December 6, 2010

Project 0111910000.0004.0

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

Subject: **Revised Protocol for Revisions to Mercury Emissions and Development of a 2013 Production Scenario**
Lehigh Southwest Cement Company
Cupertino, California

Dear Mr. Lutz:

On behalf of Lehigh Southwest Cement Company (Permit [illegible]0017), AMEC Geomatrix Inc. (AMEC) is submitting this revised protocol to document [illegible] to the mercury emissions from the Lehigh Southwest Cement Company (Lehigh) facility (the [illegible]) in Cupertino, California and to present a maximum production scenario for 2013 once National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements and other planned changes at the facility have been implemented. The original protocol was submitted on November 12, 2010. Based on discussions during a conference call held on December [illegible], 2010 between you and representatives of Lehigh and AMEC, the November 12, 2010 protocol is being revised to calculate maximum hourly emissions of mercury based on maximum hourly production rather than average hourly production. Once we have received your comments to this revised protocol and any additional comments you may have to the AB2588 Health Risk Assessment (HRA), we will prepare the revised AB2588 [illegible] discussed at our October 12, 2010 meeting between representatives of the Bay Area Air Quality Management District (BAAQMD) and Lehigh and during the December 1, 2010 conference call. Based on the schedule we discussed, the revised AB2588 HRA will be submitted to you by January 7, 2011 assuming the revised protocol is submitted and approved by next week.

REVISIONS TO MERCURY EMISSIONS

As discussed at the October 12, 2010 meeting, the mercury emissions summarized in the 2009 Addendum to the 2008 Comprehensive Emission Inventory Report (CEIR) were reviewed. Previous mercury emissions reported in the 2008 CEIR used source test data. As reported in the 2009 CEIR Addendum, the mercury emissions were consistent with the mass balance based reported for the Toxics Release Inventory (TRI) for 2008, but did not reflect higher production rates from 2005 used as the basis for the 2008 CEIR. The facility's 2005 production was the highest in the last 10 years. Additionally, historical mercury concentration data in pre-blend stone (limestone) was used in the mass balance presented in the 2009 CEIR Addendum. Since that historical data was collected, mercury has been sampled and measured in the pre-blend stone for the purpose of the 2008 CEIR and over a 30-day period in 2009 utilizing a

AMEC Geomatrix, Inc.
2101 Webster Street, 12th Floor
Oakland, California
USA 94612-3066
Tel (510) 663-4100
Fax (510) 663-4141
www.amecgeomatrixinc.com

AMEC Geomatrix

sampling protocol from a 2007 EPA 114 request.[1] The results of the two sampling programs were the same. The concentration of mercury in the pre-blend stone was 0.31 parts per million (ppm) in the 2008 CEIR samples as was the average concentration over 3[illegible]s of sampling in 2009, excluding two outlier samples as shown in Table 1.

Table 2 presents a comparison of the average mercury concentrati[illegible]able 1 to concentrations used originally in the 2008 CEIR and in the 2009 [illegible]e CEIR. As shown in Table 2, average concentrations in the historical pre-ble[illegible] limesto[illegible]e 0.24 ppm as reported in the 2009 Addendum, whereas current data from two separate [illegible] events report the average concentration of mercury as 0.31 par[illegible] million. The 0.31 [illegible] average mercury concentration for the pre-blend limestone wa[illegible] in the mass balance calculations herein to estimate emissions from the kiln assuming [illegible] mercury present in the raw materials was emitted. This is the same mass balance approa[illegible] the 2009 Addendum. Table 3 presents the results of these calculations for annual ave[illegible] maximum hourly conditions for the 2005 production year (2008 CEIR), the current low pro[illegible] scenario from the AB2588 HRA (for 2008/2009 production), 2010 e[illegible] reflecting i[illegible]entation of a kiln mill dust collector (KMDC) dust shuttling modific[illegible] that reduced mercury emissions by at least 25 percent, and the projected 2013 scenari[illegible] discussed further below). This information regarding the revisions to the mercury emissions wi[illegible] included in the Appendix to the AB2588 HRA.

Projected 2013 Scenario

As we discussed at the [illegible]ber [illegible]010 mee[illegible] a third emission scenario will be added to the AB2588 HRA to [illegible] expe[illegible]itions of 2013 once planned facility changes are completed. Table 4 [illegible] [illegible]SHAPs requirements and where those requirements will chan[illegible]on rates relevant to the AB2588 HRA by 2013. As noted in Table 4, the NESHAPs re[illegible]nts will specifically affect emissions of hydrochloric acid and mercury. [illegible]he kil[illegible]facility will be reconfigured to emit from a single 300 foot stack r[illegible] [illegible]ooftop[illegible]ks currently in place. The previous and projected source para[illegible] for the [illegible]k(s) are as follows:

[1] In 2007, EPA issued a 114 requirement to the major Portland Cement manufacturers to sample raw material for mercury content. At that time, the Hanson Permanente Cement Company was not part of that sampling requirement, but performed a similar test for informational purposes after being acquired by the Heidelberg Cement Group (Lehigh).

Parameter	2008 CEIR (1 of 30 individual stacks)*	Projected 2013 Scenario
Base elevation (meters)	199.03	
Release Height (meters)	18.29	
Exit Temp (degrees Fahrenheit)	320	320
Stack Diameter (feet)	2.198	19
Exit Velocity (meters/second)	16.0	.406
Flow Rate (cubic feet/minute)	12000	525000

* There are a total of 32 roof-t stacks on the only 30 are in operation at any given

Revisions will be made to the AB2588 H currence with these proposed changes. Please call either of the unders if y questions.

Sincerely yours,
AMEC Geomatrix, Inc.

Caryn Kelly
Senior To

Ann Holbrow Verwiel
Senior Toxicologist

Att Table Summary of Mercury Analysis in 2009
Table 2 Revisions to Mercury Concentrations Based on 2009 Sampling
Revisions to Mercury Emissions - Mass Balance Based on 2009 Sampling
4 Revisions to Emissions for Projected 2013 Scenario Based on NESHAPS Requirements

CK/AHV/jh

\\oad-fs1\doc_safe\11000s\11191.000\4000\rev mod protocol_12.10\2013 production protocol_v5.docx

cc: Scott A. Renfrew, Lehigh Southwest Cement Company
Henrik Wesseling, Lehigh Southwest Cement Company
Robert Hull, Bay Area Air Quality Management District
Brian Bateman, Bay Area Air Quality Management District
Shane Alesi, HTC - Heidelberg Technology Center
Tim Matz, Lehigh Hanson

TABLE 1

SUMMARY OF MERCURY ANALYSIS IN 2009

Lehigh Southwest Cement Company
Cupertino Facility

Concentrations in micrograms per gram (µg/g)

Date	Run	Pre-Blend Stone	Iron Ore	Baux
3/25/2009	1	0.394	0.087	
	2	0.396	0.087	
3/26/2009	1	0.774[1]	0.205	
	2	0.780	0.202	
3/27/2009	1	1.44	0.156	
	2	1.42		0.033
3/28/2009	1	0.401	72	0.040
	2	0.397	.173	0.040
3/29/2009	1	0.302	0.15	0.039
	2	0.306		0.040
3/30/2009	1	0.298		0.037
	2	0.296		0.037
3/31/2009	1	.328		0.031
	2	0.328	0.45	0.030
4/1/2009	1		.197	0.030
	2	0.480	95	0.031
4/2/2009	1		0.185	0.034
	2		0.185	0.036
4/3/		6	<0.02	0.039
			<0.02	0.039
009		64	0.2208	0.032
		0.384	0.208	0.032
	1	0.263	<0.02	0.030
	2	0.264	<0.02	0.031
4/6/20	1	0.279	<0.02	0.040
	2	0.283	<0.02	0.040
009	1	0.340	0.196	0.030
	2	0.341	0.196	0.030
09	1	0.382	0.149	0.035
	2	0.384	0.15	0.035
/2009	1	0.243	0.137	0.033
	2	0.243	0.135	0.034
4/11/2009	1	0.253	0.126	0.032
	2	0.255	0.127	0.033
4/12/2009	1	0.446	0.187	0.058
	2	0.446	0.187	0.058
4/13/2009	1	0.261	0.150	0.033
	2	0.261	0.151	0.033
4/14/2009	1	0.263	0.151	0.035
	2	0.262	0.152	0.034
4/15/2009	1	0.247	0.155	0.033
	2	0.249	0.156	0.033

amec

TABLE 2

REVISIONS TO MERCURY EMISSIONS BASED ON 2009 SAMPLING

Lehigh Southwest Cement Company
Cupertino Facility

Raw Material and Fuel	2009 30-day Sampling[1]			Previous Results		
	Minimum Mercury	Maximum Mercury (ppm)	Average Mercury (ppm)	Raw Material and Fuel	2009 [illegible] (ppm)	2009 Addendum to 2008 CEIR Mercury (ppm)
Pre-Blend Stone	0.20	0.48	0.31	High Grade (HG)	[illegible]	--
	--	--	--	All Grade (AG)	[illegible]	--
	--	--	--	56%HG / [illegible]%AG	0.31	0.24
Iron Ore	0.087	0.62	0.19	Iron Ore	0.01	0.01
Bauxite	0.030	0.069	0.037	Bauxite	0.01	0.01
Coke	--[2]	--[2]	0.01	[illegible]	0.01	0.01

Notes:

1. Average values to be used in mass balance calculation for Revised [illegible] URA.
2. Petroleum coke sampling in 2009 was not representative of mercury content of raw material because samples were collected from the production process. The detection limit for the samples collected from the coke stockpile for the 2008 CEIR was used to represent the mercury content of coke.

Abbreviations:

-- = Not applicable
ppm = parts per million

amec

TABLE 3

REVISIONS TO MERCURY EMISSIONS - MASS BALANCE APPROACH BASED ON 2009 SAMPLING
Lehigh Southwest Cement Company
Cupertino Facility

Raw Material and Fuel	2008 Annual Consumption (short tons)	Average Mercury Concentration (ppm)	Revised Average Annual Emissions in 2008 (lb/year)	Maximum Hourly Emissions in 2005[4] (lb/hour)	Annual Average Emissions in 2005[5] (lb/year)	Maximum Hourly Emissions in 2008/2009[6] (lb/hour)	Annual Average Emissions in 2008/2009[7] (lb/year)	Maximum Hourly Emissions in [illegible]	Annual Average Emissions in 2010[9] (lb/year)	Maximum Hourly Emissions for Projected 2013 Scenario[9] (lb/hour)	Annual Average Emissions for Projected 2013 Scenario[10] (lb/year)
Preblend Stone[1]	1,228,889	0.31	762	0.19	--		--	--	--	--	--
Iron Ore[1]	35,346	0.19	13	0.0034	--		--	--	--	--	--
Bauxite[1]	55,723	0.037	4.1	0.0010	--		--	--	--	--	--
Coke[2]	100,731	0.01	2.0	0.00051	--		--	--	--	--	--
Total Clinker Production (tons/hour or tons/year)[3]	851,370			217	1,399,692		811,821	200	850,000	200	1,600,000
Total Mercury Emissions (lb)			781	0.20	[illegible]284	0.1[illegible]	745	0.14	585	0.011	88

Notes:
1. Concentrations in raw feed material based on measurements between March 25, 2009 and April 24, [illegible] not detected in the samples.
2. Concentrations in petroleum coke based on detection limits for samples from coke stockpiles collecte[illegible] per year applies to annual production.
3. Tons of clinker production = (preblend stone + iron ore + bauxite) * 0.645. Tons per hour applies to ma[illegible]our).
4. Max Hourly emissions in 2005 for 2008 CEIR scenario based on a maximum daily clinker production rat[illegible] material * 2000 lbs/ton * 0.000001 kg/mg).
   Max hourly Hg emissions from materials = (tons/hr clinker/0.645 * (tons material/tons total all materials) *
   Max hourly Hg emissions from coke = (tons/hr clinker production) * (tons coke /yea[illegible]inker /year) * [illegible]dry in coke * 2000 lbs/ton * 0.000001 kg/mg.
5. Annual average emissions in 2005 for 2008 CEIR scenario based on a total clin[illegible]te of 1,399[illegible] of clinker.
   Total annual average Hg emissions = 2005 clinker production/2008 clinker p[illegible] emissions.
6. Maximum hourly emissions in 2008/2009 for current low production scena[illegible] on h[illegible] hourly produ[illegible]008/2009. *Maximum hourly production is limited by* permit condition on use of petroleum coke set in 2007.
7. Annual average emissions in 2008/2009 for current low production s[illegible]d on [illegible] rate of 811,821 tons of clinker.
   Total annual average Hg emissions = 2008_2009 clinker production/2[illegible]ns.
8. In 2010, kiln mill dust collector (KMDC) dust shuttling modification was i[illegible] sions and resulted in a reduction of at least 25 percent based on 2010 production. Production rates for 2010 are estimated based on facility [illegible]diction.
9. Maximum hourly emissions were projected for the 2013 p[illegible]cenario b[illegible]imum production rate of 200 tons per hour. Annual average mercury emissions (88 pounds per year) were divided by 8424 hours of prod[illegible]wo wee[illegible]riod) and then were increased by the ratio of the maximum clinker production rate (200 tons per hour) to the average production [illegible]or that p[illegible]
10. Annual average emissions projected for 2013 p[illegible]cenario [illegible]the NES[illegible]uirement of 88 pounds per year mercury emissions.

Abbreviations:
Hg = mercury
lb = pounds
NESHAP - National Emission Standards for Hazardo[illegible]nts
ppm = parts per million

amec

TABLE 4

REVISIONS TO EMISSIONS FOR PROJECTED 2013 SCENARIO BASED ON NESHAP REQUIREMENTS[1]

Lehigh Southwest Cement Company
Cupertino Facility

NESHAP Requirements for Kiln	Specific Requirement	2013 Scenario	2008 CEIR Emission Rates		2013 Emission Rates	
			lb/hour	lb/year	lb/hour	lb/year
Total Mercury Emissions[2]	55 lbs/million tons of clinker	88 lbs/year based on 1[illegible] million tons clinker production	[illegible]	1284	0.011	88
Total Hydrocarbon Emissions	9 ppm @ 7 % oxygen of total hazardous air pollutants[1]	No change; requirement met under current conditions	No revision made			
Hydrochloric acid emissions	3 ppm @ 7% oxygen	Assumed to be 50[illegible] reduction from current emissions	1.1E+05	16	5.4E+04	7.8
Particulate matter	0.04 lb/ton of clinker	No change; requirement [illegible] current conditions	No revision made			

Notes:

1. In addition, the kiln stack parameters will be revised as discussed in th[illegible]
2. 2008 Mercury emissions are the final 2008 CEIR emissions (based on p[illegible]) as discussed in previous section of the protocol.

Abbreviations
lb(s) = pound(s)
NESHAP = National Emission Standards for Hazard[illegible] Pollu[illegible]
ppm = parts per million