4.84E-02	1.76E-02	1.81E-02	1.87E-02	2.78E-02	2.56E-02	2.99E-02	2.47E-02	1.54E-02	3.48E-02	3.99E-02	1.92E-02	6.82E-02	2.40E-02	1.55E-02
1,2,3,4,6,7,8,9-OCDD	1.23E-08	1.62E-08	3.95E-08	1.69E-08	4.12E-08	6.06E-09	3.70E-09	1.06E-08	3.73E-09	3.92E-09	3.75E-09	7.86E-09	6.52E-09	5.64E-09	4.47E-09	3.39E-09	6.23E-09	9.24E-09	5.47E-09	5.30E-09	6.96E-09	3.41E-09
1,2,3,4,6,7,8,9-OCDF	2.83E-09	3.72E-09	9.06E-09	3.87E-09	9.44E-09	1.39E-09	8.49E-10	2.44E-09	8.55E-10	8.98E-10	8.59E-10	1.80E-09	1.49E-09	1.29E-09	1.03E-09	7.77E-10	1.43E-09	2.12E-09	1.25E-09	1.21E-09	1.60E-09	7.82E-10
1,2,3,7,8-PeCDD	1.45E-09	1.91E-09	4.66E-09	1.99E-09	4.85E-09	7.14E-10	4.36E-10	1.25E-09	4.40E-10	4.62E-10	4.42E-10	9.26E-10	7.68E-10	6.64E-10	5.27E-10	4.00E-10	7.34E-10	1.09E-09	6.45E-10	6.24E-10	8.20E-10	4.02E-10
1,2,3,7,8-PeCDF	1.12E-08	1.48E-08	3.60E-08	1.54E-08	3.75E-08	5.52E-09	3.37E-09	9.68E-09	3.40E-09	3.57E-09	3.42E-09	7.16E-09	5.94E-09	5.14E-09	4.08E-09	3.09E-09	5.68E-09	8.41E-09	4.99E-09	4.83E-09	6.34E-09	3.11E-09
2,3,4,7,8-PeCDF	1.68E-08	2.21E-08	5.39E-08	2.30E-08	5.61E-08	8.26E-09	5.05E-09	1.45E-08	5.09E-09	5.34E-09	5.11E-09	1.07E-08	8.89E-09	7.69E-09	6.10E-09	4.62E-09	8.49E-09	1.26E-08	7.46E-09	7.22E-09	9.49E-09	4.65E-09
Perchloroethylene	3.25E-02	4.28E-02	1.04E-01	4.46E-02	1.09E-01	1.60E-02	9.77E-03	2.80E-02	9.84E-03	1.03E-02	9.89E-03	2.07E-02	1.72E-02	1.49E-02	1.18E-02	8.94E-03	1.64E-02	2.44E-02	1.44E-02	1.40E-02	1.84E-02	9.00E-03
Selenium	5.36E-03	6.25E-03	1.25E-02	6.33E-03	1.29E-02	2.25E-03	1.16E-03	3.65E-03	1.24E-03	1.29E-03	1.26E-03	2.46E-03	2.17E-03	2.03E-03	1.59E-03	1.10E-03	2.29E-03	3.01E-03	1.71E-03	2.75E-03	2.13E-03	1.11E-03
Styrene	1.49E-01	1.96E-01	4.77E-01	2.04E-01	4.96E-01	7.31E-02	4.47E-02	1.28E-01	4.50E-02	4.72E-02	4.52E-02	9.48E-02	7.86E-02	6.80E-02	5.39E-02	4.09E-02	7.51E-02	1.11E-01	6.60E-02	6.39E-02	8.39E-02	4.11E-02
2,3,7,8-TCDD	1.43E-09	1.88E-09	4.58E-09	1.96E-09	4.77E-09	7.02E-10	4.29E-10	1.23E-09	4.32E-10	4.53E-10	4.34E-10	9.10E-10	7.55E-10	6.53E-10	5.18E-10	3.93E-10	7.21E-10	1.07E-09	6.34E-10	6.13E-10	8.06E-10	3.95E-10
2,3,7,8-TCDF	7.06E-08	9.29E-08	2.26E-07	9.67E-08	2.36E-07	3.47E-08	2.12E-08	6.08E-08	2.14E-08	2.24E-08	2.14E-08	4.50E-08	3.73E-08	3.23E-08	2.56E-08	1.94E-08	3.56E-08	5.28E-08	3.13E-08	3.03E-08	3.98E-08	1.95E-08
1,1,2,2-Tetrachloroethane	2.47E-02	3.25E-02	7.92E-02	3.39E-02	8.25E-02	1.21E-02	7.42E-03	2.13E-02	7.48E-03	7.85E-03	7.51E-03	1.57E-02	1.31E-02	1.13E-02	8.96E-03	6.79E-03	1.25E-02	1.85E-02	1.10E-02	1.06E-02	1.40E-02	6.84E-03
Toluene	5.3E+00	7.0E+00	1.7E+01	7.2E+00	1.8E+01	2.6E+00	1.6E+00	4.6E+00	1.6E+00	1.7E+00	1.6E+00	3.4E+00	2.8E+00	2.4E+00	1.9E+00	1.5E+00	2.7E+00	4.0E+00	2.3E+00	2.3E+00	3.0E+00	1.5E+00
1,1,2-Trichloroethane	3.27E-02	4.31E-02	1.05E-01	4.49E-02	1.09E-01	1.61E-02	9.83E-03	2.82E-02	9.91E-03	1.04E-02	9.95E-03	2.09E-02	1.73E-02	1.50E-02	1.19E-02	9.00E-03	1.65E-02	2.45E-02	1.45E-02	1.41E-02	1.85E-02	9.06E-03
Trichloroethylene	2.58E-02	3.39E-02	8.26E-02	3.53E-02	8.60E-02	1.27E-02	7.74E-03	2.22E-02	7.80E-03	8.18E-03	7.83E-03	1.64E-02	1.36E-02	1.18E-02	9.35E-03	7.08E-03	1.30E-02	1.93E-02	1.14E-02	1.11E-02	1.45E-02	7.13E-03
Vanadium	2.68E-01	2.85E-01	5.31E-01	3.17E-01	5.41E-01	9.78E-02	4.66E-02	1.52E-01	5.57E-02	5.66E-02	5.69E-02	7.77E-02	7.12E-02	9.34E-02	7.37E-02	4.79E-02	1.10E-01	1.24E-01	5.43E-02	2.13E-01	6.86E-02	4.80E-02
Vinyl chloride	8.70E-02	1.15E-01	2.79E-01	1.19E-01	2.91E-01	4.28E-02	2.61E-02	7.50E-02	2.63E-02	2.76E-02	2.65E-02	5.55E-02	4.60E-02	3.98E-02	3.16E-02	2.39E-02	4.40E-02	6.52E-02	3.86E-02	3.74E-02	4.91E-02	2.41E-02
Vinylidene chloride	2.38E-02	3.14E-02	7.64E-02	3.26E-02	7.95E-02	1.17E-02	7.16E-03	2.05E-02	7.21E-03	7.57E-03	7.24E-03	1.52E-02	1.26E-02	1.09E-02	8.64E-03	6.55E-03	1.20E-02	1.78E-02	1.06E-02	1.02E-02	1.35E-02	6.59E-03
o-Xylene	8.32E-01	1.1E+00	2.7E+00	1.1E+00	2.8E+00	4.09E-01	2.50E-01	7.17E-01	2.52E-01	2.64E-01	2.53E-01	5.30E-01	4.40E-01	3.81E-01	3.02E-01	2.29E-01	4.20E-01	6.23E-01	3.69E-01	3.57E-01	4.70E-01	2.30E-01
Xylenes (mixed)	4.3E+00	5.6E+00	1.4E+01	5.9E+00	1.4E+01	2.1E+00	1.3E+00	3.7E+00	1.3E+00	1.4E+00	1.3E+00	2.7E+00	2.3E+00	2.0E+00	1.6E+00	1.2E+00	2.2E+00	3.2E+00	1.9E+00	1.8E+00	2.4E+00	1.2E+00

TABLE 9
SUMMARY OF MAXIMUM HOURLY CONCENTRATIONS AT KEY OFF-SITE RECEPTORS
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																						
	12361	12362	12363	12364	12365	12366	12367	12368	12369	12370	12371	12372	10992	12373	12374	12375	12376	12377	10958	12378	12379	12380
Chemical	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School
Acetaldehyde	4.12E-01	4.60E-01	2.78E-01	3.23E-01	3.26E-01	3.05E-01	3.90E-01	2.00E-01	1.86E-01	3.70E-01	1.26E-01	3.76E-01	5.48E-01	1.90E-01	2.34E-01	3.48E-01	1.07E-01	4.76E-01	5.07E-01	2.64E-01	5.53E-01	5.76E-01
Acrolein	1.60E-02	1.78E-02	1.08E-02	1.25E-02	1.26E-02	1.18E-02	1.51E-02	7.76E-03	7.19E-03	1.43E-02	4.89E-03	1.46E-02	2.13E-02	7.37E-03	9.07E-03	1.35E-02	4.14E-03	1.84E-02	1.96E-02	1.02E-02	2.14E-02	2.23E-02
Arsenic	1.68E-03	1.44E-03	1.02E-03	8.94E-04	9.92E-04	1.13E-03	1.12E-03	1.59E-03	6.25E-04	1.71E-03	4.52E-04	1.11E-03	2.27E-03	6.32E-04	6.88E-04	1.33E-03	4.09E-04	1.95E-03	1.93E-03	8.90E-04	2.58E-03	1.67E-03
Benz(a)anthracene	4.66E-06	5.20E-06	3.14E-06	3.66E-06	3.69E-06	3.45E-06	4.41E-06	2.26E-06	2.10E-06	4.18E-06	1.43E-06	4.25E-06	6.20E-06	2.15E-06	2.65E-06	3.94E-06	1.21E-06	5.38E-06	5.73E-06	2.98E-06	6.25E-06	6.51E-06
Benzene	3.4E+00	3.8E+00	2.3E+00	2.7E+00	2.7E+00	2.5E+00	3.3E+00	1.7E+00	1.6E+00	3.1E+00	1.1E+00	3.1E+00	4.6E+00	1.6E+00	2.0E+00	2.9E+00	8.91E-01	4.0E+00	4.2E+00	2.2E+00	4.6E+00	4.8E+00
Benzo(a)pyrene	1.05E-07	1.17E-07	7.06E-08	8.22E-08	8.29E-08	7.74E-08	9.90E-08	5.09E-08	4.72E-08	9.40E-08	3.21E-08	9.55E-08	1.39E-07	4.84E-08	5.95E-08	8.85E-08	2.72E-08	1.21E-07	1.29E-07	6.70E-08	1.40E-07	1.46E-07
Benzo(b)fluoranthene	6.65E-07	7.42E-07	4.48E-07	5.21E-07	5.26E-07	4.91E-07	6.29E-07	3.23E-07	2.99E-07	5.97E-07	2.04E-07	6.06E-07	8.85E-07	3.07E-07	3.78E-07	5.62E-07	1.73E-07	7.67E-07	8.18E-07	4.25E-07	8.92E-07	9.28E-07
Benzo(k)fluoranthene	1.05E-07	1.17E-07	7.06E-08	8.22E-08	8.29E-08	7.74E-08	9.90E-08	5.09E-08	4.72E-08	9.40E-08	3.21E-08	9.55E-08	1.39E-07	4.84E-08	5.95E-08	8.85E-08	2.72E-08	1.21E-07	1.29E-07	6.70E-08	1.40E-07	1.46E-07
Benzyl chloride	3.60E-02	4.02E-02	2.43E-02	2.83E-02	2.85E-02	2.67E-02	3.41E-02	1.75E-02	1.62E-02	3.24E-02	1.11E-02	3.29E-02	4.80E-02	1.66E-02	2.05E-02	3.05E-02	9.36E-03	4.16E-02	4.43E-02	2.31E-02	4.84E-02	5.04E-02
Beryllium	4.39E-04	4.13E-04	2.77E-04	2.62E-04	2.80E-04	3.01E-04	3.20E-04	4.04E-04	1.79E-04	4.53E-04	1.32E-04	3.35E-04	6.14E-04	1.79E-04	1.99E-04	3.80E-04	1.19E-04	5.38E-04	5.14E-04	2.47E-04	7.18E-04	4.88E-04
1,3-Butadiene	3.26E-02	3.64E-02	2.20E-02	2.56E-02	2.58E-02	2.41E-02	3.08E-02	1.58E-02	1.47E-02	2.93E-02	1.00E-02	2.97E-02	4.34E-02	1.51E-02	1.85E-02	2.76E-02	8.47E-03	3.77E-02	4.01E-02	2.09E-02	4.38E-02	4.56E-02
Cadmium	7.04E-04	6.27E-04	4.37E-04	3.91E-04	4.30E-04	4.77E-04	4.87E-04	6.87E-04	2.77E-04	7.53E-04	2.07E-04	5.07E-04	1.01E-03	2.75E-04	3.00E-04	6.05E-04	1.89E-04	8.76E-04	8.24E-04	3.84E-04	1.19E-03	7.42E-04
Carbon tetrachloride	2.19E-02	2.45E-02	1.48E-02	1.72E-02	1.74E-02	1.62E-02	2.07E-02	1.07E-02	9.87E-03	1.97E-02	6.72E-03	2.00E-02	2.92E-02	1.01E-02	1.25E-02	1.85E-02	5.69E-03	2.53E-02	2.70E-02	1.40E-02	2.94E-02	3.06E-02
Chlorobenzene	1.97E-01	2.20E-01	1.33E-01	1.55E-01	1.56E-01	1.46E-01	1.86E-01	9.58E-02	8.88E-02	1.77E-01	6.04E-02	1.80E-01	2.62E-01	9.10E-02	1.12E-01	1.67E-01	5.12E-02	2.28E-01	2.43E-01	1.26E-01	2.65E-01	2.75E-01
Chloroform	1.02E-02	1.14E-02	6.88E-03	8.00E-03	8.07E-03	7.54E-03	9.65E-03	4.96E-03	4.59E-03	9.16E-03	3.13E-03	9.30E-03	1.36E-02	4.71E-03	5.80E-03	8.62E-03	2.65E-03	1.18E-02	1.26E-02	6.53E-03	1.37E-02	1.43E-02
Chromium VI	1.54E-03	1.30E-03	9.13E-04	8.24E-04	8.42E-04	9.99E-04	9.25E-04	1.49E-03	5.76E-04	1.28E-03	3.59E-04	8.94E-04	1.76E-03	6.07E-04	6.51E-04	9.74E-04	2.97E-04	1.47E-03	1.67E-03	8.07E-04	1.67E-03	1.38E-03
Chrysene	1.37E-05	1.53E-05	9.26E-06	1.08E-05	1.09E-05	1.02E-05	1.30E-05	6.67E-06	6.19E-06	1.23E-05	4.21E-06	1.25E-05	1.83E-05	6.34E-06	7.80E-06	1.16E-05	3.56E-06	1.59E-05	1.69E-05	8.79E-06	1.84E-05	1.92E-05
Copper	1.12E-02	9.77E-03	6.92E-03	5.96E-03	6.61E-03	7.60E-03	7.59E-03	1.12E-02	4.29E-03	1.24E-02	3.20E-03	7.93E-03	1.62E-02	4.25E-03	4.62E-03	9.73E-03	2.98E-03	1.42E-02	1.31E-02	5.98E-03	1.95E-02	1.14E-02
Crystalline silica	7.51E-01	7.33E-01	5.18E-01	4.38E-01	4.60E-01	5.18E-01	5.50E-01	9.81E-01	3.50E-01	1.06E+00	2.97E-01	7.42E-01	1.34E+00	3.26E-01	3.55E-01	9.22E-01	2.93E-01	1.3E+00	8.93E-01	4.41E-01	2.0E+00	8.06E-01
Dibenz(a,h)anthracene	1.05E-07	1.17E-07	7.06E-08	8.22E-08	8.29E-08	7.74E-08	9.90E-08	5.09E-08	4.72E-08	9.40E-08	3.21E-08	9.55E-08	1.39E-07	4.84E-08	5.95E-08	8.85E-08	2.72E-08	1.21E-07	1.29E-07	6.70E-08	1.40E-07	1.46E-07
p-Dichlorobenzene	2.09E-02	2.34E-02	1.41E-02	1.64E-02	1.66E-02	1.55E-02	1.98E-02	1.02E-02	9.43E-03	1.88E-02	6.42E-03	1.91E-02	2.79E-02	9.67E-03	1.19E-02	1.77E-02	5.44E-03	2.42E-02	2.58E-02	1.34E-02	2.81E-02	2.93E-02
1,1-Dichloroethane	7.04E-03	7.85E-03	4.75E-03	5.52E-03	5.57E-03	5.20E-03	6.66E-03	3.42E-03	3.17E-03	6.32E-03	2.16E-03	6.42E-03	9.37E-03	3.25E-03	4.00E-03	5.95E-03	1.83E-03	8.13E-03	8.66E-03	4.50E-03	9.44E-03	9.83E-03
1,2-Dichloropropane	9.66E-03	1.08E-02	6.51E-03	7.58E-03	7.65E-03	7.14E-03	9.14E-03	4.69E-03	4.35E-03	8.68E-03	2.96E-03	8.81E-03	1.29E-02	4.46E-03	5.49E-03	8.17E-03	2.51E-03	1.12E-02	1.19E-02	6.18E-03	1.30E-02	1.35E-02
1,3-Dichloropropene	3.95E-02	4.41E-02	2.66E-02	3.10E-02	3.13E-02	2.92E-02	3.73E-02	1.92E-02	1.78E-02	3.55E-02	1.21E-02	3.60E-02	5.26E-02	1.82E-02	2.24E-02	3.34E-02	1.02E-02	4.56E-02	4.86E-02	2.53E-02	5.30E-02	5.52E-02
Diesel PM	4.8E+00	5.9E+00	3.0E+00	3.8E+00	3.4E+00	3.4E+00	3.3E+00	6.3E+00	2.3E+00	5.9E+00	1.5E+00	4.2E+00	1.2E+01	2.2E+00	2.7E+00	1.2E+00	1.4E+00	7.0E+00	4.0E+00	2.7E+00	7.9E+00	7.2E+00
Ethyl chloride	1.38E-02	1.54E-02	9.29E-03	1.08E-02	1.09E-02	1.02E-02	1.30E-02	6.70E-03	6.21E-03	1.24E-02	4.22E-03	1.26E-02	1.83E-02	6.36E-03	7.83E-03	1.16E-02	3.58E-03	1.59E-02	1.70E-02	8.82E-03	1.85E-02	1.93E-02
Ethylbenzene	3.41E-01	3.80E-01	2.30E-01	2.67E-01	2.70E-01	2.52E-01	3.22E-01	1.66E-01	1.54E-01	3.06E-01	1.04E-01	3.11E-01	4.54E-01	1.57E-01	1.94E-01	2.88E-01	8.85E-02	3.94E-01	4.19E-01	2.18E-01	4.57E-01	4.76E-01
Ethylene dibromide	2.14E-02	2.39E-02	1.44E-02	1.68E-02	1.69E-02	1.58E-02	2.02E-02	1.04E-02	9.64E-03	1.92E-02	6.56E-03	1.95E-02	2.85E-02	9.89E-03	1.22E-02	1.81E-02	5.56E-03	2.47E-02	2.63E-02	1.37E-02	2.87E-02	2.99E-02
Ethylene dichloride	8.46E-03	9.44E-03	5.70E-03	6.64E-03	6.70E-03	6.26E-03	8.00E-03	4.11E-03	3.81E-03	7.60E-03	2.59E-03	7.71E-03	1.13E-02	3.91E-03	4.81E-03	7.15E-03	2.20E-03	9.77E-03	1.04E-02	5.42E-03	1.14E-02	1.18E-02
Formaldehyde	2.24E-02	2.50E-02	1.51E-02	1.76E-02	1.78E-02	1.66E-02	2.12E-02	1.09E-02	1.01E-02	2.02E-02	6.88E-03	2.05E-02	2.99E-02	1.04E-02	1.27E-02	1.90E-02	5.82E-03	2.59E-02	2.76E-02	1.44E-02	3.01E-02	3.13E-02
1,2,3,4,6,7,8-HpCDD	3.43E-09	3.83E-09	2.31E-09	2.69E-09	2.72E-09	2.54E-09	3.25E-09	1.67E-09	1.55E-09	3.08E-09	1.05E-09	3.13E-09	4.57E-09	1.59E-09	1.95E-09	2.90E-09	8.91E-10	3.96E-09	4.22E-09	2.20E-09	4.61E-09	4.80E-09
1,2,3,4,6,7,8-HpCDF	1.66E-09	1.85E-09	1.12E-09	1.30E-09	1.31E-09	1.23E-09	1.57E-09	8.07E-10	7.48E-10	1.49E-09	5.09E-10	1.51E-09	2.21E-09	7.67E-10	9.43E-10	1.40E-09	4.31E-10	1.92E-09	2.04E-09	1.06E-09	2.23E-09	2.32E-09
1,2,3,4,7,8,9-HpCDF	4.29E-10	4.79E-10	2.89E-10	3.37E-10	3.40E-10	3.17E-10	4.06E-10	2.09E-10	1.93E-10	3.85E-10	1.32E-10	3.91E-10	5.71E-10	1.98E-10	2.44E-10	3.63E-10	1.11E-10	4.96E-10	5.28E-10	2.75E-10	5.76E-10	5.99E-10
1,2,3,4,7,8-HxCDD	9.56E-10	1.07E-09	6.45E-10	7.50E-10	7.57E-10	7.07E-10	9.05E-10	4.65E-10	4.31E-10	8.59E-10	2.93E-10	8.72E-10	1.27E-09	4.42E-10	5.43E-10	8.08E-10	2.48E-10	1.10E-09	1.18E-09	6.12E-10	1.28E-09	1.34E-09
1,2,3,4,7,8-HxCDF	1.45E-09	1.61E-09	9.76E-10	1.14E-09	1.15E-09	1.07E-09	1.37E-09	7.03E-10	6.52E-10	1.30E-09	4.44E-10	1.32E-09	1.93E-09	6.68E-10	8.22E-10	1.22E-09	3.76E-10	1.67E-09	1.78E-09	9.26E-10	1.94E-09	2.02E-09
1,2,3,6,7,8-HxCDD	9.44E-10	1.05E-09	6.37E-10	7.41E-10	7.47E-10	6.98E-10	8.93E-10	4.59E-10	4.25E-10	8.48E-10	2.89E-10	8.61E-10	1.26E-09	4.36E-10	5.36E-10	7.98E-10	2.45E-10	1.09E-09	1.16E-09	6.04E-10	1.27E-09	1.32E-09
1,2,3,6,7,8-HxCDF	1.35E-09	1.51E-09	9.13E-10	1.06E-09	1.07E-09	1.00E-09	1.28E-09	6.58E-10	6.10E-10	1.22E-09	4.15E-10	1.23E-09	1.80E-09	6.25E-10	7.69E-10	1.14E-09	3.51E-10	1.56E-09	1.67E-09	8.66E-10	1.82E-09	1.89E-09
1,2,3,7,8,9-HxCDD	9.76E-10	1.09E-09	6.58E-10	7.66E-10	7.73E-10	7.22E-10	9.23E-10	4.74E-10	4.40E-10	8.77E-10	2.99E-10	8.90E-10	1.30E-09	4.51E-10	5.54E-10	8.25E-10	2.53E-10	1.13E-09	1.20E-09	6.25E-10	1.31E-09	1.36E-09
1,2,3,7,8,9-HxCDF	4.56E-10	5.09E-10	3.08E-10	3.58E-10	3.61E-10	3.37E-10	4.31E-10	2.22E-10	2.05E-10	4.10E-10	1.40E-10	4.16E-10	6.07E-10	2.11E-10	2.59E-10	3.85E-10	1.18E-10	5.27E-10	5.61E-10	2.92E-10	6.12E-10	6.37E-10
2,3,4,6,7,8-HxCDF	8.34E-10	9.31E-10	5.62E-10	6.54E-10	6.60E-10	6.17E-10	7.89E-10	4.05E-10	3.76E-10	7.49E-10	2.56E-10	7.60E-10	1.11E-09	3.85E-10	4.74E-10	7.05E-10	2.16E-10	9.63E-10	1.03E-09	5.34E-10	1.12E-09	1.16E-09
Hydrochloric acid	3.8E+01	4.2E+01	2.6E+01	3.0E+01	3.0E+01	2.8E+01	3.6E+01	1.9E+01	1.7E+01	3.4E+01	1.2E+01	3.5E+01	5.1E+01	1.8E+01	2.2E+01	3.2E+01	9.9E+00	4.4E+01	4.7E+01	2.4E+01	5.1E+01	5.3E+01
Indeno(1,2,3-c,d)pyrene	7.77E-08	8.68E-08	5.24E-08	6.10E-08	6.15E-08	5.75E-08	7.35E-08	3.78E-08	3.50E-08	6.98E-08	2.38E-08	7.09E-08	1.03E-07	3.59E-08	4.42E-08	6.57E-08	2.02E-08	8.98E-08	9.56E-08	4.98E-08	1.04E-07	1.09E-07
Lead	1.22E-03	1.14E-03	7.54E-04	7.02E-04	7.46E-04	8.23E-04	8.46E-04	1.15E-03	4.96E-04	1.23E-03	3.48E-04	8.61E-04	1.63E-03	4.96E-04	5.34E-04	9.91E-04	3.15E-04	1.41E-03	1.41E-03	6.68E-04	1.85E-03	1.32E-03

TABLE 9
SUMMARY OF MAXIMUM HOURLY CONCENTRATIONS AT KEY OFF-SITE RECEPTORS
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in micrograms per cubic meter (ug/m^3)

	Key Receptors																					
	12361	12362	12363	12364	12365	12366	12367	12368	12369	12370	12371	12372	10992	12373	12374	12375	12376	12377	10958	12378	12379	12380
Chemical	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School	School
Manganese	1.42E-03	1.58E-03	9.57E-04	1.11E-03	1.12E-03	1.05E-03	1.34E-03	6.90E-04	6.40E-04	1.28E-03	4.35E-04	1.29E-03	1.89E-03	6.56E-04	8.07E-04	1.20E-03	3.69E-04	1.64E-03	1.75E-03	9.09E-04	1.90E-03	1.98E-03
Mercury	2.07E-01	2.31E-01	1.40E-01	1.62E-01	1.64E-01	1.53E-01	1.96E-01	1.01E-01	9.32E-02	1.86E-01	6.34E-02	1.89E-01	2.75E-01	9.55E-02	1.18E-01	1.75E-01	5.37E-02	2.39E-01	2.55E-01	1.32E-01	2.78E-01	2.89E-01
Methyl bromide	2.22E-01	2.48E-01	1.50E-01	1.75E-01	1.76E-01	1.64E-01	2.10E-01	1.08E-01	1.00E-01	2.00E-01	6.82E-02	2.03E-01	2.96E-01	1.03E-01	1.26E-01	1.88E-01	5.77E-02	2.57E-01	2.74E-01	1.42E-01	2.98E-01	3.11E-01
Methyl chloroform 1,1,1-trichloroethane)	1.14E-02	1.27E-02	7.69E-03	8.95E-03	9.03E-03	8.43E-03	1.08E-02	5.54E-03	5.14E-03	1.02E-02	3.50E-03	1.04E-02	1.52E-02	5.27E-03	6.48E-03	9.64E-03	2.96E-03	1.32E-02	1.40E-02	7.30E-03	1.53E-02	1.59E-02
Methylene chloride	4.59E-02	5.12E-02	3.09E-02	3.60E-02	3.63E-02	3.39E-02	4.34E-02	2.23E-02	2.07E-02	4.12E-02	1.41E-02	4.18E-02	6.11E-02	2.12E-02	2.61E-02	3.88E-02	1.19E-02	5.30E-02	5.64E-02	2.94E-02	6.15E-02	6.41E-02
Naphthalene	4.93E-02	5.50E-02	3.32E-02	3.87E-02	3.90E-02	3.64E-02	4.66E-02	2.39E-02	2.22E-02	4.43E-02	1.51E-02	4.49E-02	6.56E-02	2.28E-02	2.80E-02	4.17E-02	1.28E-02	5.69E-02	6.06E-02	3.15E-02	6.61E-02	6.89E-02
Nickel	3.46E-02	3.21E-02	2.18E-02	1.98E-02	2.25E-02	2.38E-02	2.47E-02	4.10E-02	1.40E-02	3.30E-02	1.07E-02	2.33E-02	4.32E-02	1.42E-02	1.50E-02	2.63E-02	9.72E-03	3.78E-02	3.93E-02	1.96E-02	5.02E-02	3.58E-02
1,2,3,4,6,7,8,9-OCDD	7.16E-09	7.99E-09	4.83E-09	5.62E-09	5.67E-09	5.29E-09	6.77E-09	3.48E-09	3.23E-09	6.43E-09	2.19E-09	6.53E-09	9.53E-09	3.31E-09	4.07E-09	6.05E-09	1.86E-09	8.27E-09	8.81E-09	4.58E-09	9.61E-09	1.00E-08
1,2,3,4,6,7,8,9-OCDF	1.64E-09	1.83E-09	1.11E-09	1.29E-09	1.30E-09	1.21E-09	1.55E-09	7.97E-10	7.39E-10	1.47E-09	5.03E-10	1.50E-09	2.18E-09	7.58E-10	9.32E-10	1.39E-09	4.26E-10	1.89E-09	2.02E-09	1.05E-09	2.20E-09	2.29E-09
1,2,3,7,8-PeCDD	8.44E-10	9.41E-10	5.69E-10	6.62E-10	6.68E-10	6.24E-10	7.98E-10	4.10E-10	3.80E-10	7.58E-10	2.59E-10	7.69E-10	1.12E-09	3.90E-10	4.79E-10	7.13E-10	2.19E-10	9.74E-10	1.04E-09	5.40E-10	1.13E-09	1.18E-09
1,2,3,7,8-PeCDF	6.52E-09	7.28E-09	4.40E-09	5.12E-09	5.16E-09	4.82E-09	6.17E-09	3.17E-09	2.94E-09	5.86E-09	2.00E-09	5.95E-09	8.68E-09	3.01E-09	3.71E-09	5.51E-09	1.69E-09	7.53E-09	8.02E-09	4.18E-09	8.75E-09	9.11E-09
2,3,4,7,8-PeCDF	9.76E-09	1.09E-08	6.58E-09	7.66E-09	7.73E-09	7.22E-09	9.23E-09	4.74E-09	4.40E-09	8.77E-09	2.99E-09	8.90E-09	1.30E-08	4.51E-09	5.54E-09	8.25E-09	2.53E-09	1.13E-08	1.20E-08	6.25E-09	1.31E-08	1.36E-08
Perchloroethylene	1.89E-02	2.11E-02	1.27E-02	1.48E-02	1.49E-02	1.40E-02	1.79E-02	9.17E-03	8.50E-03	1.70E-02	5.79E-03	1.72E-02	2.51E-02	8.72E-03	1.07E-02	1.60E-02	4.90E-03	2.18E-02	2.32E-02	1.21E-02	2.53E-02	2.64E-02
Selenium	2.44E-03	2.46E-03	1.59E-03	1.67E-03	1.74E-03	1.74E-03	2.03E-03	1.76E-03	1.04E-03	2.37E-03	7.41E-04	2.03E-03	3.35E-03	1.05E-03	1.24E-03	2.08E-03	6.48E-04	2.93E-03	2.92E-03	1.46E-03	3.67E-03	3.01E-03
Styrene	8.63E-02	9.63E-02	5.82E-02	6.77E-02	6.83E-02	6.38E-02	8.16E-02	4.19E-02	3.89E-02	7.75E-02	2.65E-02	7.87E-02	1.15E-01	3.99E-02	4.90E-02	7.30E-02	2.24E-02	9.97E-02	1.06E-01	5.53E-02	1.16E-01	1.21E-01
2,3,7,8-TCDD	8.29E-10	9.25E-10	5.59E-10	6.50E-10	6.56E-10	6.13E-10	7.84E-10	4.03E-10	3.73E-10	7.44E-10	2.54E-10	7.56E-10	1.10E-09	3.83E-10	4.71E-10	7.00E-10	2.15E-10	9.57E-10	1.02E-09	5.31E-10	1.11E-09	1.16E-09
2,3,7,8-TCDF	4.10E-08	4.57E-08	2.76E-08	3.21E-08	3.24E-08	3.03E-08	3.87E-08	1.99E-08	1.84E-08	3.68E-08	1.26E-08	3.73E-08	5.45E-08	1.89E-08	2.33E-08	3.46E-08	1.06E-08	4.73E-08	5.04E-08	2.62E-08	5.49E-08	5.72E-08
1,1,2,2-Tetrachloroethane	1.43E-02	1.60E-02	9.67E-03	1.13E-02	1.14E-02	1.06E-02	1.36E-02	6.97E-03	6.46E-03	1.29E-02	4.40E-03	1.31E-02	1.91E-02	6.62E-03	8.15E-03	1.21E-02	3.72E-03	1.66E-02	1.76E-02	9.18E-03	1.92E-02	2.00E-02
Toluene	3.1E+00	3.4E+00	2.1E+00	2.4E+00	2.4E+00	2.3E+00	2.9E+00	1.5E+00	1.4E+00	2.8E+00	9.4E-01	2.8E+00	4.1E+00	1.4E+00	1.7E+00	2.6E+00	8.0E-01	3.5E+00	3.8E+00	2.0E+00	4.1E+00	4.3E+00
1,1,2-Trichloroethane	1.90E-02	2.12E-02	1.28E-02	1.49E-02	1.50E-02	1.41E-02	1.80E-02	9.23E-03	8.56E-03	1.71E-02	5.83E-03	1.73E-02	2.53E-02	8.78E-03	1.08E-02	1.61E-02	4.93E-03	2.19E-02	2.34E-02	1.22E-02	2.55E-02	2.65E-02
Trichloroethylene	1.50E-02	1.67E-02	1.01E-02	1.17E-02	1.18E-02	1.11E-02	1.41E-02	7.27E-03	6.74E-03	1.34E-02	4.59E-03	1.36E-02	1.99E-02	6.91E-03	8.50E-03	1.26E-02	3.88E-03	1.73E-02	1.84E-02	9.57E-03	2.01E-02	2.09E-02
Vanadium	1.10E-01	9.63E-02	6.72E-02	5.89E-02	6.86E-02	7.43E-02	7.26E-02	1.27E-01	4.21E-02	1.02E-01	3.13E-02	6.72E-02	1.34E-01	4.33E-02	4.47E-02	7.73E-02	2.79E-02	1.14E-01	1.24E-01	6.01E-02	1.45E-01	1.08E-01
Vinyl chloride	5.05E-02	5.64E-02	3.41E-02	3.96E-02	4.00E-02	3.74E-02	4.78E-02	2.45E-02	2.28E-02	4.54E-02	1.55E-02	4.61E-02	6.73E-02	2.33E-02	2.87E-02	4.27E-02	1.31E-02	5.83E-02	6.21E-02	3.23E-02	6.78E-02	7.06E-02
Vinylidene chloride	1.38E-02	1.54E-02	9.33E-03	1.09E-02	1.09E-02	1.02E-02	1.31E-02	6.72E-03	6.23E-03	1.24E-02	4.24E-03	1.26E-02	1.84E-02	6.39E-03	7.86E-03	1.17E-02	3.59E-03	1.60E-02	1.70E-02	8.85E-03	1.86E-02	1.93E-02
o-Xylene	4.83E-01	5.39E-01	3.26E-01	3.79E-01	3.82E-01	3.57E-01	4.57E-01	2.35E-01	2.18E-01	4.34E-01	1.48E-01	4.40E-01	6.43E-01	2.23E-01	2.74E-01	4.08E-01	1.25E-01	5.58E-01	5.94E-01	3.09E-01	6.48E-01	6.75E-01
Xylenes (mixed)	2.5E+00	2.8E+00	1.7E+00	1.9E+00	2.0E+00	1.8E+00	2.3E+00	1.2E+00	1.1E+00	2.2E+00	7.6E-01	2.3E+00	3.3E+00	1.1E+00	1.4E+00	2.1E+00	6.4E-01	2.9E+00	3.1E+00	1.6E+00	3.3E+00	3.5E+00

Note
1. Receptor identifier in the HARP model.

Abbreviations
MEIR = Maximum Exposed Individual Resident
MEIW = Maximum Exposed Individual Worker
PMI = Point of Maximum Impact
HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzofuran
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzofuran
OCDD = Octachlorodibenzo-p-dioxin
OCDF = Octachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzofuran

TABLE 10

HEALTH EFFECT CATEGORIES FOR CHEMICALS EMITTED FROM THE FACILITY[1]

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Primary Emission Category[2]	Carcinogenic Risk	Chronic Noncarcinogenic Effects	Acute Noncarcinogenic Effects
75070	Acetaldehyde	Kiln	•	•	•
107028	Acrolein	Kiln		•	•
7440382	Arsenic	Raw material	•	•	•
56553	Benz[a]anthracene	Kiln	•		
71432	Benzene	Kiln	•	•	•
50328	Benzo[a]pyrene	Kiln	•		
205992	Benzo[b]fluoranthene	Kiln	•		
207089	Benzo[k]fluoranthene	Kiln	•		
100447	Benzyl chloride	Kiln	•		•
7440417	Beryllium	Raw material	•	•	
106990	1,3-Butadiene	Kiln	•	•	
7440439	Cadmium	Raw material	•	•	
56235	Carbon tetrachloride	Kiln	•	•	•
108907	Chlorobenzene	Kiln		•	
67663	Chloroform	Kiln	•	•	•
18540299	Chromium VI	Byproduct of manufacturing	•	•	
218019	Chrysene	Kiln	•		
7440508	Copper	Raw material			•
1175	Crystalline silica	Raw material		•	
53703	Dibenz[a,h]anthracene	Kiln	•		
106467	p-Dichlorobenzene	Kiln	•	•	
75343	1,1-Dichloroethane	Kiln	•		
78875	1,2-Dichloropropane	Kiln	•		
542756	1,3-Dichloropropene	Kiln	•		
9901	Diesel PM	Stationary sources	•	•	
75003	Ethyl chloride	Kiln		•	
100414	Ethylbenzene	Kiln	•	•	
106934	Ethylene dibromide	Kiln	•	•	
107062	Ethylene dichloride	Kiln	•	•	
50000	Formaldehyde	Kiln	•	•	•
35822469	1,2,3,4,6,7,8-HpCDD	Kiln	•	•	

TABLE 10

HEALTH EFFECT CATEGORIES FOR CHEMICALS EMITTED FROM THE FACILITY[1]

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Primary Emission Category[2]	Carcinogenic Risk	Chronic Noncarcinogenic Effects	Acute Noncarcinogenic Effects
67562394	1,2,3,4,6,7,8-HpCDF	Kiln	•	•	
55673897	1,2,3,4,7,8,9-HpCDF	Kiln	•	•	
39227286	1,2,3,4,7,8-HxCDD	Kiln	•	•	
57653857	1,2,3,6,7,8-HxCDD	Kiln	•	•	
19408743	1,2,3,7,8,9-HxCDD	Kiln	•	•	
70648269	1,2,3,4,7,8-HxCDF	Kiln	•	•	
57117449	1,2,3,6,7,8-HxCDF	Kiln	•	•	
72918219	1,2,3,7,8,9-HxCDF	Kiln	•	•	
60851345	2,3,4,6,7,8-HxCDF	Kiln	•	•	
7647010	Hydrochloric acid	Kiln		•	•
193395	Indeno[1,2,3-c,d]pyrene	Kiln	•		
7439921	Lead	Raw material	•		
7439965	Manganese	Raw material		•	
7439976	Mercury	Raw material		•	•
74839	Methyl bromide	Kiln		•	•
71556	Methyl chloroform	Kiln		•	•
75092	Methylene chloride	Kiln	•	•	•
91203	Naphthalene	Kiln	•	•	
7440020	Nickel	Raw material	•	•	•
3268879	1,2,3,4,6,7,8,9-OCDD	Kiln	•	•	
39001020	1,2,3,4,6,7,8,9-OCDF	Kiln	•	•	
40321764	1,2,3,7,8-PeCDD	Kiln	•	•	
57117416	1,2,3,7,8-PeCDF	Kiln	•	•	
57117314	2,3,4,7,8-PeCDF	Kiln	•	•	
127184	Perchloroethylene	Kiln	•	•	•
7782492	Selenium	Raw material		•	
100425	Styrene	Kiln		•	•
1746016	2,3,7,8-TCDD	Kiln	•	•	
51207319	2,3,7,8-TCDF	Kiln	•	•	
79345	1,1,2,2-Tetrachloroethane	Kiln	•		
108883	Toluene	Kiln		•	•

TABLE 10

HEALTH EFFECT CATEGORIES FOR CHEMICALS EMITTED FROM THE FACILITY[1]

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Primary Emission Category[2]	Carcinogenic Risk	Chronic Noncarcinogenic Effects	Acute Noncarcinogenic Effects
79005	1,1,2-Trichloroethane	Kiln	•		
79016	Trichloroethylene	Kiln	•	•	
1314621	Vanadium	Raw material			•
75014	Vinyl chloride	Kiln	•		•
75354	Vinylidene chloride	Kiln		•	
95476	o-Xylene	Kiln		•	•
1330207	Xylenes (mixed)	Kiln		•	•

Notes

1. Categories designated by the Office of Environmental Health Hazard Assessment (OEHHA) for each chemical.
2. An emission category is presented for each chemical to provide information on where the chemicals originate in the cement manufacturing process. The same chemical may originate from different parts of the manufacturing process, but only the primary source of the chemical is provided.

   Kiln - A byproduct of natural gas combustion to heat the kiln for the manufacture of cement and other chemicals identified during a source test of the kiln.
   Raw material - A chemical that occurs naturally in the raw materials used to manufacture cement.
   Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emissions occur during material handling and storage.
   Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators and welding equipment.

Abbreviations

HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzofuran
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzofuran
OCDD = Octachlorodibenzo-p-dioxin
OCDF = Octachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzofuran
TCDD = Tetrachlorodibenzo-p-dioxin
TCDF = Tetrachlorodibenzofuran

TABLE 11

TOXICITY CRITERIA FOR CHEMICALS EMITTED FROM THE FACILITY

Lehigh Southwest Cement Company

Cupertino Facility

CAS Number	CHEMICAL	Primary Emission Category[1]	Multiple Pathway[2]	Inhalation Cancer Unit Risk Value $(\mu g/m^3)^{-1}$	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Inhalation Chronic REL ug/m^3	Oral Chronic REL mg/kg-d	Acute REL ug/m^3
75070	Acetaldehyde	Kiln		2.70E-06	1.00E-02	*	1.40E+02	*	4.70E+02
107028	Acrolein	Kiln		*	*	*	3.50E-01	*	2.50E+00
7440382	Arsenic	Raw material	X	3.30E-03	1.20E+01	1.50E+00	1.50E-02	3.50E-06	2.00E-01
56553	Benz[a]anthracene	Kiln	X	1.10E-04	3.90E-01	1.20E+00	*	*	*
71432	Benzene	Kiln		2.90E-05	1.00E-01	*	6.00E+01	*	1.30E+03
50328	Benzo[a]pyrene	Kiln	X	1.10E-03	3.90E+00	1.20E+01	*	*	*
205992	Benzo[b]fluoranthene	Kiln	X	1.10E-04	3.90E-01	1.20E+00	*	*	*
207089	Benzo[k]fluoranthene	Kiln	X	1.10E-04	3.90E-01	1.20E+00	*	*	*
100447	Benzyl chloride	Kiln		4.90E-05	1.70E-01	*	*	*	2.40E+02
7440417	Beryllium	Raw material	X	2.40E-03	8.40E+00	*	7.00E-03	2.00E-03	*
106990	1,3-Butadiene	Kiln		1.70E-04	6.00E-01	*	2.00E+01	*	*
7440439	Cadmium	Raw material	X	4.20E-03	1.50E+01	*	2.00E-02	5.00E-04	*
56235	Carbon tetrachloride	Kiln		4.20E-05	1.50E-01	*	4.00E+01	*	1.90E+03
108907	Chlorobenzene	Kiln		*	*	*	1.00E+03	*	*
67663	Chloroform	Kiln		5.30E-06	1.90E-02	*	3.00E+02	*	1.50E+02
18540299	Chromium, hexavalent (& compounds)	Byproduct of manufacturing	X	1.50E-01	5.10E+02	*	2.00E-01	2.00E-02	*
218019	Chrysene	Kiln	X	1.10E-05	3.90E-02	1.20E-01	*	*	*
7440508	Copper	Raw material		*	*	*	*	*	1.00E+02
1175	Crystalline silica (respirable)	Raw material		*	*	*	3.00E+00	*	*
53703	Dibenz[a,h]anthracene	Kiln	X	1.20E-03	4.10E+00	4.10E+00	*	*	*
106467	p-Dichlorobenzene	Kiln		1.10E-05	4.00E-02	*	8.00E+02	*	*
75343	1,1-Dichloroethane	Kiln		1.60E-06	5.70E-03	*	*	*	*
78875	1,2-Dichloropropane	Kiln		1.80E-05	6.30E-02	*	*	*	*
542756	1,3-Dichloropropene	Kiln		1.60E-05	5.50E-02	*	*	*	*

TABLE 11

TOXICITY CRITERIA FOR CHEMICALS EMITTED FROM THE FACILITY

Lehigh Southwest Cement Company

Cupertino Facility

CAS Number	CHEMICAL	Primary Emission Category[1]	Multiple Pathway[2]	Inhalation Cancer Unit Risk Value $(\mu g/m^3)^{-1}$	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Inhalation Chronic REL ug/m^3	Oral Chronic REL mg/kg-d	Acute REL ug/m^3
9901	Diesel engine exhaust, particulate matter (Diesel PM)	Stationary sources		3.00E-04	1.10E+00	*	5.00E+00	*	*
75003	Ethyl chloride (Chloroethane)	Kiln		*	*	*	3.00E+04	*	*
100414	Ethyl benzene	Kiln		2.50E-06	8.70E-03	*	2.00E+03	*	*
106934	Ethylene dibromide (EDB)	Kiln		7.10E-05	2.50E-01	*	8.00E-01	*	*
107062	Ethylene dichloride (EDC)	Kiln		2.10E-05	7.20E-02	*	4.00E+02	*	*
50000	Formaldehyde	Kiln		6.00E-06	2.10E-02	*	9.00E+00	*	5.50E+01
35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	Kiln	X	3.80E-01	1.30E+03	1.30E+03	4.00E-03	1.00E-06	*
67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Kiln	X	3.80E-01	1.30E+03	1.30E+03	4.00E-03	1.00E-06	*
55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Kiln	X	3.80E-01	1.30E+03	1.30E+03	4.00E-03	1.00E-06	*
39227286	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
57653857	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
19408743	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
70648269	1,2,3,4,7,8-Hexachlorodibenzofuran	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
57117449	1,2,3,6,7,8-Hexachlorodibenzofuran	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
72918219	1,2,3,7,8,9-Hexachlorodibenzofuran	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*

TABLE 11

TOXICITY CRITERIA FOR CHEMICALS EMITTED FROM THE FACILITY

Lehigh Southwest Cement Company
Cupertino Facility

CAS Number	CHEMICAL	Primary Emission Category[1]	Multiple Pathway[2]	Inhalation Cancer Unit Risk Value $(\mu g/m^3)^{-1}$	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Inhalation Chronic REL ug/m^3	Oral Chronic REL mg/kg-d	Acute REL ug/m^3
60851345	2,3,4,6,7,8-Hexachlorodibenzofuran	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
7647010	Hydrochloric acid	Kiln		*	*	*	9.00E+00	*	2.10E+03
193395	Indeno[1,2,3-cd]pyrene	Kiln	X	1.10E-04	3.90E-01	1.20E+00	*	*	*
7439921	Lead	Raw material	X	1.20E-05	4.20E-02	8.50E-03	*	*	*
7439965	Manganese	Raw material		*	*	*	9.00E-02	*	*
7439976	Mercury	Raw material		*	*	*	3.00E-02	[3]	6.00E-01
74839	Methyl bromide (Bromomethane)	Kiln		*	*	*	5.00E+00	*	3.90E+03
71556	Methyl chloroform (1,1,1-Trichloroethane)	Kiln		*	*	*	1.00E+03	*	6.80E+04
75092	Methylene chloride (Dichloromethane)	Kiln		1.00E-06	3.50E-03	*	4.00E+02	*	1.40E+04
91203	Naphthalene	Kiln		3.40E-05	1.20E-01	*	9.00E+00	*	*
7440020	Nickel	Raw material	X	2.60E-04	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
3268879	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	Kiln	X	3.80E-03	1.30E+01	1.30E+01	4.00E-01	1.00E-04	*
39001020	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	Kiln	X	3.80E-03	1.30E+01	1.30E+01	4.00E-01	1.00E-04	*
40321764	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Kiln	X	3.80E+01	1.30E+05	1.30E+05	4.00E-05	1.00E-08	*
57117416	1,2,3,7,8-Pentachlorodibenzofuran	Kiln	X	1.90E+00	6.50E+03	6.50E+03	8.00E-04	2.00E-07	*
57117314	2,3,4,7,8-Pentachlorodibenzofuran	Kiln	X	1.90E+01	6.50E+04	6.50E+04	8.00E-05	2.00E-08	*
127184	Perchloroethylene (Tetrachloroethene)	Kiln		5.90E-06	2.10E-02	*	3.50E+01	*	2.00E+04

TABLE 11

TOXICITY CRITERIA FOR CHEMICALS EMITTED FROM THE FACILITY

Lehigh Southwest Cement Company

Cupertino Facility

CAS Number	CHEMICAL	Primary Emission Category[1]	Multiple Pathway[2]	Inhalation Cancer Unit Risk Value $(\mu g/m^3)^{-1}$	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Inhalation Chronic REL ug/m^3	Oral Chronic REL mg/kg-d	Acute REL ug/m^3
7782492	Selenium	Raw material		*	*	*	2.00E+01	*	*
100425	Styrene	Kiln		*	*	*	9.00E+02	*	2.10E+04
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Kiln	X	3.80E+01	1.30E+05	1.30E+05	4.00E-05	1.00E-08	*
51207319	2,3,7,8-Tetrachlorodibenzofuran	Kiln	X	3.80E+00	1.30E+04	1.30E+04	4.00E-04	1.00E-07	*
79345	1,1,2,2-Tetrachloroethane	Kiln		5.80E-05	2.00E-01	*	*	*	*
108883	Toluene	Kiln		*	*	*	3.00E+02	*	3.70E+04
79005	1,1,2-Trichloroethane	Kiln		1.60E-05	5.70E-02	*	*	*	*
79016	Trichloroethylene	Kiln		2.00E-06	7.00E-03	*	6.00E+02	*	*
1314621	Vanadium pentoxide	Raw material		*	*	*	*	*	3.00E+01
75014	Vinyl chloride	Kiln		7.80E-05	2.70E-01	*	*	*	1.80E+05
75354	Vinylidene chloride	Kiln		*	*	*	7.00E+01	*	*
95476	o-Xylene	Kiln		*	*	*	7.00E+02	*	2.20E+04
1330207	Xylenes (mixed)	Kiln		*	*	*	7.00E+02	*	2.20E+04

TABLE 11

TOXICITY CRITERIA FOR CHEMICALS EMITTED FROM THE FACILITY

Lehigh Southwest Cement Company
Cupertino Facility

Notes

1. An emission category is presented for each chemical to provide information on where the chemicals originate in the cement manufacturing process. The same chemical may originate from different parts of the manufacturing process, but only the primary source of the chemical is provided.

   Kiln - Byproducts of natural gas combustion to heat the kiln for the manufacture of cement and other chemicals identified during a source test of the kiln.

   Raw material - A chemical that occurs naturally in the raw materials used to manufacture cement.

   Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emissions occur during material handling and storage.

   Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators and welding equipment.

2. Indicates that a chemical is evaluated for exposure pathways in addition to inhalation because of potential accumulation on the ground. Applicable exposure pathways include ingestion of soil, dermal absorption, ingestion of mother's milk, and ingestion of homegrown produce.

3. Based on guidance provided to BAAQMD by OEHHA (Dr. Bob Blaisdell), it has been determined that elemental mercury does not have multiple exposure pathways. It is an inhalation risk only.

Abbreviations

* = Not applicable

TABLE 12

POTENTIAL CHRONIC HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL - THE CENTRAL NERVOUS SYSTEM HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

Chemical[2]	CAS Number	Primary Emission Category[3]	Point of Maximum Impact (PMI) Receptor #226[4]				Maximum Exposed Individual Resident (MEIR) Receptor #2085[4]				Maximum Exposed Individual Worker (MEIW) Receptor #10963[4,5]			
			2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
Acetaldehyde	75070	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Acrolein	107028	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Arsenic	7440382	Raw material	**8.73E-02**	23.4%	**5.29E-02**	24.3%	**7.05E-02**	23.1%	**4.23E-02**	23.7%	**5.98E-02**	40.2%	**3.65E-02**	41.4%
Benz(a)anthracene	56553	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Benzene	71432	Kiln	**2.32E-03**	0.6%	**1.35E-03**	0.6%	**1.91E-03**	0.6%	**1.11E-03**	0.6%	**7.25E-04**	0.5%	**4.21E-04**	0.5%
Benzo(a)pyrene	50328	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Benzo(b)fluoranthene	205992	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Benzo(k)fluoranthene	207089	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Benzyl chloride	100447	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Beryllium	7440417	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,3-Butadiene	106990	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Cadmium	7440439	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Carbon tetrachloride	56235	Kiln	**2.22E-05**	0.0%	**1.29E-05**	0.0%	**1.83E-05**	0.0%	**1.06E-05**	0.0%	**6.94E-06**	0.0%	**4.02E-06**	0.0%
Chlorobenzene	108907	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Chloroform	67663	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Chromium, hexavalent (& compounds)	18540299	Byproduct of manufacturing	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Chrysene	218019	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Copper	7440508	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Crystalline Silica	1175	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Dibenz(a,h)anthracene	53703	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
p-Dichlorobenzene	106467	Kiln	**1.06E-06**	0.0%	**6.17E-07**	0.0%	**8.75E-07**	0.0%	**5.08E-07**	0.0%	**3.32E-07**	0.0%	**1.93E-07**	0.0%
1,1-Dichloroethane	75343	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2-Dichloropropane	78875	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,3-Dichloropropene	542756	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Diesel engine exhaust	9901	Stationary sources	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Ethyl benzene	100414	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Ethyl chloride (Chloroethane)	75003	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Ethylene dibromide (EDB)	106934	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Ethylene dichloride (EDC)	107062	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Formaldehyde	50000	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562394	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673897	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822469	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%

TABLE 12

POTENTIAL CHRONIC HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL - THE CENTRAL NERVOUS SYSTEM HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

Chemical[2]	CAS Number	Primary Emission Category[3]	Point of Maximum Impact (PMI) Receptor #226[4]				Maximum Exposed Individual Resident (MEIR) Receptor #2085[4]				Maximum Exposed Individual Worker (MEIW) Receptor #10963[4,5]			
			2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
1,2,3,4,7,8-Hexachlorodibenzofuran	70648269	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,7,8,9-Hexachlorodibenzofuran	72918219	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
2,3,4,6,7,8-Hexachlorodibenzofuran	60851345	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227286	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653857	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408743	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Hydrochloric acid	7647010	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Indeno(1,2,3-cd)pyrene	193395	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Lead	7439921	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Manganese	7439965	Raw material	**6.40E-04**	0.2%	**3.72E-04**	0.2%	**5.27E-04**	0.2%	**3.06E-04**	0.2%	**2.00E-04**	0.1%	**1.16E-04**	0.1%
Mercury[6]	7439976	Raw material	**2.80E-01**	75.1%	**1.62E-01**	74.3%	**2.30E-01**	75.5%	**1.34E-01**	74.9%	**8.73E-02**	58.7%	**5.07E-02**	57.5%
Methyl bromide (Bromomethane)	74839	Kiln	**1.80E-03**	0.5%	**1.05E-03**	0.5%	**1.49E-03**	0.5%	**8.63E-04**	0.5%	**5.63E-04**	0.4%	**3.27E-04**	0.4%
Methyl chloroform (1,1,1-trichloroethane)	71556	Kiln	**4.63E-07**	0.0%	**2.68E-07**	0.0%	**3.81E-07**	0.0%	**2.21E-07**	0.0%	**1.45E-07**	0.0%	**8.38E-08**	0.0%
Methylene chloride (Dichloromethane)	75092	Kiln	**4.65E-06**	0.0%	**2.70E-06**	0.0%	**3.83E-06**	0.0%	**2.22E-06**	0.0%	**1.45E-06**	0.0%	**8.43E-07**	0.0%
Naphthalene	91203	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Nickel	7440020	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001020	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268879	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
2,3,4,7,8-Pentachlorodibenzofuran	57117314	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,7,8-Pentachlorodibenzofuran	57117416	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321764	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Perchloroethylene	127184	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Selenium	7782492	Raw material	**3.87E-06**	0.0%	**2.32E-06**	0.0%	**3.17E-06**	0.0%	**1.88E-06**	0.0%	**1.78E-06**	0.0%	**1.10E-06**	0.0%
Styrene	100425	Kiln	**3.90E-06**	0.0%	**2.26E-06**	0.0%	**3.21E-06**	0.0%	**1.86E-06**	0.0%	**1.22E-06**	0.0%	**7.06E-07**	0.0%

TABLE 12

POTENTIAL CHRONIC HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL - THE CENTRAL NERVOUS SYSTEM HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

Chemical[2]	CAS Number	Primary Emission Category[3]	Point of Maximum Impact (PMI) Receptor #226[4]				Maximum Exposed Individual Resident (MEIR) Receptor #2085[4]				Maximum Exposed Individual Worker (MEIW) Receptor #10963[4,5]			
			2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
2,3,7,8-Tetrachlorodibenzofuran	51207319	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
1,1,2,2-Tetrachloroethane	79345	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Toluene	108883	Kiln	**4.16E-04**	0.1%	**2.41E-04**	0.1%	**3.43E-04**	0.1%	**1.98E-04**	0.1%	**1.30E-04**	0.1%	**7.52E-05**	0.1%
1,1,2-Trichloroethane	79005	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Trichloroethylene	79016	Kiln	**1.01E-06**	0.0%	**5.87E-07**	0.0%	**8.34E-07**	0.0%	**4.83E-07**	0.0%	**3.16E-07**	0.0%	**1.83E-07**	0.0%
Vanadium pentoxide	1314621	Raw material	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Vinyl chloride	75014	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
Vinylidene chloride	75354	Kiln	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%	0.00E+00	0.0%
o-Xylene	95476	Kiln	**2.80E-05**	0.0%	**1.63E-05**	0.0%	**2.31E-05**	0.0%	**1.34E-05**	0.0%	**8.75E-06**	0.0%	**5.08E-06**	0.0%
Xylenes (mixed)	1330207	Kiln	**1.43E-04**	0.0%	**8.31E-05**	0.0%	**1.18E-04**	0.0%	**6.84E-05**	0.0%	**4.47E-05**	0.0%	**2.59E-05**	0.0%
Total[7]			**4E-01**	100%	**2E-01**	100%	**3E-01**	100%	**2E-01**	100%	**1E-01**	100%	**9E-02**	100%

TABLE 12

POTENTIAL CHRONIC HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL -
THE CENTRAL NERVOUS SYSTEM
HEALTH EFFECTS ENDPOINTS ONLY[1]
Lehigh Southwest Cement Company
Cupertino Facility

Notes

1. Maximum chronic hazard index was highest for the central nervous system (CNS). The total chronic hazard index for developmental effects was similar. Hazard indexes for other target systems/organs were lower. Hazard indexes for chemicals contributing to other target systems/organs are presented in Appendix B.
2. All evaluated Toxic Air Contaminants (TACs) presented; not all have chronic noncancer effects on the CNS or respiratory system. TACs without chronic effects on the applicable organ system are shaded.
3. An emission category is presented for each chemical to provide information on where the chemicals originate in the cement manufacturing process. The same chemical may originate from different parts of the manufacturing process, but only the primary source of the chemical is provided.
   Kiln - Byproducts of natural gas combustion to heat the kiln for the manufacture of cement and other chemicals identified during a source test of the kiln.
   Raw material - A chemical that occurs naturally in the raw materials used to manufacture cement.
   Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emission occur during material handling and storage.
   Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators and welding equipment.
4. Receptor identifier in the HARP model.
5. Exposure adjusted within the HARP model per a standard work schedule (49 wks/yr, 5 days/wk, 8 hrs/day).
6. The chronic hazard indiex for mercury has been adjusted from the HARP output to exclude oral exposure.
7. Chronic hazard indexes for the PMI, MEIR, and MEIW are below 1, the regulatory notification level.

Abbreviation

% Cont. = Percent contribution to total

TABLE 13

POTENTIAL CHRONIC HAZARD INDEXES
AT THE PMI, MEIW AND MEIR BY SOURCE AND PATHWAY
- THE CENTRAL NERVOUS SYSTEM HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

	Point of Maximum Impact (PMI) Receptor #226				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
Source ID	**2008 CEIR**	**% Cont.**	**Current Low Production**	**% Cont.**	**2008 CEIR**	**% Cont.**	**Current Low Production**	**% Cont.**	**2008 CEIR**	**% Cont.**	**Current Low Production**	**% Cont.**
KILN	3.09E-01	84%	1.82E-01	83%	2.60E-01	85%	1.50E-01	84%	9.62E-02	65%	5.56E-02	63%
Point Sources												
1D4	2.69E-03	0.7%	1.56E-03	0.7%	2.24E-03	0.7%	1.30E-03	0.7%	8.31E-04	0.6%	4.81E-04	0.5%
2D1	7.08E-04	0.2%	4.10E-04	0.2%	6.10E-04	0.2%	3.53E-04	0.2%	4.50E-04	0.3%	2.60E-04	0.3%
3D1	6.99E-04	0.2%	4.05E-04	0.2%	6.86E-04	0.2%	3.98E-04	0.2%	1.20E-04	0.1%	6.91E-05	0.1%
3D4	6.15E-04	0.2%	3.57E-04	0.2%	8.54E-04	0.3%	4.95E-04	0.3%	2.04E-04	0.1%	1.18E-04	0.1%
3D5	4.98E-04	0.1%	2.90E-04	0.1%	7.36E-04	0.2%	4.29E-04	0.2%	1.95E-04	0.1%	1.14E-04	0.1%
4D3	4.67E-04	0.1%	2.71E-04	0.1%	5.19E-04	0.2%	3.01E-04	0.2%	2.37E-04	0.2%	1.38E-04	0.2%
4D4	4.70E-04	0.1%	2.73E-04	0.1%	5.21E-04	0.2%	3.02E-04	0.2%	2.40E-04	0.2%	1.40E-04	0.2%
5D1	4.86E-04	0.1%	2.82E-04	0.1%	4.05E-04	0.1%	2.35E-04	0.1%	2.77E-04	0.2%	1.62E-04	0.2%
5D11_20	2.40E-03	0.7%	1.39E-03	0.6%	1.96E-03	0.6%	1.14E-03	0.6%	2.06E-03	1.4%	1.19E-03	1.4%
5D2	5.25E-04	0.1%	3.05E-04	0.1%	4.31E-04	0.1%	2.50E-04	0.1%	2.75E-04	0.2%	1.60E-04	0.2%
5D23	5.60E-04	0.2%	3.25E-04	0.1%	4.97E-04	0.2%	2.89E-04	0.2%	4.73E-04	0.3%	2.75E-04	0.3%
5D27	1.85E-04	0.1%	1.07E-04	0.0%	1.07E-04	0.0%	6.17E-05	0.0%	1.08E-04	0.1%	6.26E-05	0.1%
5D28	2.27E-04	0.1%	1.32E-04	0.1%	2.09E-04	0.1%	1.21E-04	0.1%	1.42E-04	0.1%	8.20E-05	0.1%
5D3	7.94E-04	0.2%	4.61E-04	0.2%	6.31E-04	0.2%	3.66E-04	0.2%	4.85E-04	0.3%	2.81E-04	0.3%
5D5	6.37E-04	0.2%	3.70E-04	0.2%	7.13E-04	0.2%	4.14E-04	0.2%	3.21E-04	0.2%	1.87E-04	0.2%
5D6	6.84E-04	0.2%	3.97E-04	0.2%	7.52E-04	0.2%	4.37E-04	0.2%	3.42E-04	0.2%	1.98E-04	0.2%
6D1	2.17E-03	0.6%	1.26E-03	0.6%	1.96E-03	0.6%	1.14E-03	0.6%	1.83E-03	1.2%	1.06E-03	1.2%
6D12	6.10E-04	0.2%	3.55E-04	0.2%	5.66E-04	0.2%	3.30E-04	0.2%	5.96E-04	0.4%	3.47E-04	0.4%
6D17	1.02E-03	0.3%	5.91E-04	0.3%	9.44E-04	0.3%	5.48E-04	0.3%	8.00E-04	0.5%	4.64E-04	0.5%
6D19	6.17E-04	0.2%	3.58E-04	0.2%	5.94E-04	0.2%	3.44E-04	0.2%	6.77E-04	0.5%	3.93E-04	0.4%
6D2	9.31E-04	0.3%	5.40E-04	0.2%	8.74E-04	0.3%	5.07E-04	0.3%	6.46E-04	0.4%	3.75E-04	0.4%
6D8	3.55E-04	0.1%	2.05E-04	0.1%	2.79E-04	0.1%	1.61E-04	0.1%	2.42E-04	0.2%	1.40E-04	0.2%
8D31	5.22E-04	0.1%	3.03E-04	0.1%	1.97E-04	0.1%	1.15E-04	0.1%	2.83E-04	0.2%	1.65E-04	0.2%
999D	5.17E-03	1.4%	2.98E-03	1.4%	3.04E-03	1.0%	1.75E-03	1.0%	1.26E-03	0.8%	7.25E-04	0.8%
S501	0.0E+00	0.0%	0.00E+00	0.0%	0.0E+00	0.0%	0.00E+00	0.0%	0.0E+00	0.0%	0.00E+00	0.0%
S502	0.0E+00	0.0%	0.00E+00	0.0%	0.0E+00	0.0%	0.00E+00	0.0%	0.0E+00	0.0%	0.00E+00	0.0%

TABLE 13

POTENTIAL CHRONIC HAZARD INDEXES
AT THE PMI, MEIW AND MEIR BY SOURCE AND PATHWAY
- THE CENTRAL NERVOUS SYSTEM HEALTH EFFECTS ENDPOINTS ONLY[1]
Lehigh Southwest Cement Company
Cupertino Facility

	Point of Maximum Impact (PMI) Receptor #226				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
Source ID	**2008 CEIR**	**% Cont.**	**Current Low Production**	**% Cont.**	**2008 CEIR**	**% Cont.**	**Current Low Production**	**% Cont.**	**2008 CEIR**	**% Cont.**	**Current Low Production**	**% Cont.**
Fugitive/Volume Sources												
1	1.62E-03	0.4%	1.12E-03	0.5%	1.49E-03	0.5%	1.03E-03	0.6%	1.41E-03	1.0%	9.69E-04	1.1%
2	2.25E-03	0.6%	1.55E-03	0.7%	2.02E-03	0.7%	1.39E-03	0.8%	2.14E-03	1.4%	1.47E-03	1.7%
3	4.85E-03	1.3%	2.82E-03	1.3%	4.18E-03	1.4%	2.43E-03	1.4%	5.39E-03	3.6%	3.14E-03	3.6%
4A	2.34E-03	0.6%	1.36E-03	0.6%	2.02E-03	0.7%	1.17E-03	0.7%	4.37E-03	2.9%	2.54E-03	2.9%
4B	2.70E-03	0.7%	1.57E-03	0.7%	2.43E-03	0.8%	1.42E-03	0.8%	6.24E-03	4.2%	3.62E-03	4.1%
4C	2.78E-03	0.8%	1.62E-03	0.7%	2.46E-03	0.8%	1.44E-03	0.8%	3.99E-03	2.7%	2.32E-03	2.6%
4D	3.37E-03	0.9%	1.95E-03	0.9%	2.84E-03	0.9%	1.65E-03	0.9%	5.02E-03	3.4%	2.92E-03	3.3%
5	1.78E-03	0.5%	1.13E-03	0.5%	1.81E-03	0.6%	1.15E-03	0.6%	1.49E-03	1.0%	9.44E-04	1.1%
6A	2.55E-03	0.7%	1.81E-03	0.8%	1.45E-03	0.5%	1.02E-03	0.6%	2.12E-03	1.4%	1.50E-03	1.7%
6B	3.11E-03	0.8%	2.21E-03	1.0%	6.98E-04	0.2%	4.94E-04	0.3%	2.49E-03	1.7%	1.76E-03	2.0%
6C	2.22E-03	0.6%	1.57E-03	0.7%	1.96E-03	0.6%	1.39E-03	0.8%	1.63E-03	1.1%	1.17E-03	1.3%
6D	3.46E-03	0.9%	2.46E-03	1.1%	2.30E-03	0.7%	1.63E-03	0.9%	1.83E-03	1.2%	1.30E-03	1.5%
7PD7	3.82E-04	0.1%	2.22E-04	0.1%	2.54E-04	0.1%	1.48E-04	0.1%	2.03E-04	0.1%	1.18E-04	0.1%
7	2.78E-04	0.1%	2.65E-04	0.1%	5.50E-05	0.0%	5.24E-05	0.0%	1.29E-04	0.1%	1.23E-04	0.1%
8	3.64E-04	0.1%	3.53E-04	0.2%	1.96E-04	0.1%	1.89E-04	0.1%	5.98E-04	0.4%	5.79E-04	0.7%
Inhalation Pathways	2.9E-01	78%	1.7E-01	77%	2.4E-01	77%	1.4E-01	77%	9.1E-02	61%	5.3E-02	60%
Non-Inhalation Pathways	7.9E-02	22%	5.1E-02	23%	7.0E-02	23%	4.2E-02	23%	5.8E-02	39%	3.5E-02	40%
Total [3,4]	4E-01	100%	2E-01	100%	3E-01	100%	2E-01	100%	1E-01	100%	9E-02	100%

Notes:

1. Maximum chronic hazard index was highest for the central nervous system (CNS). The total chronic hazard index for developmental effects was similar. Hazard indexes for other target systems/organs were lower. Hazard indexes for chemicals contributing to other target systems/organs are presented in Appendix B.
2. Exposure adjusted within the HARP model per a standard work schedule (49 wks/yr, 5 days/wk, 8 hrs/day).
3. The chronic hazard indiex for mercury has been adjusted from the HARP output to exclude oral exposure.
4. Chronic hazard indexes for the MEIR and MEIW are below 1, the regulatory notification level.

Abbreviations:
% Cont. = Percent contribution to total

TABLE 14

POTENTIAL ACUTE HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL
- THE DEVELOPMENTAL HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

Chemical[2]	CAS Number	Primary Emission Category	Point of Maximum Impact (PMI) Receptor ID #130		Maximum Exposed Individual Resident (MEIR) Receptor ID #2085		Maximum Exposed Individual Worker (MEIW) Receptor ID #10963	
			2008 CEIR[3]	% Cont.	2008 CEIR[3]	% Cont.	2008 CEIR[3]	% Cont.
Acetaldehyde	75070	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Acrolein	107028	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Arsenic	7440382	Raw material	**4.15E-02**	2.0%	**2.18E-02**	3.5%	**2.43E-02**	3.0%
Benz[a]anthracene	56553	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Benzene	71432	Kiln	**1.52E-02**	0.7%	**4.55E-03**	0.7%	**5.99E-03**	0.7%
Benzo[a]pyrene	50328	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Benzo[b]fluoranthene	205992	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Benzo[k]fluoranthene	207089	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Benzyl chloride	100447	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Beryllium	7440417	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,3-Butadiene	106990	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Cadmium	7440439	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Carbon Tetrachloride	56235	Kiln	**6.64E-05**	0.0%	**1.99E-05**	0.0%	**2.62E-05**	0.0%
Chlorobenzene	108907	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Chloroform	67663	Kiln	**3.91E-04**	0.0%	**1.17E-04**	0.0%	**1.54E-04**	0.0%
Chromium VI	18540299	Byproduct of manufacturing	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Chrysene	218019	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Copper	7440508	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Crystalline silica	1175	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Dibenz[a,h]anthracene	53703	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
p-Dichlorobenzene	106467	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,1-Dichloroethane	75343	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2-Dichloropropane	78875	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,3-Dichloropropene	542756	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Diesel PM	9901	Stationary sources	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Ethyl Chloride	75003	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

TABLE 14

POTENTIAL ACUTE HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL
- THE DEVELOPMENTAL HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

Chemical[2]	CAS Number	Primary Emission Category	Point of Maximum Impact (PMI)		Maximum Exposed Individual Resident (MEIR)		Maximum Exposed Individual Worker (MEIW)	
			Receptor ID #130		Receptor ID #2085		Receptor ID #10963	
			2008 CEIR[3]	% Cont.	2008 CEIR[3]	% Cont.	2008 CEIR[3]	% Cont.
Ethylbenzene	100414	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Ethylene dibromide	106934	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Ethylene dichloride	107062	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Formaldehyde	50000	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,6,7,8-HpCDD	35822469	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,6,7,8-HpCDF	67562394	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,7,8,9-HpCDF	55673897	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,7,8-HxCDD	39227286	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,6,7,8-HxCDD	57653857	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,7,8,9-HxCDD	19408743	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,7,8-HxCDF	70648269	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,6,7,8-HxCDF	57117449	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,7,8,9-HxCDF	72918219	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
2,3,4,6,7,8-HxCDF	60851345	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Hydrochloric Acid	7647010	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Indeno[1,2,3-c,d]pyrene	193395	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Lead	7439921	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Manganese	7439965	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Mercury	7439976	Raw material	**1.98E+00**	97%	**5.94E-01**	96%	**7.83E-01**	96%
Methyl Bromide	74839	Kiln	**3.28E-04**	0.0%	**9.83E-05**	0.0%	**1.29E-04**	0.0%
Methyl chloroform (1,1,1-trichloroethane)	71556	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methylene chloride	75092	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Naphthalene	91203	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Nickel	7440020	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,6,7,8,9-OCDD	3268879	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,4,6,7,8,9-OCDF	39001020	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,7,8-PeCDD	40321764	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,2,3,7,8-PeCDF	57117416	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

TABLE 14

POTENTIAL ACUTE HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY CHEMICAL - THE DEVELOPMENTAL HEALTH EFFECTS ENDPOINTS ONLY[1]

Lehigh Southwest Cement Company
Cupertino Facility

Chemical[2]	CAS Number	Primary Emission Category	Point of Maximum Impact (PMI) Receptor ID #130		Maximum Exposed Individual Resident (MEIR) Receptor ID #2085		Maximum Exposed Individual Worker (MEIW) Receptor ID #10963	
			2008 CEIR[3]	% Cont.	2008 CEIR[3]	% Cont.	2008 CEIR[3]	% Cont.
2,3,4,7,8-PeCDF	57117314	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Perchloroethylene	127184	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Selenium	7782492	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Styrene	100425	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
2,3,7,8-TCDD	1746016	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
2,3,7,8-TCDF	51207319	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,1,2,2-Tetrachloroethane	79345	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Thallium	7440280	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Toluene	108883	Kiln	**4.76E-04**	0.0%	**1.43E-04**	0.0%	**1.88E-04**	0.0%
1,1,2-Trichloroethane	79005	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Trichloroethylene	79016	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Vanadium	1314621	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Vinyl Chloride	75014	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Vinylidene chloride	75354	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
o-xylene	95476	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Xylenes (mixed)	1330207	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total Hazard Index[4]			**2E+00**	100%	**6E-01**	100%	**8E-01**	100%

Notes

1. Maximum acute hazard index was highest for developmental effects. The total acute hazard index for the central nervous system was similar. Hazard indexes for other target systems/organs were lower. Hazard indexes for chemicals contributing to other target systems/organs are presented in Appendix B.
2. All evaluated toxic air contaminants (TACs) presented; not all have acute noncancer effects on the developmental system. Results for TACs without acute developmental effects are shaded.
3. A current low production evaluation was not performed for acute effects because overall production does not affect maximum production rates.
4. Acute hazard indexes for the MEIR and MEIW are below 1, the regulatory notification level for the AB2588 program.

TABLE 15

POTENTIAL ACUTE HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY SOURCE - THE DEVELOPMENTAL HEALTH EFFECTS ENDPOINT ONLY [1]

Lehigh Southwest Cement Company
Cupertino Facility

Source ID	Point of Maximum Impact (PMI) Receptor #130		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
	2008 CEIR[2]	Relative Contribution	2008 CEIR[2]	Relative Contribution	2008 CEIR[2]	Relative Contribution
KILN	2.0E+00	99%	6.0E-01	97%	7.9E-01	97%
Point Sources						
1D4	7.9E-04	0.04%	3.0E-04	0.05%	2.7E-04	0.03%
2D1	4.1E-04	0.02%	2.7E-04	0.04%	3.2E-04	0.04%
3D1	1.8E-04	0.01%	1.1E-04	0.02%	2.3E-05	0.00%
3D4	2.9E-04	0.01%	2.5E-04	0.04%	1.0E-04	0.01%
3D5	2.6E-04	0.01%	2.2E-04	0.04%	9.5E-05	0.01%
4D3	3.7E-04	0.02%	1.4E-04	0.02%	1.3E-04	0.02%
4D4	3.7E-04	0.02%	1.4E-04	0.02%	1.3E-04	0.02%
5D1	3.8E-04	0.02%	1.3E-04	0.02%	1.3E-04	0.02%
5D11_20	2.9E-03	0.14%	8.4E-04	0.14%	9.9E-04	0.12%
5D2	3.5E-04	0.02%	1.4E-04	0.02%	1.3E-04	0.02%
5D23	4.6E-04	0.02%	1.2E-04	0.02%	1.8E-04	0.02%
5D27	6.0E-05	0.00%	4.8E-05	0.01%	4.3E-05	0.01%
5D28	6.6E-05	0.00%	3.0E-05	0.00%	8.9E-05	0.01%
5D3	5.5E-04	0.03%	2.0E-04	0.03%	2.1E-04	0.03%
5D5	7.1E-04	0.03%	2.7E-04	0.04%	2.6E-04	0.03%
5D6	7.4E-04	0.04%	2.9E-04	0.05%	2.6E-04	0.03%
6D1	4.9E-04	0.02%	6.1E-04	0.10%	4.7E-04	0.06%
6D12	2.1E-04	0.01%	1.7E-04	0.03%	2.5E-04	0.03%
6D17	2.2E-04	0.01%	2.3E-04	0.04%	2.2E-04	0.03%
6D19	1.1E-04	0.01%	1.2E-04	0.02%	1.3E-04	0.02%
6D2	2.2E-04	0.01%	2.5E-04	0.04%	1.9E-04	0.02%
6D8	7.2E-05	0.00%	4.7E-05	0.01%	6.9E-05	0.01%
8D31	2.3E-04	0.01%	6.4E-05	0.01%	1.1E-04	0.01%
999D	3.3E-03	0.16%	1.3E-03	0.21%	4.2E-04	0.05%
S501	0.0E+00	0.00%	0.0E+00	0.00%	0.0E+00	0.00%
S502	0.0E+00	0.00%	0.0E+00	0.00%	0.0E+00	0.00%

TABLE 15

POTENTIAL ACUTE HAZARD INDEXES AT THE PMI, MEIW AND MEIR BY SOURCE - THE DEVELOPMENTAL HEALTH EFFECTS ENDPOINT ONLY [1]

Lehigh Southwest Cement Company
Cupertino Facility

Source ID	Point of Maximum Impact (PMI) Receptor #130		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
	2008 CEIR[2]	Relative Contribution	2008 CEIR[2]	Relative Contribution	2008 CEIR[2]	Relative Contribution
Fugitive/Volume Sources						
1	5.8E-04	0.03%	5.5E-04	0.09%	7.4E-04	0.09%
2	8.1E-04	0.04%	6.3E-04	0.10%	7.3E-04	0.09%
3	3.8E-04	0.02%	2.2E-04	0.03%	3.1E-04	0.04%
4A	3.5E-03	0.17%	1.8E-03	0.29%	2.2E-03	0.27%
4B	4.8E-03	0.23%	2.8E-03	0.45%	3.2E-03	0.40%
4C	2.6E-03	0.13%	1.5E-03	0.24%	2.3E-03	0.28%
4D	4.0E-03	0.20%	3.1E-03	0.50%	3.4E-03	0.42%
5	8.8E-04	0.04%	1.8E-03	0.28%	1.2E-03	0.15%
6A	6.7E-04	0.03%	3.8E-04	0.06%	7.3E-04	0.09%
6B	1.1E-03	0.05%	9.8E-05	0.02%	7.5E-04	0.09%
6C	6.9E-04	0.03%	5.2E-04	0.08%	6.1E-04	0.08%
6D	1.2E-03	0.06%	6.4E-04	0.10%	5.5E-04	0.07%
7PD7	3.1E-05	0.00%	3.7E-05	0.01%	2.1E-05	0.00%
7	1.1E-04	0.01%	1.8E-05	0.00%	5.5E-05	0.01%
8	3.2E-04	0.02%	7.5E-05	0.01%	2.1E-04	0.03%
SUM	2E+00	100%	6E-01	100%	8E-01	100%

Notes

1. Maximum acute hazard index was highest for developmental effects. The total acute hazard index for the central nervous system was similar. Hazard indexes for other target systems/organs were lower. Hazard indexes for chemicals contributing to other target systems/organs are presented in Appendix B.
2. A current low production evaluation was not performed for acute effects because overall production does not affect maximum production rates.

TABLE 16

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY CHEMICAL

Lehigh Southwest Cement Company

Cupertino Facility

Chemical [1]	CAS Number	Primary Emission Category [2]	Point of Maximum Impact (PMI) Receptor #129				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
			2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
Acetaldehyde	75070	Kiln	6.5E-08	0.3%	3.8E-08	0.3%	6.8E-08	0.5%	3.9E-08	0.5%	3.0E-09	0.3%	1.7E-09	0.2%
Acrolein	107028	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Arsenic	7440382	Raw material	1.4E-06	6.8%	8.6E-07	6.7%	7.4E-07	5.4%	4.5E-07	5.4%	1.4E-07	11%	8.2E-08	11%
Benz(a)anthracene	56553	Kiln	8.6E-10	0.0%	5.0E-10	0.0%	8.9E-10	0.0%	5.2E-10	0.0%	3.5E-11	0.0%	2.1E-11	0.0%
Benzene	71432	Kiln	5.4E-06	26%	3.1E-06	25%	5.6E-06	41%	3.3E-06	40%	2.5E-07	21%	1.4E-07	20%
Benzo(a)pyrene	50328	Kiln	1.9E-10	0.0%	1.1E-10	0.0%	2.0E-10	0.0%	1.2E-10	0.0%	8.0E-12	0.0%	4.6E-12	0.0%
Benzo(b)fluoranthene	205992	Kiln	1.2E-10	0.0%	7.0E-11	0.0%	1.3E-10	0.0%	7.3E-11	0.0%	5.1E-12	0.0%	2.9E-12	0.0%
Benzo(k)fluoranthene	207089	Kiln	1.9E-11	0.0%	1.1E-11	0.0%	2.0E-11	0.0%	1.2E-11	0.0%	8.0E-13	0.0%	4.6E-13	0.0%
Benzyl chloride	100447	Kiln	9.7E-08	0.5%	5.6E-08	0.4%	1.0E-07	0.7%	5.8E-08	0.7%	4.4E-09	0.4%	2.6E-09	0.4%
Beryllium	7440417	Raw material	6.1E-08	0.3%	4.0E-08	0.3%	3.6E-08	0.3%	2.2E-08	0.3%	3.5E-09	0.3%	2.2E-09	0.3%
1,3-Butadiene	106990	Kiln	3.1E-07	1.5%	1.8E-07	1.4%	3.2E-07	2.4%	1.9E-07	2.3%	1.4E-08	1.2%	8.2E-09	1.1%
Cadmium	7440439	Raw material	1.7E-07	0.8%	1.1E-07	0.8%	9.1E-08	0.7%	5.6E-08	0.7%	1.0E-08	0.9%	6.5E-09	0.9%
Carbon Tetrachloride	56235	Kiln	5.2E-08	0.2%	3.0E-08	0.2%	5.4E-08	0.4%	3.1E-08	0.4%	2.4E-09	0.2%	1.4E-09	0.2%
Chlorobenzene	108907	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Chloroform	67663	Kiln	3.1E-09	0.0%	1.8E-09	0.0%	3.2E-09	0.0%	1.9E-09	0.0%	1.4E-10	0.0%	8.1E-11	0.0%
Chromium VI	18540299	Byproduct of manufacturing	1.1E-05	55%	7.0E-06	54%	5.3E-06	39%	3.2E-06	39%	6.6E-07	56%	4.0E-07	56%
Chrysene	218019	Kiln	2.5E-10	0.0%	1.5E-10	0.0%	2.6E-10	0.0%	1.5E-10	0.0%	1.0E-11	0.0%	6.1E-12	0.0%
Copper	7440508	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Crystalline silica	1175	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Dibenz(a,h)anthracene	53703	Kiln	7.0E-11	0.0%	4.0E-11	0.0%	7.3E-11	0.0%	4.2E-11	0.0%	2.9E-12	0.0%	1.7E-12	0.0%
p-Dichlorobenzene	106467	Kiln	1.3E-08	0.1%	7.7E-09	0.1%	1.4E-08	0.1%	8.0E-09	0.1%	6.1E-10	0.1%	3.5E-10	0.0%
1,1-Dichloroethane	75343	Kiln	6.3E-10	0.0%	3.7E-10	0.0%	6.6E-10	0.0%	3.8E-10	0.0%	2.9E-11	0.0%	1.7E-11	0.0%
1,2-Dichloropropane	78875	Kiln	9.6E-09	0.0%	5.6E-09	0.0%	1.0E-08	0.1%	5.8E-09	0.1%	4.4E-10	0.0%	2.6E-10	0.0%
1,3-Dichloropropene	542756	Kiln	3.4E-08	0.2%	2.0E-08	0.2%	3.6E-08	0.3%	2.1E-08	0.3%	1.6E-09	0.1%	9.1E-10	0.1%
Diesel PM	9901	Stationary	5.8E-07	2.8%	5.8E-07	4.6%	2.2E-07	1.6%	2.2E-07	2.7%	3.3E-08	2.8%	3.3E-08	4.5%
Ethyl Chloride	75003	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Ethylbenzene	100414	Kiln	4.7E-08	0.2%	2.7E-08	0.2%	4.9E-08	0.4%	2.8E-08	0.3%	2.2E-09	0.2%	1.3E-09	0.2%
Ethylene dibromide	106934	Kiln	8.5E-08	0.4%	4.9E-08	0.4%	8.8E-08	0.6%	5.1E-08	0.6%	3.9E-09	0.3%	2.3E-09	0.3%
Ethylene dichloride	107062	Kiln	9.6E-09	0.0%	5.6E-09	0.0%	1.0E-08	0.1%	5.8E-09	0.1%	4.4E-10	0.0%	2.6E-10	0.0%
Formaldehyde	50000	Kiln	7.4E-09	0.0%	4.3E-09	0.0%	7.8E-09	0.1%	4.5E-09	0.1%	3.4E-10	0.0%	2.0E-10	0.0%
1,2,3,4,6,7,8-HpCDD	35822469	Kiln	6.9E-10	0.0%	4.0E-10	0.0%	7.1E-10	0.0%	4.1E-10	0.0%	3.5E-11	0.0%	2.0E-11	0.0%
1,2,3,4,6,7,8-HpCDF	67562394	Kiln	3.3E-10	0.0%	1.9E-10	0.0%	3.5E-10	0.0%	2.0E-10	0.0%	1.7E-11	0.0%	9.9E-12	0.0%
1,2,3,4,7,8,9-HpCDF	55673897	Kiln	8.6E-11	0.0%	5.0E-11	0.0%	8.9E-11	0.0%	5.2E-11	0.0%	4.4E-12	0.0%	2.6E-12	0.0%
1,2,3,4,7,8-HxCDD	39227286	Kiln	1.9E-09	0.0%	1.1E-09	0.0%	2.0E-09	0.0%	1.2E-09	0.0%	9.8E-11	0.0%	5.7E-11	0.0%
1,2,3,6,7,8-HxCDD	57653857	Kiln	1.9E-09	0.0%	1.1E-09	0.0%	2.0E-09	0.0%	1.1E-09	0.0%	9.7E-11	0.0%	5.6E-11	0.0%

TABLE 16

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY CHEMICAL

Lehigh Southwest Cement Company

Cupertino Facility

Chemical [1]	CAS Number	Primary Emission Category [2]	Point of Maximum Impact (PMI) Receptor #129				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
			2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
1,2,3,7,8,9-HxCDD	19408743	Kiln	2.0E-09	0.0%	1.1E-09	0.0%	2.0E-09	0.0%	1.2E-09	0.0%	1.0E-10	0.0%	5.8E-11	0.0%
1,2,3,4,7,8-HxCDF	70648269	Kiln	2.9E-09	0.0%	1.7E-09	0.0%	3.0E-09	0.0%	1.8E-09	0.0%	1.5E-10	0.0%	8.6E-11	0.0%
1,2,3,6,7,8-HxCDF	57117449	Kiln	2.7E-09	0.0%	1.6E-09	0.0%	2.8E-09	0.0%	1.6E-09	0.0%	1.4E-10	0.0%	8.1E-11	0.0%
1,2,3,7,8,9-HxCDF	72918219	Kiln	9.1E-10	0.0%	5.3E-10	0.0%	9.5E-10	0.0%	5.5E-10	0.0%	4.7E-11	0.0%	2.7E-11	0.0%
2,3,4,6,7,8-HxCDF	60851345	Kiln	1.7E-09	0.0%	9.7E-10	0.0%	1.7E-09	0.0%	1.0E-09	0.0%	8.5E-11	0.0%	5.0E-11	0.0%
Hydrochloric Acid	7647010	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Indeno(1,2,3-c,d)pyrene	193395	Kiln	1.4E-11	0.0%	8.3E-12	0.0%	1.5E-11	0.0%	8.6E-12	0.0%	5.9E-13	0.0%	3.4E-13	0.0%
Lead	7439921	Raw material	3.6E-09	0.0%	2.2E-09	0.0%	2.0E-09	0.0%	1.2E-09	0.0%	3.0E-10	0.0%	1.9E-10	0.0%
Manganese	7439965	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Mercury	7439976	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methyl Bromide	74839	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methyl chloroform (1,1,1-trichloroethane)	71556	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methylene chloride	75092	Kiln	2.5E-09	0.0%	1.5E-09	0.0%	2.6E-09	0.0%	1.5E-09	0.0%	1.2E-10	0.0%	6.7E-11	0.0%
Naphthalene	91203	Kiln	9.4E-08	0.4%	5.4E-08	0.4%	9.8E-08	0.7%	5.6E-08	0.7%	4.3E-09	0.4%	2.5E-09	0.3%
Nickel	7440020	Raw material	4.7E-07	2.3%	2.9E-07	2.3%	2.5E-07	1.8%	1.5E-07	1.9%	2.7E-08	2.3%	1.7E-08	2.3%
1,2,3,4,6,7,8,9-OCDD	3268879	Kiln	1.4E-11	0.0%	8.3E-12	0.0%	1.5E-11	0.0%	8.7E-12	0.0%	7.4E-13	0.0%	4.3E-13	0.0%
1,2,3,4,6,7,8,9-OCDF	39001020	Kiln	3.3E-12	0.0%	1.9E-12	0.0%	3.4E-12	0.0%	2.0E-12	0.0%	1.7E-13	0.0%	9.7E-14	0.0%
1,2,3,7,8-PeCDD	40321764	Kiln	1.7E-08	0.1%	9.8E-09	0.1%	1.8E-08	0.1%	1.0E-08	0.1%	8.7E-10	0.1%	5.0E-10	0.1%
1,2,3,7,8-PeCDF	57117416	Kiln	6.5E-09	0.0%	3.8E-09	0.0%	6.8E-09	0.0%	3.9E-09	0.0%	3.3E-10	0.0%	1.9E-10	0.0%
2,3,4,7,8-PeCDF	57117314	Kiln	9.8E-08	0.5%	5.7E-08	0.4%	1.0E-07	0.7%	5.9E-08	0.7%	5.0E-09	0.4%	2.9E-09	0.4%
Perchloroethylene	127184	Kiln	6.3E-09	0.0%	3.6E-09	0.0%	6.5E-09	0.0%	3.8E-09	0.0%	2.9E-10	0.0%	1.7E-10	0.0%
Selenium	7782492	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Styrene	100425	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
2,3,7,8-TCDD	1746016	Kiln	1.7E-08	0.1%	9.6E-09	0.1%	1.7E-08	0.1%	1.0E-08	0.1%	8.5E-10	0.1%	4.9E-10	0.1%
2,3,7,8-TCDF	51207319	Kiln	8.2E-08	0.4%	4.8E-08	0.4%	8.5E-08	0.6%	5.0E-08	0.6%	4.2E-09	0.4%	2.4E-09	0.3%
1,1,2,2-Tetrachloroethane	79345	Kiln	4.5E-08	0.2%	2.6E-08	0.2%	4.7E-08	0.3%	2.7E-08	0.3%	2.1E-09	0.2%	1.2E-09	0.2%
Toluene	108883	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,1,2-Trichloroethane	79005	Kiln	1.7E-08	0.1%	9.9E-09	0.1%	1.8E-08	0.1%	1.0E-08	0.1%	7.8E-10	0.1%	4.6E-10	0.1%
Trichloroethylene	79016	Kiln	1.7E-09	0.0%	9.6E-10	0.0%	1.7E-09	0.0%	1.0E-09	0.0%	7.6E-11	0.0%	4.4E-11	0.0%
Vanadium	1314621	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Vinyl Chloride	75014	Kiln	2.2E-07	1.0%	1.2E-07	1.0%	2.2E-07	1.6%	1.3E-07	1.6%	9.9E-09	0.8%	5.7E-09	0.8%
Vinylidene chloride	75354	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
o-xylene	95476	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

TABLE 16

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY CHEMICAL

Lehigh Southwest Cement Company

Cupertino Facility

Chemical [1]	CAS Number	Primary Emission Category [2]	Point of Maximum Impact (PMI) Receptor #129				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
			2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
Xylenes (mixed)	1330207	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total Risk (Including LASF) [3]			**2E-05**	100%	**1E-05**	100%	**1E-05**	100%	**8E-06**	100%	**--**	**--**	**--**	**--**
Total Risk (Excluding LASF) [3]			**1E-05**		**8E-06**		**8E-06**		**5E-06**		**1E-06**	100%	**7E-07**	100%

Notes

1. All Evaluated toxic air contaminants (TACs) are presented; not all are considered carcinogenic. Results for TACs that are not considered carcinogenic are shaded.
2. An emission category is presented for each chemical to provide information on where the chemicals originate in the cement manufacturing process. The same chemical may originate from different parts of the manufacturing process, but only the primary source of the chemical is provided.
   Kiln - A byproduct of natural gas combustion to heat the kiln for the manufacture of cement and other chemicals identified during a source test of the kiln.
   Raw material - A chemical that occurs naturally in the raw materials used to manufacture cement.
   Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emission occur during material handling and storage.
   Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators and welders.
3. The LASF (1.7) incorporates the potential increased sensitivity of children to carcinogens compared to adults averaged over a 70-year lifetime.

Abbreviations

LASF - Lifetime average sensitivity factor

-- = not applicable to adult worker receptor

TABLE 17

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY SOURCE AND PATHWAY

Lehigh Southwest Cement Company
Cupertino Facility

Source ID	Point of Maximum Impact (PMI) Receptor #129				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
KILN	8.1E-06	39%	4.7E-06	37%	8.4E-06	61%	4.9E-06	59%	3.8E-07	32%	2.2E-07	30%
Point Sources												
1D4	3.4E-08	0.2%	2.0E-08	0.2%	3.8E-08	0.3%	2.2E-08	0.3%	2.6E-09	0.2%	1.5E-09	0.2%
2D1	1.8E-08	0.1%	1.0E-08	0.1%	1.4E-08	0.1%	8.0E-09	0.1%	1.7E-09	0.1%	1.0E-09	0.1%
3D1	1.2E-08	0.1%	7.0E-09	0.1%	1.6E-08	0.1%	9.0E-09	0.1%	4.6E-10	0.0%	2.7E-10	0.0%
3D4	1.6E-08	0.1%	9.3E-09	0.1%	2.6E-08	0.2%	1.5E-08	0.2%	1.0E-09	0.1%	5.9E-10	0.1%
3D5	7.3E-09	0.0%	4.3E-09	0.0%	1.1E-08	0.1%	6.3E-09	0.1%	5.5E-10	0.0%	3.2E-10	0.0%
4D3	1.5E-08	0.1%	8.9E-09	0.1%	1.1E-08	0.1%	6.6E-09	0.1%	9.0E-10	0.1%	5.2E-10	0.1%
4D4	1.6E-08	0.1%	9.1E-09	0.1%	1.1E-08	0.1%	6.6E-09	0.1%	9.1E-10	0.1%	5.3E-10	0.1%
5D1	1.8E-08	0.1%	1.1E-08	0.1%	8.9E-09	0.1%	5.2E-09	0.1%	1.1E-09	0.1%	6.1E-10	0.1%
5D11_20	1.5E-06	7.1%	8.7E-07	6.8%	5.0E-07	3.7%	2.9E-07	3.6%	7.3E-08	6.2%	4.3E-08	5.9%
5D2	1.8E-08	0.1%	1.0E-08	0.1%	9.4E-09	0.1%	5.5E-09	0.1%	1.0E-09	0.1%	6.0E-10	0.1%
5D23	3.7E-07	1.8%	2.2E-07	1.7%	1.3E-07	0.9%	7.4E-08	0.9%	1.7E-08	1.4%	9.8E-09	1.4%
5D27	7.0E-08	0.3%	4.0E-08	0.3%	2.7E-08	0.2%	1.6E-08	0.2%	3.8E-09	0.3%	2.2E-09	0.3%
5D28	5.8E-08	0.3%	3.3E-08	0.3%	5.4E-08	0.4%	3.1E-08	0.4%	5.0E-09	0.4%	2.9E-09	0.4%
5D3	3.1E-08	0.1%	1.8E-08	0.1%	1.4E-08	0.1%	8.0E-09	0.1%	1.8E-09	0.2%	1.1E-09	0.1%
5D5	6.5E-08	0.3%	3.8E-08	0.3%	5.0E-08	0.4%	2.9E-08	0.4%	3.3E-09	0.3%	1.9E-09	0.3%
5D6	6.9E-08	0.3%	4.0E-08	0.3%	5.3E-08	0.4%	3.1E-08	0.4%	3.5E-09	0.3%	2.0E-09	0.3%
6D1	8.0E-07	3.8%	4.7E-07	3.7%	5.0E-07	3.7%	2.9E-07	3.6%	6.5E-08	5.5%	3.8E-08	5.3%
6D12	3.5E-07	1.7%	2.0E-07	1.6%	2.2E-07	1.6%	1.3E-07	1.5%	3.2E-08	2.7%	1.8E-08	2.5%
6D17	5.1E-07	2.5%	3.0E-07	2.3%	3.6E-07	2.6%	2.1E-07	2.6%	4.2E-08	3.6%	2.5E-08	3.4%
6D19	3.2E-07	1.5%	1.9E-07	1.5%	2.3E-07	1.7%	1.3E-07	1.6%	3.6E-08	3.0%	2.1E-08	2.9%
6D2	4.3E-07	2.1%	2.5E-07	1.9%	3.4E-07	2.5%	2.0E-07	2.4%	3.4E-08	2.9%	2.0E-08	2.8%
6D8	1.6E-07	0.8%	9.3E-08	0.7%	1.1E-07	0.8%	6.3E-08	0.8%	1.3E-08	1.1%	7.4E-09	1.0%
8D31	1.5E-08	0.1%	8.8E-09	0.1%	4.9E-09	0.0%	2.8E-09	0.0%	1.2E-09	0.1%	6.9E-10	0.1%
999D	1.9E-06	9.1%	1.1E-06	8.7%	6.7E-07	4.9%	3.9E-07	4.8%	3.9E-08	3.3%	2.3E-08	3.1%
S501	2.7E-08	0.1%	2.7E-08	0.2%	3.1E-08	0.2%	3.1E-08	0.4%	1.6E-09	0.1%	1.6E-09	0.2%
S502	1.6E-07	0.7%	1.6E-07	1.2%	3.4E-08	0.2%	3.4E-08	0.4%	5.7E-09	0.5%	5.7E-09	0.8%

TABLE 17

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY SOURCE AND PATHWAY

Lehigh Southwest Cement Company
Cupertino Facility

Source ID	Point of Maximum Impact (PMI) Receptor #129				Maximum Exposed Individual Resident (MEIR) Receptor #2085				Maximum Exposed Individual Worker (MEIW) Receptor #10963			
	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.	2008 CEIR	% Cont.	Current Low Production	% Cont.
Fugitive/Volume Sources												
1	3.9E-08	0.2%	2.6E-08	0.2%	3.1E-08	0.2%	2.1E-08	0.3%	5.1E-09	0.4%	1.2E-09	0.2%
2	6.2E-08	0.3%	4.2E-08	0.3%	4.2E-08	0.3%	2.9E-08	0.3%	7.8E-09	0.7%	1.9E-09	0.3%
3	2.0E-07	0.9%	1.1E-07	0.9%	9.9E-08	0.7%	5.7E-08	0.7%	2.2E-08	1.8%	1.3E-08	1.8%
4A	6.6E-07	3.2%	3.8E-07	3.0%	1.6E-07	1.2%	9.5E-08	1.2%	5.1E-08	4.3%	3.0E-08	4.1%
4B	1.1E-06	5.1%	6.2E-07	4.9%	2.0E-07	1.4%	1.1E-07	1.4%	7.3E-08	6.2%	4.2E-08	5.9%
4C	5.4E-07	2.6%	3.1E-07	2.5%	2.0E-07	1.4%	1.2E-07	1.4%	4.7E-08	3.9%	2.7E-08	3.8%
4D	8.3E-07	4.0%	4.8E-07	3.8%	2.3E-07	1.7%	1.3E-07	1.6%	5.9E-08	5.0%	3.4E-08	4.7%
5	1.1E-07	0.5%	9.2E-08	0.7%	9.0E-08	0.7%	7.4E-08	0.9%	1.1E-08	0.9%	9.0E-09	1.3%
6A	4.2E-07	2.0%	3.4E-07	2.7%	1.6E-07	1.2%	1.3E-07	1.6%	3.3E-08	2.8%	2.7E-08	3.8%
6B	7.4E-07	3.5%	6.0E-07	4.7%	7.7E-08	0.6%	6.3E-08	0.8%	3.9E-08	3.3%	3.2E-08	4.4%
6C	3.6E-07	1.7%	3.0E-07	2.3%	2.2E-07	1.6%	1.8E-07	2.2%	2.6E-08	2.2%	2.1E-08	2.9%
6D	5.2E-07	2.5%	4.2E-07	3.3%	2.5E-07	1.8%	2.1E-07	2.5%	2.9E-08	2.4%	2.3E-08	3.2%
7PD7	1.7E-07	0.8%	9.6E-08	0.8%	9.8E-08	0.7%	5.7E-08	0.7%	1.1E-08	0.9%	6.2E-09	0.9%
7	5.5E-08	0.3%	5.4E-08	0.4%	1.1E-08	0.1%	1.0E-08	0.1%	3.5E-09	0.3%	3.4E-09	0.5%
8	5.8E-08	0.3%	5.7E-08	0.4%	4.9E-09	0.0%	4.7E-09	0.1%	2.5E-09	0.2%	2.4E-09	0.3%
Inhalation Pathways	2.0E-05	94%	1.2E-05	94%	1.3E-05	94%	7.7E-06	94%	1.1E-06	89%	6.4E-07	89%
Non-Inhalation Pathways	1.3E-06	6%	8.1E-07	6%	8.1E-07	6%	4.8E-07	6%	1.3E-07	11%	7.5E-08	10%
Total (including LASF)[1]	**2E-05**	100%	**1E-05**	100%	**1E-05**	100%	**8E-06**	100%	**--**	--	**--**	--
Total (excluding LASF)[1]	**1E-05**		**8E-06**		**8E-06**		**5E-06**		**1E-06**	100%	**7E-07**	100%

Note

1. The LASF (1.7) incorporates the potential increased sensitivity of children to carcinogens compared to adults averaged over a 70-year lifetime.

Abbreviations

LASF - Lifetime age sensitivity factor
-- = not applicable to adult worker receptor

TABLE 18

ANNUAL AVERAGE EMISSION RATES - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Annual Average (lb/yr)
75070	Acetaldehyde	7.87E+02
107028	Acrolein	3.05E+01
7440382	Arsenic	1.59E+00
56553	Benz[a]anthracene	8.91E-03
71432	Benzene	6.56E+03
50328	Benzo[a]pyrene	2.00E-04
205992	Benzo[b]fluoranthene	1.27E-03
207089	Benzo[k]fluoranthene	2.00E-04
100447	Benzyl chloride	6.88E+01
7440417	Beryllium	5.14E-01
106990	1,3-Butadiene	6.25E+01
7440439	Cadmium	7.25E-01
56235	Carbon tetrachloride	4.19E+01
108907	Chlorobenzene	3.77E+02
67663	Chloroform	1.95E+01
18540299	Chromium VI	1.51E+00
218019	Chrysene	2.63E-02
7440508	Copper	1.07E+01
1175	Crystalline silica	8.03E+02
53703	Dibenz[a,h]anthracene	2.00E-04
106467	p-Dichlorobenzene	4.00E+01
75343	1,1-Dichloroethane	1.35E+01
78875	1,2-Dichloropropane	1.85E+01
542756	1,3-Dichloropropene	7.56E+01
9901	Diesel PM	2.47E+01
75003	Ethyl chloride	2.63E+01
100414	Ethylbenzene	6.52E+02
106934	Ethylene dibromide	4.10E+01
107062	Ethylene dichloride	1.62E+01
50000	Formaldehyde	4.29E+01
35822469	1,2,3,4,6,7,8-HpCDD	6.55E-06
67562394	1,2,3,4,6,7,8-HpCDF	3.18E-06
55673897	1,2,3,4,7,8,9-HpCDF	8.18E-07
39227286	1,2,3,4,7,8-HxCDD	1.83E-06
57653857	1,2,3,6,7,8-HxCDD	1.80E-06
19408743	1,2,3,7,8,9-HxCDD	1.87E-06

TABLE 18

ANNUAL AVERAGE EMISSION RATES - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

CAS No.	Chemical	Annual Average (lb/yr)
70648269	1,2,3,4,7,8-HxCDF	2.77E-06
57117449	1,2,3,6,7,8-HxCDF	2.59E-06
72918219	1,2,3,7,8,9-HxCDF	8.72E-07
60851345	2,3,4,6,7,8-HxCDF	1.59E-06
7647010	Hydrochloric acid	7.29E+04
193395	Indeno[1,2,3-c,d] pyrene	1.49E-04
7439921	Lead	1.35E+00
7439965	Manganese	2.71E+00
7439976	Mercury	3.96E+02
74839	Methyl bromide	4.25E+02
71556	Methyl chloroform (1,1,1-trichlorethane)	2.18E+01
75092	Methylene chloride	8.77E+01
91203	Naphthalene	9.43E+01
7440020	Nickel	3.60E+01
3268879	1,2,3,4,6,7,8,9-OCDD	1.37E-05
39001020	1,2,3,4,6,7,8,9-OCDF	3.14E-06
40321764	1,2,3,7,8-PeCDD	1.61E-06
57117416	1,2,3,7,8-PeCDF	1.25E-05
57117314	2,3,4,7,8-PeCDF	1.87E-05
127184	Perchloroethylene	3.61E+01
7782492	Selenium	3.70E+00
100425	Styrene	1.65E+02
1746016	2,3,7,8-TCDD	1.58E-06
51207319	2,3,7,8-TCDF	7.84E-05
79345	1,1,2,2-Tetrachloroethane	2.74E+01
108883	Toluene	5.88E+03
79005	1,1,2-Trichloroethane	3.63E+01
79016	Trichloroethylene	2.86E+01
1314621	Vanadium	1.01E+02
75014	Vinyl chloride	9.64E+01
75354	Vinylidene chloride	2.64E+01
95476	o-Xylene	9.25E+02
1330207	Xylenes (mixed)	4.72E+03

Abbreviation
lb/yr = pounds per year

TABLE 19A

ANNUAL AVERAGE EMISSION RATES FOR THE KILN
- OPTIMAL PRODUCTION RATES
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Kiln
75070	Acetaldehyde	7.87E+02
107028	Acrolein	3.05E+01
7440382	Arsenic	5.17E-01
56553	Benz[a]anthracene	8.91E-03
71432	Benzene	6.56E+03
50328	Benzo[a]pyrene	2.00E-04
205992	Benzo[b]fluoranthene	1.27E-03
207089	Benzo[k]fluoranthene	2.00E-04
100447	Benzyl chloride	6.88E+01
7440417	Beryllium	2.59E-01
106990	1,3-Butadiene	6.25E+01
7440439	Cadmium	2.59E-01
56235	Carbon tetrachloride	4.19E+01
108907	Chlorobenzene	3.77E+02
67663	Chloroform	1.95E+01
18540299	Chromium VI	2.28E-01
218019	Chrysene	2.63E-02
7440508	Copper	2.88E+00
1175	Crystalline silica	0.00E+00
53703	Dibenz[a,h]anthracene	2.00E-04
106467	p-Dichlorobenzene	4.00E+01
75343	1,1-Dichloroethane	1.35E+01
78875	1,2-Dichloropropane	1.85E+01
542756	1,3-Dichloropropene	7.56E+01
9901	Diesel PM	0.00E+00
75003	Ethyl chloride	2.63E+01
100414	Ethylbenzene	6.52E+02
106934	Ethylene dibromide	4.10E+01
107062	Ethylene dichloride	1.62E+01
50000	Formaldehyde	4.29E+01
35822469	1,2,3,4,6,7,8-HpCDD	6.55E-06

TABLE 19A

ANNUAL AVERAGE EMISSION RATES FOR THE KILN
- OPTIMAL PRODUCTION RATES
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Kiln
67562394	1,2,3,4,6,7,8-HpCDF	3.18E-06
55673897	1,2,3,4,7,8,9-HpCDF	8.18E-07
39227286	1,2,3,4,7,8-HxCDD	1.83E-06
57653857	1,2,3,6,7,8-HxCDD	1.80E-06
19408743	1,2,3,7,8,9-HxCDD	1.87E-06
70648269	1,2,3,4,7,8-HxCDF	2.77E-06
57117449	1,2,3,6,7,8-HxCDF	2.59E-06
72918219	1,2,3,7,8,9-HxCDF	8.72E-07
60851345	2,3,4,6,7,8-HxCDF	1.59E-06
7647010	Hydrochloric acid	7.29E+04
193395	Indeno[1,2,3-c,d] pyrene	1.49E-04
7439921	Lead	6.02E-01
7439965	Manganese	2.71E+00
7439976	Mercury	3.95E+02
74839	Methyl bromide	4.25E+02
71556	Methyl chloroform (1,1,1-trichloroethane)	2.18E+01
75092	Methylene chloride	8.77E+01
91203	Naphthalene	9.43E+01
7440020	Nickel	4.44E+00
3268879	1,2,3,4,6,7,8,9-OCDD	1.37E-05
39001020	1,2,3,4,6,7,8,9-OCDF	3.14E-06
40321764	1,2,3,7,8-PeCDD	1.61E-06
57117416	1,2,3,7,8-PeCDF	1.25E-05
57117314	2,3,4,7,8-PeCDF	1.87E-05
127184	Perchloroethylene	3.61E+01
7782492	Selenium	2.89E+00
100425	Styrene	1.65E+02
1746016	2,3,7,8-TCDD	1.58E-06
51207319	2,3,7,8-TCDF	7.84E-05
79345	1,1,2,2-Tetrachloroethane	2.74E+01
108883	Toluene	5.88E+03
79005	1,1,2-Trichloroethane	3.63E+01

TABLE 19A

ANNUAL AVERAGE EMISSION RATES FOR THE KILN
- OPTIMAL PRODUCTION RATES
Lehigh Southwest Cement Company
Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Kiln
79016	Trichloroethylene	2.86E+01
1314621	Vanadium	2.59E+00
75014	Vinyl chloride	9.64E+01
75354	Vinylidene chloride	2.64E+01
95476	o-Xylene	9.25E+02
1330207	Xylenes (mixed)	4.72E+03

TABLE 19B

ANNUAL AVERAGE EMISSION RATES BY SOURCE GROUP FOR OPTIMAL PRODUCTION RATES - DUST COLLECTORS

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Emission Source Group																								
		1D4	2D1	3D1	3D4	3D5	4D3	4D4	5D1	5D2	5D3	5D5	5D6	5D11_20	5D23	5D27	5D28	6D17	6D19	6D2	6D1218	6D1	6D8	7PD7	8D31	999DC
7440382	Arsenic	4.30E-02	2.46E-02	1.14E-02	1.23E-02	1.18E-02	1.57E-02	1.60E-02	2.04E-02	2.04E-02	3.68E-02	1.92E-02	1.89E-02	1.07E-01	1.86E-02	4.89E-03	4.89E-03	2.07E-02	2.33E-02	2.09E-02	1.28E-02	2.21E-02	1.37E-02	1.04E-02	4.11E-03	1.20E-01
7440417	Beryllium	4.61E-03	4.01E-03	1.85E-03	1.95E-03	1.88E-03	2.44E-03	2.49E-03	3.17E-03	3.17E-03	5.70E-03	1.15E-02	1.14E-02	1.73E-02	3.01E-03	7.92E-04	7.92E-04	3.55E-03	4.00E-03	3.58E-03	2.20E-03	3.58E-03	2.34E-03	1.78E-03	2.47E-03	1.92E-02
7440439	Cadmium	7.68E-03	1.01E-02	4.65E-03	6.66E-03	3.14E-03	5.95E-03	6.07E-03	7.72E-03	7.72E-03	1.39E-02	1.92E-02	1.89E-02	2.89E-02	5.02E-03	1.32E-03	1.32E-03	5.92E-03	6.66E-03	5.97E-03	3.67E-03	5.97E-03	3.90E-03	2.96E-03	4.11E-03	3.44E-02
18540299	Chromium VI	3.07E-04	2.38E-03	1.10E-03	2.10E-03	2.51E-04	1.33E-03	1.36E-03	1.73E-03	1.73E-03	3.11E-03	1.53E-03	1.52E-03	2.77E-01	4.82E-02	1.27E-02	1.27E-02	8.17E-02	9.19E-02	8.23E-02	5.07E-02	5.73E-02	5.38E-02	4.09E-02	3.29E-04	2.65E-01
7440508	Copper	1.87E-01	1.84E-01	8.49E-02	8.99E-02	8.53E-02	1.11E-01	1.13E-01	1.44E-01	1.44E-01	2.59E-01	9.82E-02	9.70E-02	4.47E-01	7.77E-02	2.04E-02	2.04E-02	1.05E-01	1.19E-01	1.06E-01	6.53E-02	9.23E-02	6.94E-02	5.27E-02	4.60E-02	6.28E-01
1175	Crystalline silica	1.00E+00	6.45E+00	2.98E+00	3.69E+00	2.36E+00	3.60E+00	3.68E+00	4.68E+00	4.68E+00	8.43E+00	1.56E-01	1.55E-01	2.36E-01	4.10E-02	1.08E-02	1.08E-02	2.90E-01	3.26E-01	2.92E-01	1.80E-01	4.87E-02	1.91E-01	1.45E-01	1.22E+01	1.06E+01
7439921	Lead	2.09E-02	9.61E-03	4.44E-03	6.72E-03	3.14E-03	6.35E-03	6.48E-03	8.25E-03	8.25E-03	1.49E-02	1.92E-02	1.89E-02	8.09E-02	1.41E-02	3.70E-03	3.70E-03	1.47E-02	1.65E-02	1.48E-02	9.10E-03	1.67E-02	9.67E-03	7.34E-03	4.28E-03	7.58E-02
7439976	Mercury	1.32E-03	1.67E-03	7.73E-04	1.37E-03	3.01E-04	9.91E-04	1.01E-03	1.29E-03	1.29E-03	2.32E-03	5.98E-02	5.91E-02	2.31E-04	4.02E-05	1.06E-05	1.06E-05	4.74E-05	5.33E-05	4.77E-05	2.94E-05	4.77E-05	3.12E-05	2.37E-05	6.58E-04	2.53E-03
7440020	Nickel	1.32E+00	2.29E-01	1.06E-01	1.78E-01	8.79E-02	1.93E-01	1.97E-01	2.50E-01	2.50E-01	4.51E-01	5.83E+00	5.76E+00	1.73E+00	3.01E-01	7.92E-02	7.92E-02	5.09E-01	5.73E-01	5.13E-01	3.16E-01	3.58E-01	3.35E-01	2.55E-01	7.56E-02	3.14E+00
7782492	Selenium	1.54E-02	1.34E-02	6.16E-03	6.50E-03	6.28E-03	8.12E-03	8.29E-03	1.06E-02	1.06E-02	1.90E-02	3.84E-02	3.79E-02	5.78E-02	1.00E-02	2.64E-03	2.64E-03	1.18E-02	1.33E-02	1.19E-02	7.34E-03	1.19E-02	7.80E-03	5.92E-03	8.22E-03	6.38E-02
1314621	Vanadium	3.99E+00	1.08E+00	4.99E-01	5.84E-01	5.52E-01	7.96E-01	8.12E-01	1.03E+00	1.03E+00	1.86E+00	1.69E+01	1.67E+01	9.40E+00	1.63E+00	4.29E-01	4.29E-01	1.71E+00	1.92E+00	1.72E+00	1.06E+00	1.94E+00	1.12E+00	8.53E-01	6.25E-02	1.02E+01

TABLE 19C

ANNUAL AVERAGE EMISSION RATES BY SOURCE GROUP FOR FUGITIVE SOURCES - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company

Cupertino Facility

Concentrations reported in pounds per year (lbs/yr)

CAS No.	Chemical	Emission Source Group															
		S501	S502	1	2	3	4A	4B	4C	4D	5	6A	6B	6C	6D	7	8
7440382	Arsenic	--	--	6.13E-02	6.13E-02	7.30E-02	3.16E-02	3.16E-02	3.16E-02	3.16E-02	2.20E-02	2.27E-02	2.27E-02	2.27E-02	2.27E-02	2.70E-03	4.11E-03
71432	Benzene	--	--	--	--	--	--	--	--	--	--	1.55E-03	1.55E-03	1.55E-03	1.55E-03	9.18E-05	--
7440417	Beryllium	--	--	2.25E-02	2.25E-02	1.83E-02	4.60E-03	4.60E-03	4.60E-03	4.60E-03	1.26E-02	8.55E-03	8.55E-03	8.55E-03	8.55E-03	1.62E-03	6.02E-03
7440439	Cadmium	--	--	3.75E-02	3.75E-02	3.93E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	2.19E-02	1.42E-02	1.42E-02	1.42E-02	1.42E-02	2.70E-03	3.94E-03
18540299	Chromium VI	--	--	3.00E-03	3.00E-03	7.24E-03	2.25E-02	2.25E-02	2.25E-02	2.25E-02	1.67E-03	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.16E-04	3.15E-04
7440508	Copper	--	--	6.91E-01	6.91E-01	6.01E-01	2.13E-01	2.13E-01	2.13E-01	2.13E-01	2.43E-01	2.95E-01	2.95E-01	2.95E-01	2.95E-01	3.02E-02	3.43E-02
1175	Crystalline silica	--	--	1.69E+02	1.69E+02	5.91E+01	5.39E+00	5.39E+00	5.39E+00	5.39E+00	6.20E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	8.01E+00	8.22E+00
9901	Diesel PM	3.14E+00	6.28E+00	--	--	--	--	--	--	--	3.83E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	--
7439921	Lead	--	--	3.75E-02	3.75E-02	3.87E-02	1.61E-02	1.61E-02	1.61E-02	1.61E-02	2.17E-02	3.50E-02	3.50E-02	3.50E-02	3.50E-02	2.81E-03	4.05E-03
7439976	Mercury	--	--	8.61E-03	8.61E-03	6.55E-03	1.09E-02	1.09E-02	1.09E-02	1.09E-02	3.38E-03	1.69E-03	1.69E-03	1.69E-03	1.69E-03	4.32E-04	1.47E-03
7440020	Nickel	--	--	1.18E+00	1.18E+00	8.23E-01	4.16E-01	4.16E-01	4.16E-01	4.16E-01	3.87E-01	7.77E-01	7.77E-01	7.77E-01	7.77E-01	4.96E-02	5.41E-02
7782492	Selenium	--	--	7.51E-02	7.51E-02	6.10E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02	4.19E-02	1.92E-02	1.92E-02	1.92E-02	1.92E-02	5.40E-03	7.89E-03
108883	Toluene	--	--	--	--	--	--	--	--	--	--	6.10E-03	6.10E-03	6.10E-03	6.10E-03	3.67E-03	--
1314621	Vanadium	--	--	1.38E+00	1.38E+00	2.77E+00	1.76E+00	1.76E+00	1.76E+00	1.76E+00	4.30E-01	1.81E+00	1.81E+00	1.81E+00	1.81E+00	4.10E-02	6.21E-02
1330207	Xylenes (mixed)	--	--	--	--	--	--	--	--	--	--	8.93E-03	8.93E-03	8.93E-03	8.93E-03	3.33E-02	--

Abbreviation

-- = not applicable

TABLE 20

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY CHEMICAL - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

Chemical [1]	CAS Number	Primary Emission Category [2]	Point of Maximum Impact (PMI) Receptor #129		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
			Optimal Production Rates [3]	% Cont.	Optimal Production Rates [3]	% Cont.	Optimal Production Rates [3]	% Cont.
Acetaldehyde	75070	Kiln	4.4E-08	0.3%	4.6E-08	0.5%	2.0E-09	0.2%
Acrolein	107028	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Arsenic	7440382	Raw material	9.9E-07	6.8%	5.2E-07	5.4%	9.5E-08	11%
Benz(a)anthracene	56553	Kiln	5.8E-10	0.0%	6.1E-10	0.0%	2.4E-11	0.0%
Benzene	71432	Kiln	3.7E-06	25%	3.8E-06	40%	1.7E-07	20%
Benzo(a)pyrene	50328	Kiln	1.3E-10	0.0%	1.4E-10	0.0%	5.4E-12	0.0%
Benzo(b)fluoranthene	205992	Kiln	8.3E-11	0.0%	8.6E-11	0.0%	3.4E-12	0.0%
Benzo(k)fluoranthene	207089	Kiln	1.3E-11	0.0%	1.4E-11	0.0%	5.4E-13	0.0%
Benzyl chloride	100447	Kiln	6.6E-08	0.4%	6.8E-08	0.7%	3.0E-09	0.4%
Beryllium	7440417	Raw material	4.5E-08	0.3%	2.6E-08	0.3%	2.5E-09	0.3%
1,3-Butadiene	106990	Kiln	2.1E-07	1.4%	2.2E-07	2.3%	9.7E-09	1.2%
Cadmium	7440439	Raw material	1.2E-07	0.8%	6.4E-08	0.7%	7.4E-09	0.9%
Carbon Tetrachloride	56235	Kiln	3.5E-08	0.2%	3.7E-08	0.4%	1.6E-09	0.2%
Chlorobenzene	108907	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Chloroform	67663	Kiln	2.1E-09	0.0%	2.2E-09	0.0%	9.5E-11	0.0%
Chromium VI	18540299	Byproduct of manufacturing	8.0E-06	55%	3.7E-06	39%	4.7E-07	56%
Chrysene	218019	Kiln	1.7E-10	0.0%	1.8E-10	0.0%	7.1E-12	0.0%
Copper	7440508	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Crystalline silica	1175	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Dibenz(a,h)anthracene	53703	Kiln	4.7E-11	0.0%	4.9E-11	0.0%	2.0E-12	0.0%
p-Dichlorobenzene	106467	Kiln	9.0E-09	0.1%	9.4E-09	0.1%	4.1E-10	0.0%
1,1-Dichloroethane	75343	Kiln	4.3E-10	0.0%	4.5E-10	0.0%	2.0E-11	0.0%
1,2-Dichloropropane	78875	Kiln	6.5E-09	0.0%	6.8E-09	0.1%	3.0E-10	0.0%
1,3-Dichloropropene	542756	Kiln	2.3E-08	0.2%	2.4E-08	0.3%	1.1E-09	0.1%
Diesel PM	9901	Stationary	5.8E-07	4.0%	2.2E-07	2.3%	3.3E-08	3.9%
Ethyl Chloride	75003	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Ethylbenzene	100414	Kiln	3.2E-08	0.2%	3.3E-08	0.3%	1.5E-09	0.2%
Ethylene dibromide	106934	Kiln	5.8E-08	0.4%	6.0E-08	0.6%	2.6E-09	0.3%
Ethylene dichloride	107062	Kiln	6.6E-09	0.0%	6.8E-09	0.1%	3.0E-10	0.0%
Formaldehyde	50000	Kiln	5.1E-09	0.0%	5.3E-09	0.1%	2.3E-10	0.0%
1,2,3,4,6,7,8-HpCDD	35822469	Kiln	4.7E-10	0.0%	4.9E-10	0.0%	2.4E-11	0.0%
1,2,3,4,6,7,8-HpCDF	67562394	Kiln	2.3E-10	0.0%	2.4E-10	0.0%	1.2E-11	0.0%
1,2,3,4,7,8,9-HpCDF	55673897	Kiln	5.8E-11	0.0%	6.1E-11	0.0%	3.0E-12	0.0%
1,2,3,4,7,8-HxCDD	39227286	Kiln	1.3E-09	0.0%	1.4E-09	0.0%	6.7E-11	0.0%
1,2,3,6,7,8-HxCDD	57653857	Kiln	1.3E-09	0.0%	1.3E-09	0.0%	6.6E-11	0.0%

TABLE 20

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY CHEMICAL - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

Chemical [1]	CAS Number	Primary Emission Category [2]	Point of Maximum Impact (PMI) Receptor #129		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
			Optimal Production Rates [3]	% Cont.	Optimal Production Rates [3]	% Cont.	Optimal Production Rates [3]	% Cont.
1,2,3,7,8,9-HxCDD	19408743	Kiln	1.3E-09	0.0%	1.4E-09	0.0%	6.8E-11	0.0%
1,2,3,4,7,8-HxCDF	70648269	Kiln	2.0E-09	0.0%	2.1E-09	0.0%	1.0E-10	0.0%
1,2,3,6,7,8-HxCDF	57117449	Kiln	1.9E-09	0.0%	1.9E-09	0.0%	9.5E-11	0.0%
1,2,3,7,8,9-HxCDF	72918219	Kiln	6.2E-10	0.0%	6.5E-10	0.0%	3.2E-11	0.0%
2,3,4,6,7,8-HxCDF	60851345	Kiln	1.1E-09	0.0%	1.2E-09	0.0%	5.8E-11	0.0%
Hydrochloric Acid	7647010	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Indeno(1,2,3-c,d)pyrene	193395	Kiln	9.7E-12	0.0%	1.0E-11	0.0%	4.0E-13	0.0%
Lead	7439921	Raw material	2.6E-09	0.0%	1.4E-09	0.0%	2.1E-10	0.0%
Manganese	7439965	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Mercury	7439976	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methyl Bromide	74839	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methyl chloroform (1,1,1-trichloroethane)	71556	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Methylene chloride	75092	Kiln	1.7E-09	0.0%	1.8E-09	0.0%	7.9E-11	0.0%
Naphthalene	91203	Kiln	6.4E-08	0.4%	6.6E-08	0.7%	2.9E-09	0.3%
Nickel	7440020	Raw material	3.4E-07	2.3%	1.8E-07	1.9%	1.9E-08	2.3%
1,2,3,4,6,7,8,9-OCDD	3268879	Kiln	9.8E-12	0.0%	1.0E-11	0.0%	5.0E-13	0.0%
1,2,3,4,6,7,8,9-OCDF	39001020	Kiln	2.2E-12	0.0%	2.3E-12	0.0%	1.2E-13	0.0%
1,2,3,7,8-PeCDD	40321764	Kiln	1.1E-08	0.1%	1.2E-08	0.1%	5.9E-10	0.1%
1,2,3,7,8-PeCDF	57117416	Kiln	4.5E-09	0.0%	4.6E-09	0.0%	2.3E-10	0.0%
2,3,4,7,8-PeCDF	57117314	Kiln	6.7E-08	0.5%	6.9E-08	0.7%	3.4E-09	0.4%
Perchloroethylene	127184	Kiln	4.3E-09	0.0%	4.4E-09	0.0%	2.0E-10	0.0%
Selenium	7782492	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Styrene	100425	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
2,3,7,8-TCDD	1746016	Kiln	1.1E-08	0.1%	1.2E-08	0.1%	5.8E-10	0.1%

TABLE 20

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY CHEMICAL - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

Chemical [1]	CAS Number	Primary Emission Category [2]	Point of Maximum Impact (PMI) Receptor #129		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
			Optimal Production Rates [3]	% Cont.	Optimal Production Rates [3]	% Cont.	Optimal Production Rates [3]	% Cont.
2,3,7,8-TCDF	51207319	Kiln	5.6E-08	0.4%	5.8E-08	0.6%	2.9E-09	0.3%
1,1,2,2-Tetrachloroethane	79345	Kiln	3.1E-08	0.2%	3.2E-08	0.3%	1.4E-09	0.2%
Toluene	108883	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
1,1,2-Trichloroethane	79005	Kiln	1.2E-08	0.1%	1.2E-08	0.1%	5.3E-10	0.1%
Trichloroethylene	79016	Kiln	1.1E-09	0.0%	1.2E-09	0.0%	5.2E-11	0.0%
Vanadium	1314621	Raw material	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Vinyl Chloride	75014	Kiln	1.5E-07	1.0%	1.5E-07	1.6%	6.7E-09	0.8%
Vinylidene chloride	75354	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
o-xylene	95476	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Xylenes (mixed)	1330207	Kiln	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total Risk [4]			**1E-05**	100%	**9.5E-06**	100%	**8E-07**	100%

Notes

1. All Evaluated toxic air contaminants (TACs) are presented; not all are considered carcinogenic. Results for TACs that are not considered carcinogenic are shaded.
2. An emission category is presented for each chemical to provide information on where the chemicals originate in the cement manufacturing process. The same chemical may originate from different parts of the manufacturing process, but only the primary source of the chemical is provided.
   Kiln - A byproduct of natural gas combustion to heat the kiln for the manufacture of cement and other chemicals identified during a source test of the kiln.
   Raw material - A chemical that occurs naturally in the raw materials used to manufacture cement.
   Byproduct of manufacturing - Hexavalent chromium concentrations increase from those in the raw materials during manufacture of cement. Primary emission occur during material handling and storage.
   Stationary sources - Emissions from combustion of fuel for stationary sources, such as emergency generators and welders.
3. Evaluates cancer risk at 68% of 2005 clinker and cement production rates in order to estimate potential off-site cancer risks below the notification level of 1.0×10^{-5} (approximately 9.5×10^{-6} at the MEIR).
4. The potential cancer risk for the PMI and MEIR include a lifetime age sensitivity factor that accounts for the potential increased sensitivity of children to carcinogens compared to adults averaged over a 70-year lifetime. This does not apply to the adult worker at the MEIW.

Abbreviations

-- = not applicable to adult worker receptor
LASF - Lifetime age sensitivity factor

TABLE 21

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY SOURCE AND PATHWAY - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

Source ID	Point of Maximum Impact (PMI) Receptor #129		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
	Optimal Production Rates [1]	% Cont.	Optimal Production Rates [1]	% Cont.	Optimal Production Rates [1]	% Cont.
KILN	5.5E-06	37%	5.7E-06	60%	2.6E-07	31%
Point Sources						
1D4	2.3E-08	0.2%	2.6E-08	0.3%	1.8E-09	0.2%
2D1	1.2E-08	0.1%	9.4E-09	0.1%	1.2E-09	0.1%
3D1	8.2E-09	0.1%	1.1E-08	0.1%	3.2E-10	0.0%
3D4	1.1E-08	0.1%	1.8E-08	0.2%	6.9E-10	0.1%
3D5	5.0E-09	0.0%	7.4E-09	0.1%	3.8E-10	0.0%
4D3	1.0E-08	0.1%	7.7E-09	0.1%	6.1E-10	0.1%
4D4	1.1E-08	0.1%	7.7E-09	0.1%	6.2E-10	0.1%
5D1	1.2E-08	0.1%	6.0E-09	0.1%	7.1E-10	0.1%
5D11_20	1.0E-06	6.9%	3.4E-07	3.6%	5.0E-08	6.0%
5D2	1.2E-08	0.1%	6.4E-09	0.1%	7.1E-10	0.1%
5D23	2.6E-07	1.7%	8.7E-08	0.9%	1.2E-08	1.4%
5D27	4.8E-08	0.3%	1.9E-08	0.2%	2.6E-09	0.3%
5D28	3.9E-08	0.3%	3.7E-08	0.4%	3.4E-09	0.4%
5D3	2.1E-08	0.1%	9.4E-09	0.1%	1.3E-09	0.1%
5D5	4.4E-08	0.3%	3.4E-08	0.4%	2.2E-09	0.3%
5D6	4.7E-08	0.3%	3.6E-08	0.4%	2.4E-09	0.3%
6D1	5.5E-07	3.7%	3.4E-07	3.6%	4.4E-08	5.3%
6D12	2.3E-07	1.6%	1.5E-07	1.6%	2.2E-08	2.6%
6D17	3.5E-07	2.4%	2.5E-07	2.6%	2.9E-08	3.5%
6D19	2.2E-07	1.5%	1.6E-07	1.6%	2.4E-08	2.9%
6D2	2.9E-07	2.0%	2.3E-07	2.4%	2.3E-08	2.8%
6D8	1.1E-07	0.7%	7.3E-08	0.8%	8.7E-09	1.0%
8D31	1.0E-08	0.1%	3.3E-09	0.0%	8.1E-10	0.1%
999D	1.3E-06	8.8%	4.6E-07	4.8%	2.7E-08	3.2%
S501	2.7E-08	0.2%	3.1E-08	0.3%	1.6E-09	0.2%
S502	1.6E-07	1.1%	3.4E-08	0.4%	5.7E-09	0.7%

TABLE 21

POTENTIAL CARCINOGENIC RISK AT THE PMI, MEIW AND MEIR BY SOURCE AND PATHWAY - OPTIMAL PRODUCTION RATES

Lehigh Southwest Cement Company
Cupertino Facility

Source ID	Point of Maximum Impact (PMI) Receptor #129		Maximum Exposed Individual Resident (MEIR) Receptor #2085		Maximum Exposed Individual Worker (MEIW) Receptor #10963	
	Optimal Production Rates [1]	% Cont.	Optimal Production Rates [1]	% Cont.	Optimal Production Rates [1]	% Cont.
Fugitive/Volume Sources						
1	2.9E-08	0.2%	2.3E-08	0.2%	3.9E-09	0.5%
2	4.7E-08	0.3%	3.2E-08	0.3%	5.9E-09	0.7%
3	1.3E-07	0.9%	6.7E-08	0.7%	1.5E-08	1.8%
4A	4.5E-07	3.1%	1.1E-07	1.2%	3.5E-08	4.2%
4B	7.3E-07	5.0%	1.3E-07	1.4%	5.0E-08	5.9%
4C	3.7E-07	2.5%	1.3E-07	1.4%	3.2E-08	3.8%
4D	5.6E-07	3.8%	1.6E-07	1.6%	4.0E-08	4.8%
5	9.7E-08	0.7%	7.8E-08	0.8%	9.5E-09	1.1%
6A	3.6E-07	2.5%	1.4E-07	1.4%	2.9E-08	3.4%
6B	6.4E-07	4.3%	6.6E-08	0.7%	3.4E-08	4.0%
6C	3.1E-07	2.1%	1.9E-07	2.0%	2.2E-08	2.6%
6D	4.5E-07	3.0%	2.2E-07	2.3%	2.5E-08	3.0%
7PD7	1.1E-07	0.8%	6.7E-08	0.7%	7.3E-09	0.9%
7	5.5E-08	0.4%	1.0E-08	0.1%	3.4E-09	0.4%
8	5.7E-08	0.4%	4.7E-09	0.0%	2.4E-09	0.3%
Inhalation Pathways	1.4E-05	94%	9.0E-06	94%	7.5E-07	89%
Non-Inhalation Pathways	9.3E-07	6%	5.6E-07	6%	9.0E-08	11%
Total [2]	**1E-05**	100%	**9.5E-06**	100%	**8E-07**	100%

Notes

1. Evaluates cancer risk at 68% of 2005 clinker and cement production rates in order to estimate potential off-site cancer risks below the notification level of 1.0×10^{-5} (approximately 9.5×10^{-6} at the MEIR).
2. The PMI and MEIR potential cancer risk includes the lifetime age sensitivity factor (1.7) to account for the potential increased sensitivity of children to carcinogens compared to adults averaged over a 70-year lifetime. This is not applicable to an adult worker.

TABLE 22

POTENTIAL CARCINOGENIC RISK AT THE SENSITIVE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type [1]	Description	2008 CEIR			Current Low Production		
			Inhalation Pathways	Non-Inhalation Pathways	Total	Inhalation Pathways	Non-Inhalation Pathways	Total
10993	Daycare	Children's House of Los Altos 770 Berry Avenue	7.8E-07	7.8E-08	9E-07	4.7E-07	4.8E-08	5E-07
12356	Daycare	Delight Montessori School 20299 Stevens Creek Blvd, Cupertino 95014	4.8E-07	4.6E-08	5E-07	2.9E-07	2.8E-08	3E-07
10994	Daycare	Foothill Preschool 2100 Woods Lane	1.6E-06	1.5E-07	2E-06	9.5E-07	9.4E-08	1E-06
10979	Daycare	Growing Tree Learning Center 12000 Saratoga-Sunnyvale Road	5.9E-07	5.5E-08	6E-07	3.6E-07	3.3E-08	4E-07
12357	Daycare	Happy Days Child Development Center 10115 Saich Way, Cupertino 95014	6.1E-07	5.7E-08	7E-07	3.7E-07	3.5E-08	4E-07
10989	Daycare	Kindercare Learning Center 1515 S. De Anza Boulevard	6.9E-07	6.3E-08	8E-07	4.2E-07	3.8E-08	5E-07
10995	Daycare	Los Altos Christian Preschool 625 Magdalena Avenue	7.7E-07	8.0E-08	8E-07	4.7E-07	4.9E-08	5E-07
10996	Daycare	Los Altos United Methodist Church 655 Magdalena Avenue	7.2E-07	7.6E-08	8E-07	4.4E-07	4.7E-08	5E-07
10990	Daycare	Play & Learn Preschool Daycare 10067 Byrne Avenue	1.2E-06	1.1E-07	1E-06	7.1E-07	6.7E-08	8E-07
10987	Daycare	Regnart Child Development Center 1180 Yorkshire Drive	1.2E-06	1.1E-07	1E-06	7.2E-07	6.4E-08	8E-07
10986	Daycare	YMCA-Blue Hills 12300 De Sanka Avenue	5.2E-07	4.8E-08	6E-07	3.1E-07	2.9E-08	3E-07
10988	Daycare	YMCA-Lincoln 21710 McClellan Road	1.2E-06	1.1E-07	1E-06	7.1E-07	6.7E-08	8E-07
10991	Daycare	YMCA-Stevens Creek 10300 Ainsworth Drive	1.3E-06	1.2E-07	1E-06	7.7E-07	7.4E-08	8E-07
12358	Hospital [2]	El Camino Hospital 2500 Grant Rd, Mountain View 94040	1.7E-07	--	--	1.1E-07	--	--
10957	School	Academy for Educational Excellence	2.7E-06	2.4E-07	3E-06	1.6E-06	1.4E-07	2E-06
12359	School	Blach Intermediate School 1120 Covington Rd, Los Altos 94024	7.3E-07	7.2E-08	8E-07	4.4E-07	4.4E-08	5E-07

TABLE 22

POTENTIAL CARCINOGENIC RISK AT THE SENSITIVE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type [1]	Description	2008 CEIR			Current Low Production		
			Inhalation Pathways	Non-Inhalation Pathways	Total	Inhalation Pathways	Non-Inhalation Pathways	Total
12360	School	Blue Hills Elementary School 12300 De Sanka Ave Saratoga 95070	5.2E-07	4.8E-08	6E-07	3.2E-07	2.9E-08	3E-07
12361	School	Creekside Private School 10300 Creston Dr. Cupertino 95014	1.2E-06	1.1E-07	1E-06	7.3E-07	6.7E-08	8E-07
12362	School	Cupertino Junior High School 1650 S. Bernardo Ave, Sunnyvale 94087	9.5E-07	8.8E-08	1E-06	5.8E-07	5.3E-08	6E-07
12363	School	De Anza College Child Development Center 21250 Stevens Creek Boulevard Cupertino 95014	7.6E-07	7.3E-08	8E-07	4.6E-07	4.4E-08	5E-07
12364	School	Delor Montessori School 1510 Lewiston Drive, Sunnyvale 94087	5.7E-07	5.4E-08	6E-07	3.5E-07	3.3E-08	4E-07
12365	School	Faria Elementary School 10155 Barbara Lane, Cupertino 95014	6.5E-07	6.3E-08	7E-07	4.0E-07	3.8E-08	4E-07
12366	School	Garden Gate Elementary School 10500 Ann Arbor Avenue, Cupertino 95014	7.2E-07	6.7E-08	8E-07	4.4E-07	4.0E-08	5E-07
12367	School	Homestead High School 21370 Homestead Rd, Cupertino 95014	7.3E-07	6.9E-08	8E-07	4.4E-07	4.2E-08	5E-07
12368	School	Kennedy Middle School 821 Bubb Rd, Cupertino 95014	1.4E-06	1.3E-07	2E-06	8.7E-07	7.6E-08	9E-07
12369	School	Lawson Middle School 10401 Vista Drive, Cupertino 95014	4.5E-07	4.3E-08	5E-07	2.7E-07	2.6E-08	3E-07
12370	School	Loyola School 770 Berry Avenue, Los Altos 94024	7.7E-07	7.8E-08	8E-07	4.7E-07	4.8E-08	5E-07
12371	School	Mc Auliffe Elementary School 12211 Titus Ave, Saratoga 95070	4.8E-07	4.4E-08	5E-07	2.9E-07	2.6E-08	3E-07
12372	School	Miramonte School 1175 Altamead Drive, Los Altos 94024	7.7E-07	7.6E-08	8E-07	4.7E-07	4.6E-08	5E-07
10992	School	Montclaire Elementary and School-Age Child Development Center 1160 St. Joseph Avenue, Los Altos 94024	1.5E-06	1.5E-07	2E-06	9.4E-07	9.3E-08	1E-06
12373	School	Montebello Elementary School 10301 Vista Drive, Cupertino 95014	4.6E-07	4.4E-08	5E-07	2.8E-07	2.6E-08	3E-07

TABLE 22

POTENTIAL CARCINOGENIC RISK AT THE SENSITIVE RECEPTORS

Lehigh Southwest Cement Company

Cupertino Facility

Model ID#	Receptor Type [1]	Description	2008 CEIR			Current Low Production		
			Inhalation Pathways	Non-Inhalation Pathways	Total	Inhalation Pathways	Non-Inhalation Pathways	Total
12374	School	Nimitz Elementary School 545 Cheyenne Drive, Sunnyvale 94087	4.5E-07	4.3E-08	5E-07	2.7E-07	2.6E-08	3E-07
12375	School	Oak Elementary School 1501 Oak Avenue, Los Altos 94024	8.1E-07	7.9E-08	9E-07	4.9E-07	4.8E-08	5E-07
12376	School	Prospect High School 18900 Prospect Rd, Saratoga 95070	4.6E-07	4.1E-08	5E-07	2.8E-07	2.5E-08	3E-07
12377	School	St. Simon Elementary School 1840 Grant Road, Los Altos 94024	1.2E-06	1.2E-07	1E-06	7.2E-07	7.2E-08	8E-07
10958	School	Stevens Creek Elementary School 10300 Ainsworth Drive, Cupertino 95014	1.3E-06	1.2E-07	1E-06	7.8E-07	7.3E-08	9E-07
12378	School	Villa Montessori School 20900 Stevens Creek Blvd, Cupertino 95014	6.1E-07	5.8E-08	7E-07	3.7E-07	3.5E-08	4E-07
12379	School	Waldorf School-Peninsula 11311 Mora Drive, Los Altos 94024	1.5E-06	1.6E-07	2E-06	9.1E-07	9.8E-08	1E-06
12380	School	West Valley Elementary School 1635 Belleville Way , Sunnyvale 94087	1.0E-06	9.4E-08	1E-06	6.2E-07	5.7E-08	7E-07

Notes

1. Per BAAQMD guidance (2010), receptors at schools and daycares are modeled in HARP using the 9-yr child resident Derived OEHHA option and cancer risks are multiplied by an age sensitivity factor of 3.
2. A hospital worker would be the most sensitive receptor because of potential exposure duration; therefore, the hospital receptor was modeled as a worker receptor with inhalation-only exposure for 245 days/year, 8 hours/day for 40 years.

TABLE 23

ESTIMATE OF EXCESS CANCER BURDEN
FOR CENSUS TRACT IN ZONE OF IMPACT[1]
Lehigh Southwest Cement Company
Cupertino Facility

Description	Model ID #[2]	2008 CEIR			Current Low Production		
		Residential Cancer Risk	Resident Population	Residential Cancer Burden[3]	Residential Cancer Risk	Resident Population	Residential Cancer Burden[3,4]
Census Tract 506202	11986	1.0E-06	6849	6.9E-03	6.0E-07	6849	4.1E-03
Census Tract 507401	11745	1.0E-06	5599	5.9E-03	6.3E-07	5599	3.5E-03
Census Tract 507402	11593	7.6E-07	4035	3.1E-03	4.6E-07	4035	1.8E-03
Census Tract 507500	11587	8.9E-07	5846	5.2E-03	5.4E-07	5846	3.2E-03
Census Tract 507600	10977	1.5E-06	5773	8.5E-03	8.7E-07	5773	5.0E-03
Census Tract 507701	10973	2.2E-06	3670	7.9E-03	1.3E-06	3670	4.8E-03
Census Tract 507702	10975	3.5E-06	6252	2.2E-02	2.1E-06	6252	1.3E-02
Census Tract 507703	10972	5.1E-06	6959	3.5E-02	3.1E-06	6959	2.2E-02
Census Tract 507805	10971	2.1E-06	4525	9.3E-03	1.2E-06	4525	5.6E-03
Census Tract 507806	12167	1.5E-06	5396	8.1E-03	9.1E-07	5396	4.9E-03
Census Tract 507807	10974	2.1E-06	3041	6.4E-03	1.3E-06	3041	3.9E-03
Census Tract 507808	10976	2.6E-06	5238	1.3E-02	1.5E-06	5238	8.0E-03
Census Tract 507903	12059	1.3E-06	4809	6.3E-03	7.9E-07	4809	3.8E-03
Census Tract 507904	12062	1.1E-06	3375	3.6E-03	6.4E-07	3375	2.2E-03
Census Tract 507905	12054	1.9E-06	5448	1.0E-02	1.1E-06	5448	6.1E-03
Census Tract 507906	12056	1.6E-06	4437	7.2E-03	9.8E-07	4437	4.3E-03
Census Tract 508001	12134	1.2E-06	6320	7.3E-03	7.0E-07	6320	4.4E-03
Census Tract 508002	12137	8.5E-07	8272	7.1E-03	5.2E-07	8272	4.3E-03
Census Tract 508101	12170	1.1E-06	5882	6.2E-03	6.4E-07	5882	3.7E-03
Census Tract 508203	11075	8.7E-07	4797	4.2E-03	5.3E-07	4797	2.5E-03
Census Tract 508204	11076	8.5E-07	4025	3.4E-03	5.1E-07	4025	2.1E-03
Census Tract 508301	11069	2.1E-06	4298	9.1E-03	1.3E-06	4298	5.5E-03
Census Tract 508304	11073	1.1E-06	7672	8.8E-03	7.0E-07	7672	5.3E-03
Census Tract 508401	11181	1.5E-06	6352	9.2E-03	8.8E-07	6352	5.6E-03
Census Tract 508403	11128	1.3E-06	2638	3.5E-03	8.0E-07	2638	2.1E-03
Census Tract 508404	11184	1.2E-06	5111	6.1E-03	7.2E-07	5111	3.7E-03
Census Tract 508601	11240	1.1E-06	3519	3.8E-03	6.6E-07	3519	2.3E-03
Census Tract 509105	11264	1.2E-06	5624	6.9E-03	7.4E-07	5624	4.1E-03

TABLE 23

ESTIMATE OF EXCESS CANCER BURDEN
FOR CENSUS TRACT IN ZONE OF IMPACT[1]
Lehigh Southwest Cement Company
Cupertino Facility

Description	Model ID #[2]	2008 CEIR			Current Low Production		
		Residential Cancer Risk	Resident Population	Residential Cancer Burden[3]	Residential Cancer Risk	Resident Population	Residential Cancer Burden[3,4]
Census Tract 509106	11266	9.8E-07	4004	3.9E-03	6.0E-07	4004	2.4E-03
Census Tract 509107	11265	1.1E-06	5018	5.6E-03	6.8E-07	5018	3.4E-03
Census Tract 509600	11345	9.4E-07	2371	2.2E-03	5.7E-07	2371	1.3E-03
Census Tract 509700	11318	1.0E-06	3122	3.2E-03	6.2E-07	3122	1.9E-03
Census Tract 509801	11259	1.2E-06	4926	5.7E-03	7.0E-07	4926	3.5E-03
Census Tract 509802	11261	1.3E-06	2557	3.3E-03	7.8E-07	2557	2.0E-03
Census Tract 509901	11204	1.8E-06	2030	3.6E-03	1.1E-06	2030	2.2E-03
Census Tract 509902	11207	1.6E-06	4686	7.4E-03	9.5E-07	4686	4.5E-03
Census Tract 510001	11149	2.2E-06	5973	1.3E-02	1.3E-06	5973	7.8E-03
Census Tract 510002	11067	2.7E-06	3550	9.4E-03	1.6E-06	3550	5.7E-03
Census Tract 510100	10970	3.6E-06	2947	1.1E-02	2.2E-06	2947	6.5E-03
Census Tract 510200	11201	1.4E-06	4207	5.9E-03	8.6E-07	4207	3.6E-03
Census Tract 510300	11255	9.1E-07	3752	3.4E-03	5.5E-07	3752	2.1E-03
Census Tract 511701	11197	1.1E-06	3719	4.1E-03	6.7E-07	3719	2.5E-03
Census Tract 511702	10969	2.6E-06	2637	6.8E-03	1.6E-06	2637	4.1E-03
Census Tract 511703	10968	2.7E-06	6759	1.8E-02	1.7E-06	6759	1.1E-02
Total			208020	3.4E-01		208020	2.1E-01

Notes

1. The boundaries of some census tracts extend beyond zone of impact, making cancer burden estimate conservative for smaller zone of impact.
2. Receptor identifier in the HARP model.
3. A cancer burden less than one indicates that over a 70-year period under the worst-case exposure assumptions, no member of the community would be expected to contract cancer based on exposure to Facility emissions.
3. Census tracts outside the smaller zone of impact for the current low production emissions were included to be conservative.

FIGURES

Map Document: (X:\Projects\0111910000\MXD\Site Map.mxd) 6/2/2010 -- 1:51:32 PM

JOB NO.:	0111910000
DATE:	6/02/2010
SCALE:	1" = 10 kms
PROJ:	UTM Zone 10
DATUM:	NAD 83

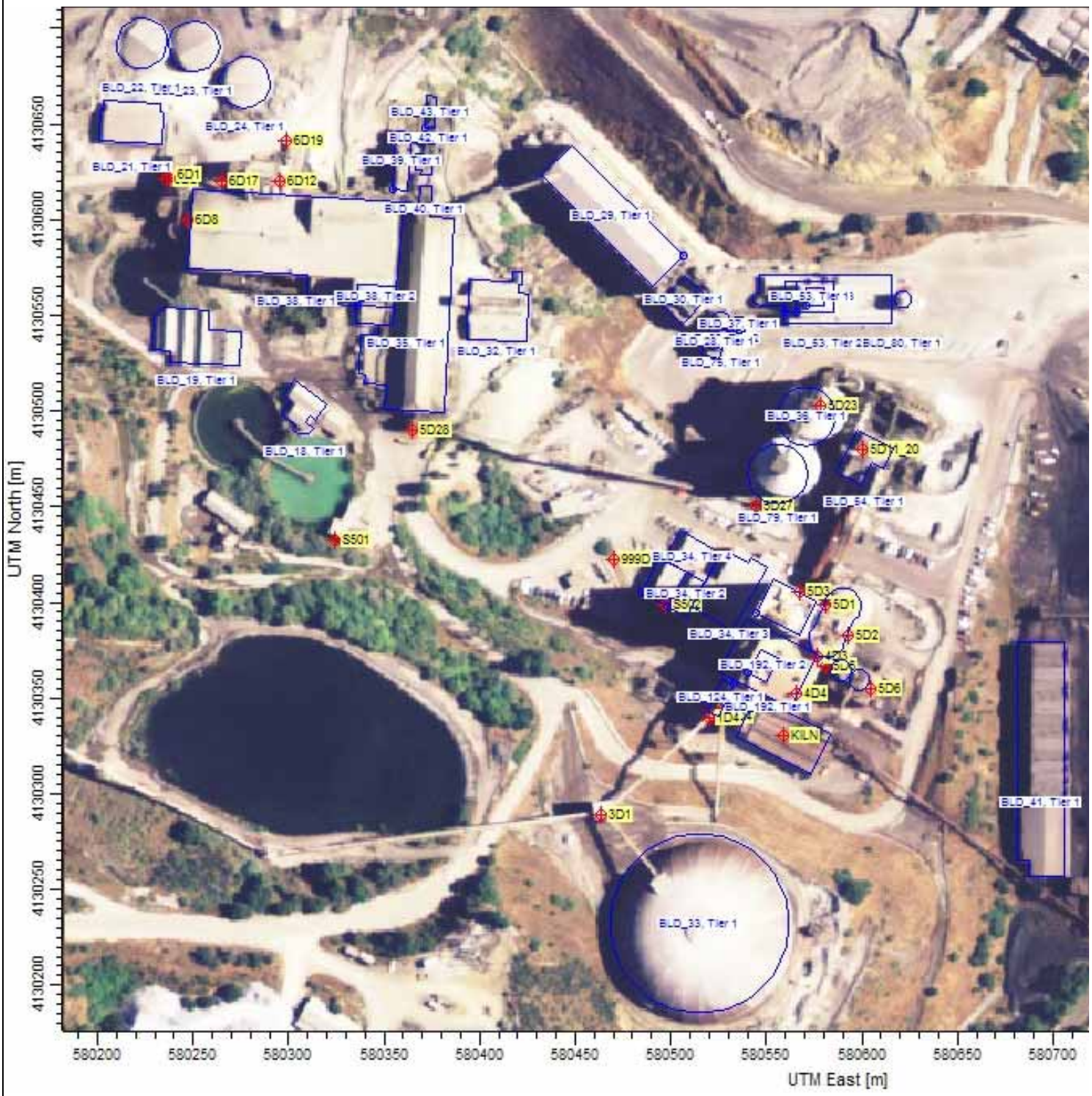
The map shown here has been created with all due and reasonable care and is strictly for use with AMEC Project Number: 0111910000. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind. AMEC assumes no liability, direct or indirect, whatsoever for any such third party or unintended use.

Lehigh Southwest Cement Company
Cupertino Facility

Facility Location

FIGURE 1

AMEC Geomatrix

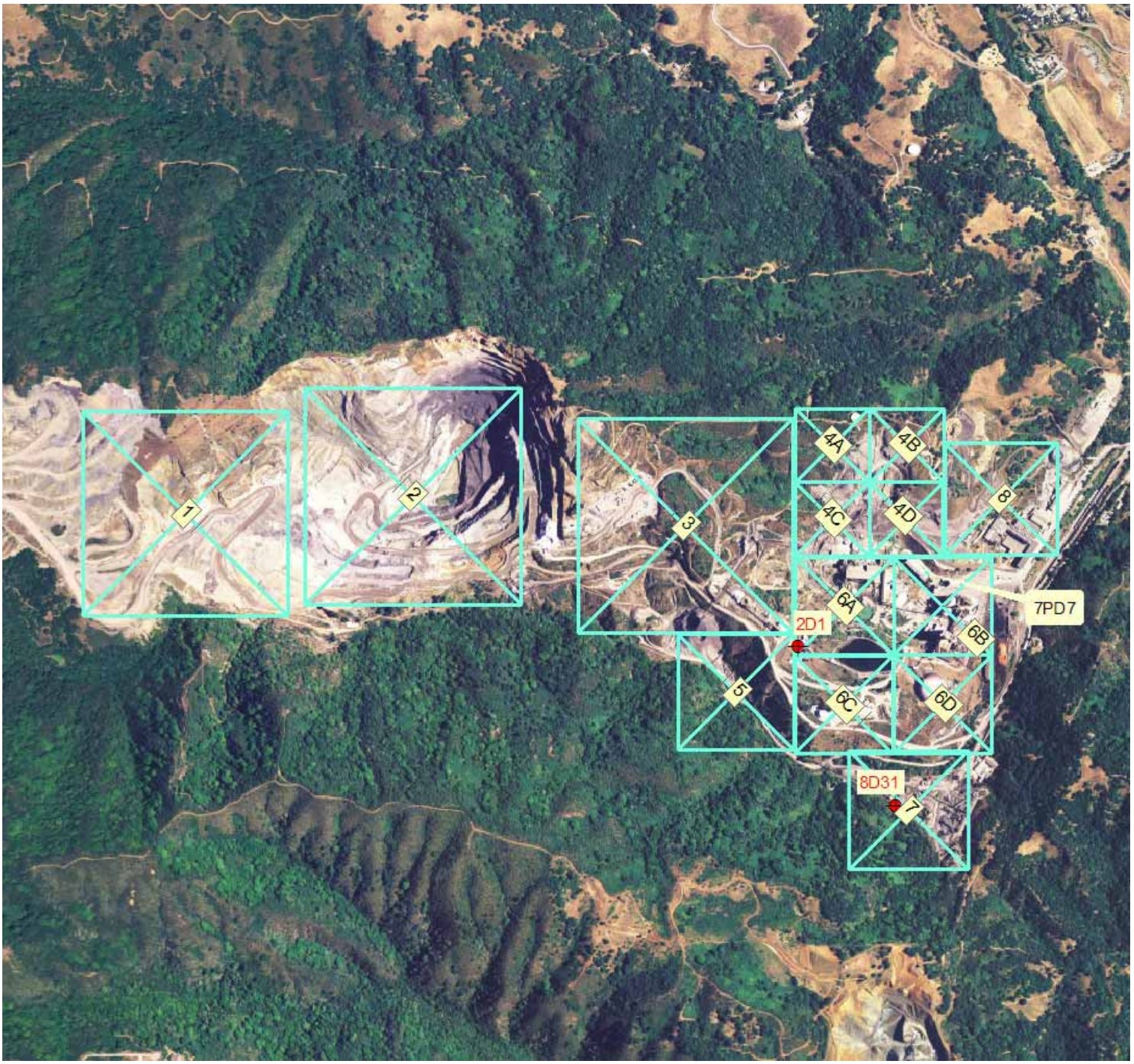


Explanation

⊕ Point Sources

Building Outline

JOB NO.	01119100000	Lehigh Southwest Company – Cupertino Facility	
DESIGN:	SO		
DRAWN:	AMEC E&E		AMEC Geomatrix
DATE:	8/19/2010	Point Sources in the Main Operations Area and Buildings Used in the Air Dispersion Modeling	Figure 2A
SCALE:			



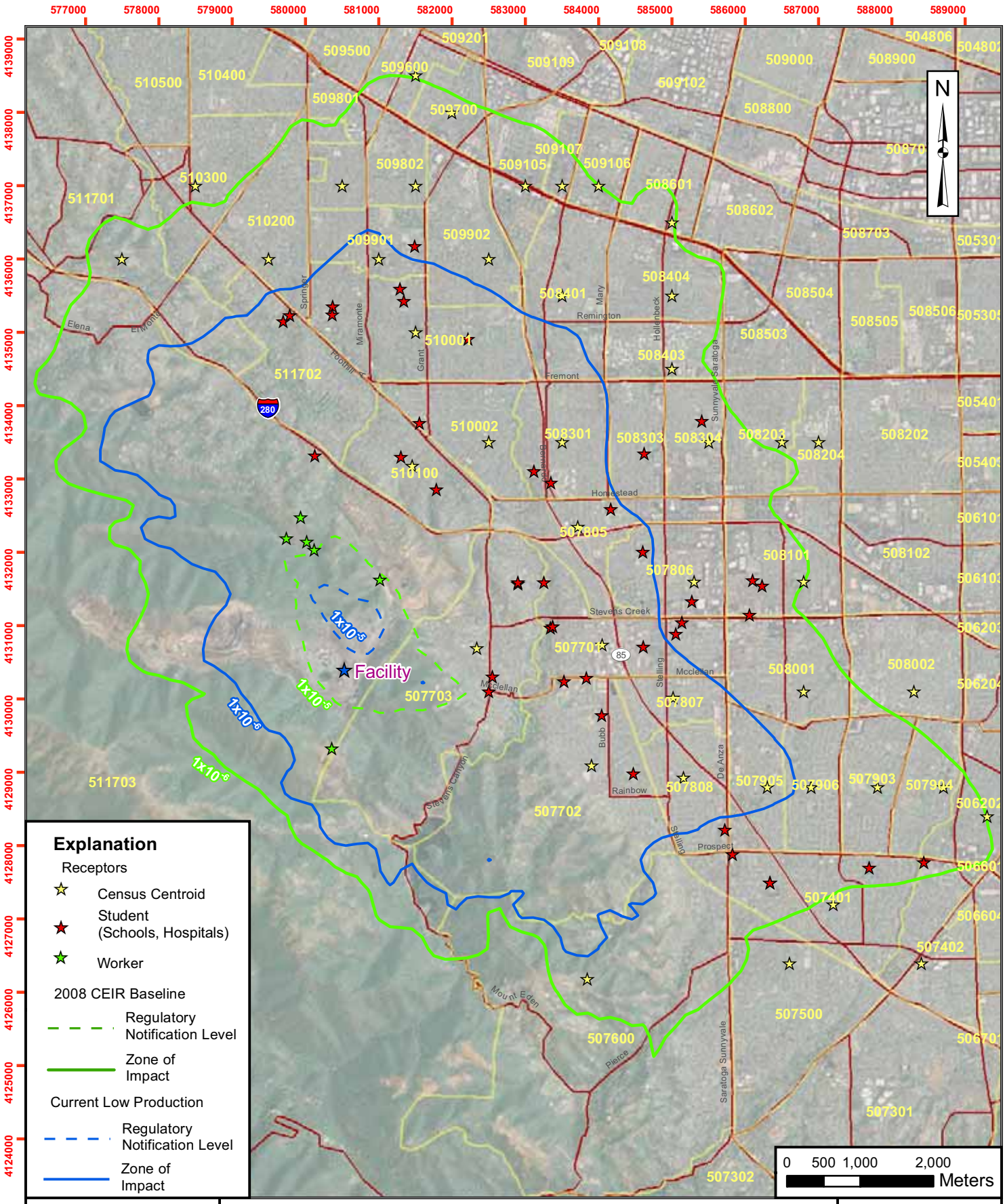
Explanation

2D1 and 8D31 Point Sources

Volume Sources including 7PD7

JOB NO.	01119100000	Lehigh Southwest Company – Cupertino Facility	
DESIGN:	SO		
DRAWN:	AMEC E&E		
DATE:	8/20/2010	Volume Fugitive Sources and Point Sources Outside the Main Operations Area	Figure 2B
SCALE:			

AMEC Geomatrix



JOB NO.	0111910000
DESIGN:	SO
DRAWN:	AMEC GIS
DATE:	8/17/2010
SCALE:	Graphical

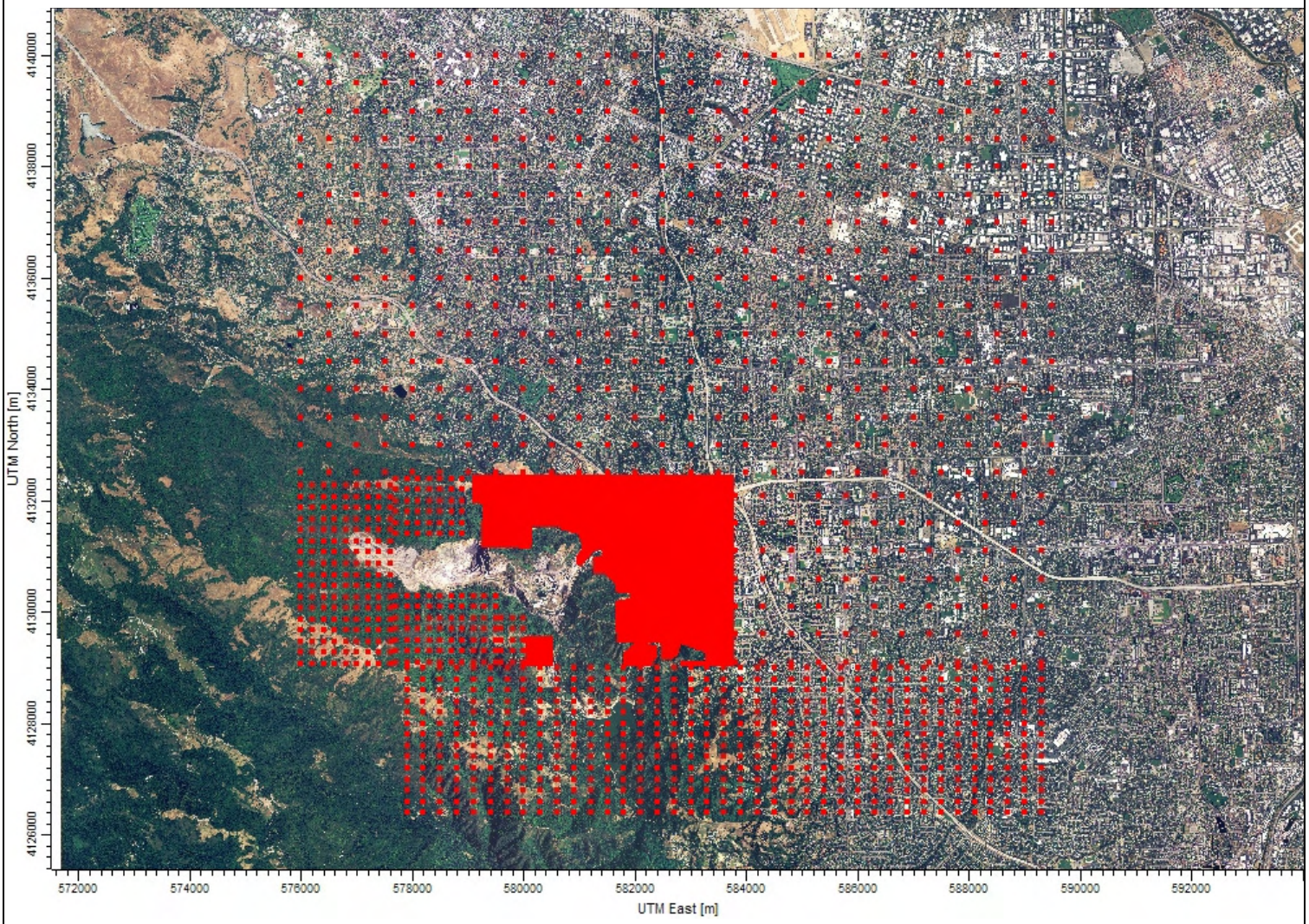
Lehigh Southwest Company - Cupertino Facility

Receptors Used in Air Dispersion Modeling
Key Receptors, Sensitive Receptors, Centroid Receptors

Figure 3A

AMEC Geomatrix

Map Document: (X:\Projects\0111910000\MXD\Figure3-A.mxd) 8/24/2010 -- 10:20:06 AM



Explanation

Gridded Receptor

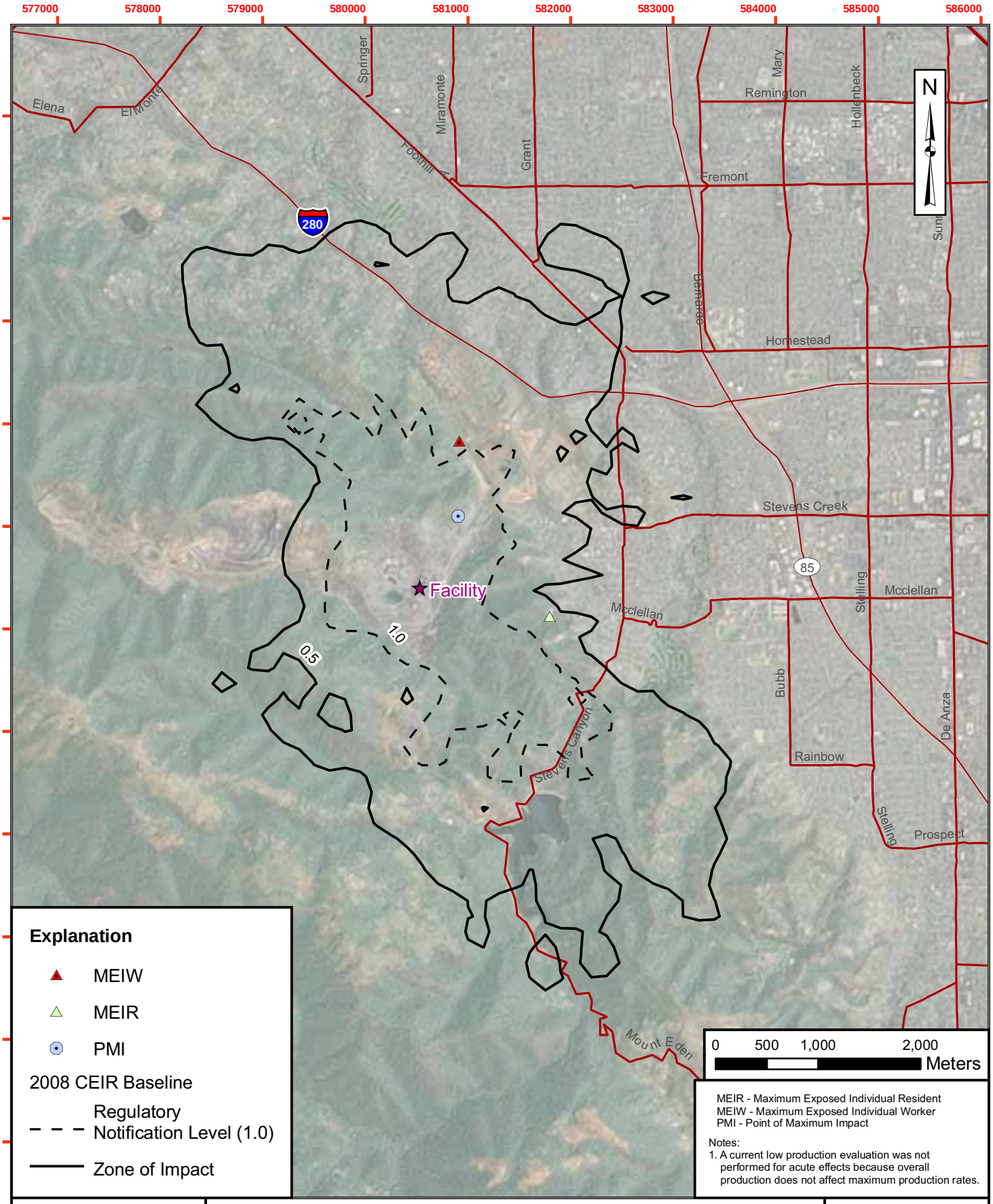
JOB NO.	01119100000
DESIGN:	SO
DRAWN:	AMEC E&E
DATE:	8/18/2010
SCALE:	

Lehigh Southwest Company – Cupertino Facility

Receptor Locations Used in the Air Dispersion Modeling – Grid Receptors

Figure 3B

AMEC Geomatrix



Explanation

- MEIW
- MEIR
- PMI
- 2008 CEIR Baseline Regulatory Notification Level (1.0)
- Zone of Impact

MEIR - Maximum Exposed Individual Resident
MEIW - Maximum Exposed Individual Worker
PMI - Point of Maximum Impact

Notes:
1. A current low production evaluation was not performed for acute effects because overall production does not affect maximum production rates.

JOB NO.	0111910000
DESIGN:	SO
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DATE:	8/17/2010
SCALE:	Graphical

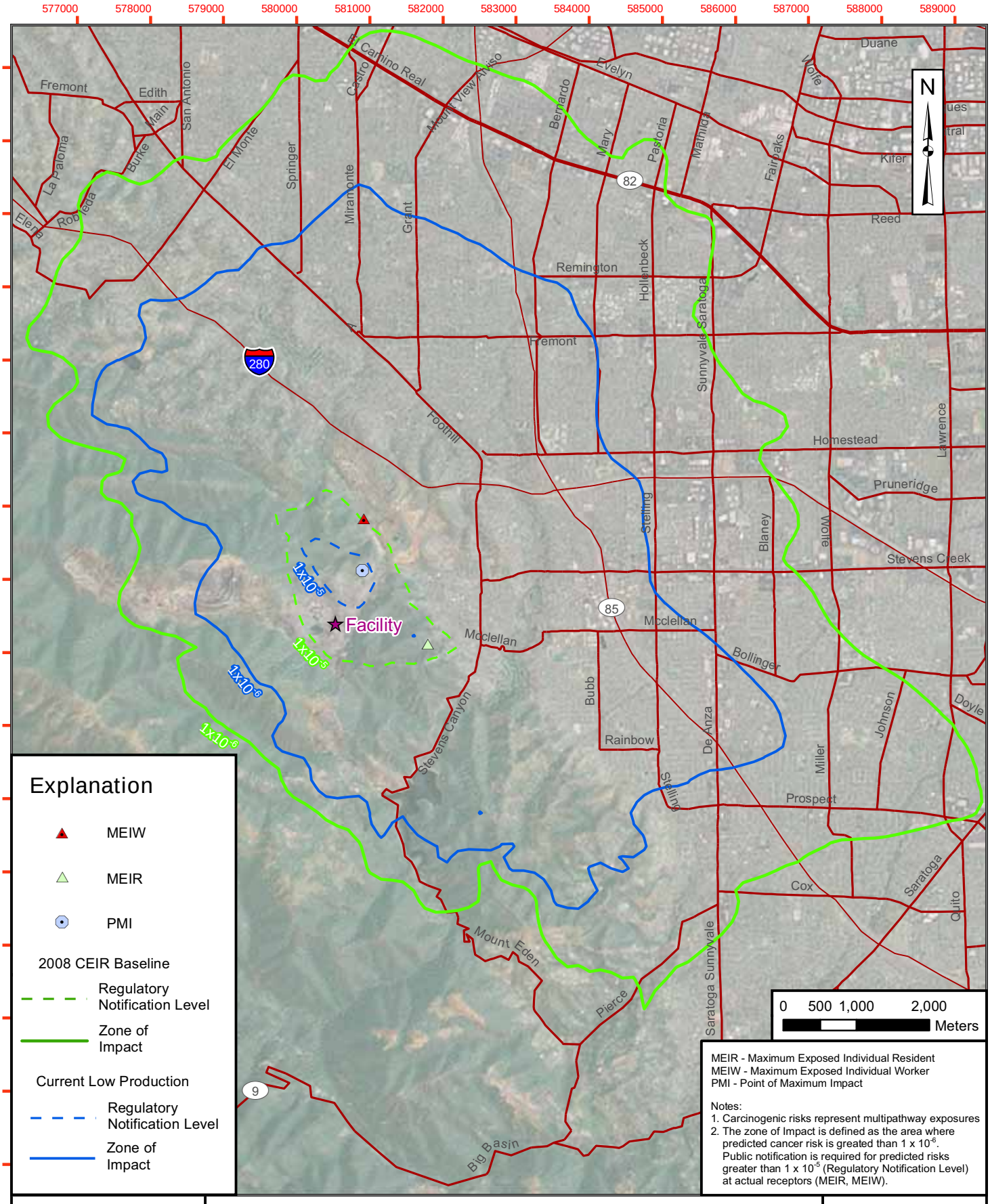
Lehigh Southwest Company - Cupertino Facility

Acute Noncarcinogenic Hazard Index Isopleths For Developmental Health Effects

Figure 4

AMEC Geomatrix

Map Document: (X:\Projects\0111910000\MXD\Figure-4.mxd) 8/24/2010 -- 10:21:48 AM



Explanation

- MEIW
- MEIR
- PMI

2008 CEIR Baseline

- Regulatory Notification Level
- Zone of Impact

Current Low Production

- Regulatory Notification Level
- Zone of Impact

MEIR - Maximum Exposed Individual Resident
MEIW - Maximum Exposed Individual Worker
PMI - Point of Maximum Impact

Notes:
1. Carcinogenic risks represent multipathway exposures
2. The zone of Impact is defined as the area where predicted cancer risk is greated than 1 x 10^{-6}. Public notification is required for predicted risks greater than 1 x 10^{-5} (Regulatory Notification Level) at actual receptors (MEIR, MEIW).

JOB NO.	0111910000
DESIGN:	SO
DRAWN:	AMEC GIS
DATE:	8/17/2010
SCALE:	Graphical

Lehigh Southwest Company - Cupertino Facility

Carcinogenic Risk Isopleths

Figure 5

AMEC Geomatrix

Map Document: (X:\Projects\0111910000\MXD\Figure-5.mxd) 8/24/2010 -- 10:22:59 AM

APPENDIX A-D

Included on CD

(see CD[1])

[1] To download Acrobat Reader, go to http://www.adobe.com/ and click on “Get Adobe Reader.”