County of Santa Clara
Department of Environmental Health
Second Quarter Noise Monitoring Report for
Lehigh Southwest Cement Company
24001 Stevens Creek Blvd.
Cupertino, CA 95014

In the second quarter of 2016 the Department of Environmental Health (DEH) received ten complaints related to noise in the vicinity of the Lehigh Cement Plant. DEH performed four different measurements in various locations as presented in Table 1 below.

Table 1 - LEHIGH NOISE MONITORING - SECOND QUARTER 2016

DATE AND TIME	LOCATION	dB(A) NOISE MEASUREMENT*	BACKGROUND NOISE OBSERVATIONS / COMMENTS
4/14/16; 10:42 pm	Firwood Drive[1]	49.9	None except occasional plane flyby; car pass by and occasional wind gust; Lehigh Plant was audible and was the dominant noise
4/24/16; 10:27 pm	Firwood Drive[1]	49.4	None except occasional plane flyby; Lehigh Plant was audible and was the dominant noise
6/17/16 10:14 pm	Firwood Drive	45.1	None except frequent plane flyby and occasional sprinkler system noise; Lehigh Plant was barely audible
6/24/16; 10:17 pm	Lebanon Drive	43.1	None except some plane flyby; car pass by; some air conditioner Lehigh Plant was barely audible

[1] Background noise was negligible at Firwood Drive; Measurement resulted in a violation of the Santa Clara County Ordinance Code

* Noise meter Session Reports included in Attachment 1 and expressed as L_{eq}

Two of the readings above revealed a violation of the SCCOC noise ordinance and a Notice of Violation was issued to the Plant on May 5, 2016. Another measurement was taken on June 17, 2016 and showed the Plant did not exceed the noise ordinance at the time the measurement was taken. The other two readings did not reveal a violation of the SCCOC noise ordinance due to the predominance of background noise.

Conclusion

Based upon our review of the data shown above DEH concludes that the Plant was in violation of the SCCOC on two occasions during the monitoring period, but subsequently returned to compliance after making several improvements that likely contributed to the reduced noise impacts.

Session Report

4/15/2016

Information Panel

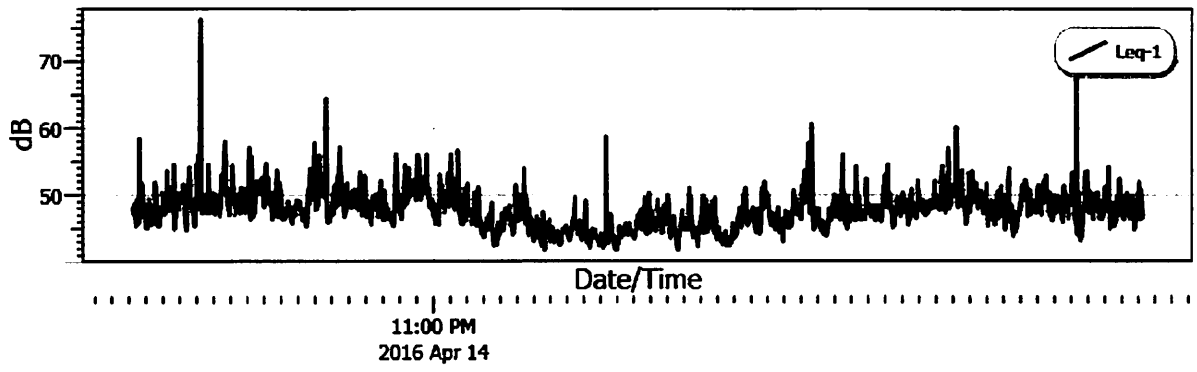
Name	Lehigh Cement Noise Survey
Start Time	4/14/2016 10:42:14 PM
Stop Time	4/14/2016 11:42:14 PM
Device Name	BGK120021
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	Measurements made at Firwood Drive; Cupertino, CA Observed no background noise except occasional wind gusts, plane flyby and occasional car passby

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.9 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	C
Response	2	FAST			

Logged Data Chart

Firwood Drive: Logged Data Chart



Calibration History

Date	Calibration Action	Level	Cal. Model Type	Serial Number	Cert. Due Date
4/14/2016 10:36:50 PM	Calibration	114.0			
4/14/2016 11:43:28 PM	Verification	114.2			

Session Report

5/5/2016

Information Panel

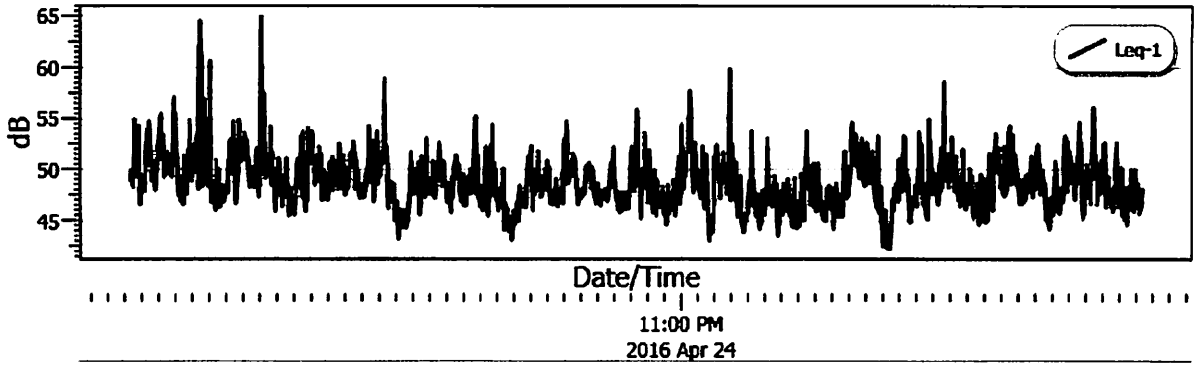
Name	Lehigh Cement Plant Noise Survey
Start Time	4/24/2016 10:27:19 PM
Stop Time	4/24/2016 11:27:19 PM
Device Name	BGK120021
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	Noise was measured on Firwood Drive in Cupertino, CA. Observed occasional car pass by and plane fly over. Observed no insect or animal background noise. Weather condition was clear, cold and at times windy

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.4 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	C
Response	2	FAST			

Logged Data Chart

Lehigh Cement-Firwood: Logged Data Chart



Calibration History

Date	Calibration Action	Level	Cal. Model Type	Serial Number	Cert. Due Date
4/24/2016 10:17:30 PM	Calibration	114.0			

Session Report

8/23/2016

Information Panel

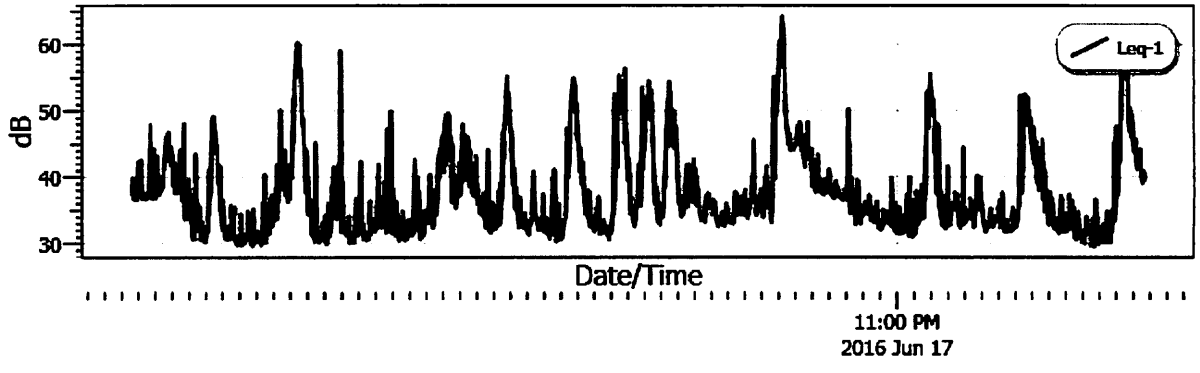
Name	Lehigh Cement-Recheck-Firwood Dr.
Start Time	6/17/2016 10:14:38 PM
Stop Time	6/17/2016 11:14:38 PM
Device Name	BGK120021
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	Noise measurements made at Firwood Drive; Cupertino, CA Observed no animal (e.g. bird or cricket) background noise but observed frequent plane flyby and occasional sprinkler system noise

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	45.1 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	C
Response	2	FAST			

Logged Data Chart

Lehigh Cement-Recheck-Firwood Dr.: Logged Data Chart



Calibration History

Date	Calibration Action	Level	Cal. Model Type	Serial Number	Cert. Due Date
6/17/2016 10:13:07 PM	Calibration	114.0	QC-10	QIL010123	5/19/2017

Session Report

8/23/2016

Information Panel

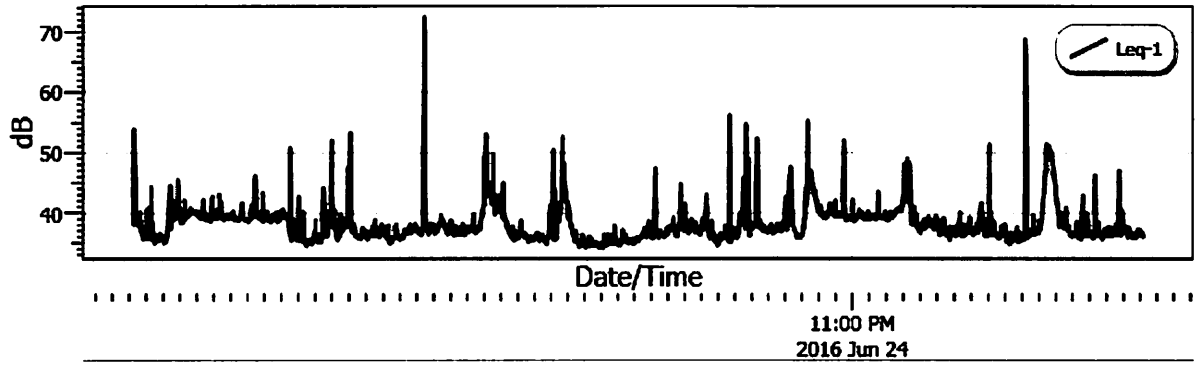
Name	Lehigh Cement-Lebanon Dr-06-24-16
Start Time	6/24/2016 10:17:14 PM
Stop Time	6/24/2016 11:17:14 PM
Device Name	BGK120021
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	Noise was measured on Lebanon Drive in Cupertino, CA Observed no animal (e.g. bird and cricket) background noise but observed some plane flyby and a car passby. The weather was clear and calm. Observed no wind.

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	43.1 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	C
Response	2	FAST			

Logged Data Chart

Lehigh Cement-Lebanon Dr-06-24-16: Logged Data Chart



Calibration History

Date	Calibration Action	Level	Cal. Model Type	Serial Number	Cert. Due Date
6/24/2016 10:15:36 PM	Calibration	114.0	QC-10	QIL010123	5/19/2017
6/24/2016 11:19:20 PM	Verification	114.1			

County of Santa Clara

Department of Environmental Health

Consumer Protection Division
1555 Berger Drive, Suite 300
San Jose, CA 95112-2716
(408)918-3400 FAX (408)258-5891
www.EHinfo.org

May 5, 2016

Via Certified Mail# 70121640000062280221

Lehigh Southwest Cement Company
Attn: Sam Barket
24001 Stevens Creek Blvd.
Cupertino, CA 95014

(Sam.Barket@LehighHanson.com)

RE: Violation of the Santa Clara County Noise Ordinance Section B11-152

Dear Mr. Barket:

Several formal complaints have been filed with the Department of Environmental Health (DEH) alleging that Lehigh Southwest Cement Company (located at 24001 Stevens Creek Boulevard, Cupertino and hereinafter referred to as Subject Property) is allowing an ongoing, steady noise at excessively-loud levels.

Santa Clara County Ordinance Code (Ordinance Code) section B11-152 generally limits noise on the Subject Property, which is in a residential land use area, of no more than 55 dB(A) (decibel A-weighting) between the hours of 7:00 a.m. and 10:00 p.m.. In a one or two-family residential area, Section B11-152 limits the permissible noise level to 45 dB(A) between the hours of 10:00 p.m. and 7:00 a.m. the following day. According to Section B11-152(b), if the offensive noise contains a **steady, audible tone such as a whine, screech or hum**, the limit is reduced by 5 dB(A).

On April 14, 2016, DEH staff took sound level measurements for a period of one hour, starting at 10:42 p.m., on a property located on Firwood Drive in Cupertino. The attached sound level data sheet and graph indicates that the L_{eq} value was 49.9 dB(A) for a period of one hour. After taking into account extraneous noise sources, the noise level contributed by Lehigh Southwest Cement Company was between 46 and 48 dB(A) based upon our continuous observation during the monitoring period. The noise limit for this monitoring session was 40 dB(A) because the noise contained a steady, audible hum for the entire monitoring period.

On April 24, 2016, DEH staff took sound level measurements for a period of one hour, starting at 10:27 p.m., on a property located on Firwood Drive in Cupertino. The attached sound level data sheet and graph indicates the L_{eq} value was 49.4 dB(A) for a period of one hour. After taking into account extraneous noise sources, the noise level contributed by Lehigh Southwest Cement Company was between 48 and 49 dB(A) based upon our continuous observation during the monitoring period. The noise limit for this monitoring session was 40 dB(A) because the noise contained a steady, audible hum for the entire monitoring period.

Please immediately reduce the noise you are generating on the Subject Property. We will reevaluate the sound level on Firwood Drive within 30 days to confirm that you have taken appropriate mitigation measures to reduce the sound emanating from the Subject Property. We request that you provide a response to our office detailing the measures that were taken to reduce the noise within 30 days.

Board of Supervisors: Cindy Chavez, Mike Wasserman, Dave Cortese, Ken Yeager, S. Joseph Simitian
County Executive: Jeffrey V. Smith

For further information, please contact me at (408) 918-1976 or Rochelle Gaddi at (408) 918-3449.

Sincerely,

Michael Balliet, Director
Consumer Protection Division

Attachments – Session Report from April 14, 2016
Session Report from April 24, 2016

Session Report

4/15/2016

Information Panel

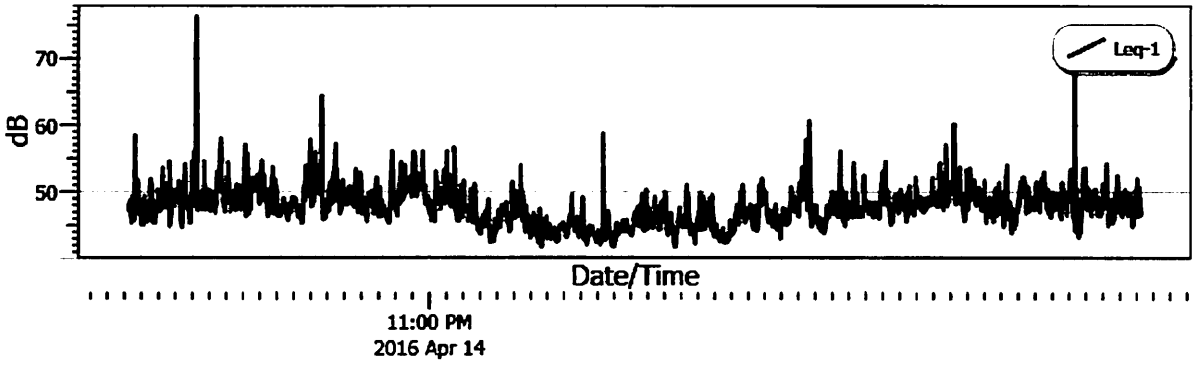
Name	Lehigh Cement Noise Survey
Start Time	4/14/2016 10:42:14 PM
Stop Time	4/14/2016 11:42:14 PM
Device Name	BGK120021
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	Measurements made at Firwood Drive; Cupertino, CA Observed no background noise except occasional wind gusts, plane flyby and occasional car passby

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.9 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	C
Response	2	FAST			

Logged Data Chart

Firwood Drive: Logged Data Chart



Calibration History

Date	Calibration Action	Level	Cal. Model Type	Serial Number	Cert. Due Date
4/14/2016 10:36:50 PM	Calibration	114.0			
4/14/2016 11:43:28 PM	Verification	114.2			

Session Report

5/5/2016

Information Panel

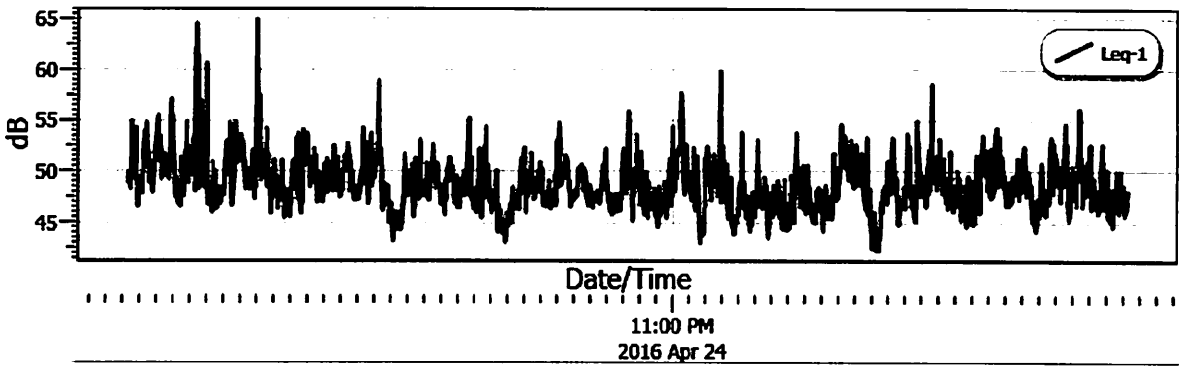
Name	Lehigh Cement Plant Noise Survey
Start Time	4/24/2016 10:27:19 PM
Stop Time	4/24/2016 11:27:19 PM
Device Name	BGK120021
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	Noise was measured on Firwood Drive in Cupertino, CA. Observed occasional car pass by and plane fly over. Observed no insect or animal background noise. Weather condition was clear, cold and at times windy

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.4 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	C
Response	2	FAST			

Logged Data Chart

Lehigh Cement- Firwood: Logged Data Chart



Calibration History

Date	Calibration Action	Level	Cal. Model Type	Serial Number	Cert. Due Date
4/24/2016 10:17:30 PM	Calibration	114.0			

4/24/2016 11:28:36 PM Verification 114.0

Lehigh Hanson
HEIDELBERGCEMENT Group

24001 Stevens Creek Blvd.
Cupertino, CA 95014
(408) 996-4000

June 2, 2016

VIA CERTIFIED MAIL/RETURN RECEIPT
7015 0640 0007 4329 0532

Mr. Michael Balliet, Director
Santa Clara County
Department of Environmental Health
Consumer Protection Division
1555 Berger Drive, Suite 300
San Jose, CA 95112-2716

RE: Lehigh Southwest Cement Company—Permanente Plant
Allegations of Violation
SCC Noise Ordinance Section B11-152

Dear Mr. Balliet:

This letter responds to your May 5, 2016 letter, regarding allegations that Lehigh Southwest Cement Company (Lehigh)'s Permanente Facility has violated section B11-152 of the Santa Clara County noise ordinance. As discussed in more detail below, the County's sound level measurements do not demonstrate that the Lehigh Facility exceeded the County noise ordinance.

Nevertheless, Lehigh is committed to fostering goodwill in the surrounding community. Currently, Lehigh is undertaking the installation of sound attenuating devices on some of the louder sources. Lehigh is in the process of developing a plan to further reduce the sound levels in various locations at the Facility. Lehigh is also in regular communications with neighbors who have expressed complaints regarding sound levels.

Analysis of County's Sound Data

Lehigh contracted with Burns & McDonnell, an engineering consulting firm in Kansas City, Missouri, to review the methodology used by Department of Environmental Health (DEH) during its April 2016 investigation, and to model the facility noise based on data provided by DEH.

(1) Non-Lehigh Sources of Noise. Burns & McDonnell's report of their site investigation conducted in September of 2015 indicated that the Facility was *not* audible in the vicinity of Firwood Drive. However, noise from a substation and corona effects from the power

lines were clearly audible at various times at the nearby measurement location on Lebanon Drive.

(2) Measurement Methodology. A different, previously-agreed method should have been used to determine the Facility's contribution to noise levels. The DEH's data was composed of: (a) the overall average (L_{eq}), A-weighted (dBA) value for the measurement period; and (b) a graphic showing the L_{eq} dBA measure every 1/8 second over the hour time period. The graphs show constant fluctuations ranging from approximately 42 to 75 dBA on April 14, and 45 to 65 dBA on April 24. The contribution from the Lehigh facility to the measured sound levels (as opposed to contribution from other noise sources) was determined based solely on observations by DEH staff. There is no description of the methodology used to determine the Facility's contribution.

The more accurate approach is to report the L_{90} sound level (level exceeded 90% of the time) to determine the contribution of the Facility. This methodology was agreed upon by DEH staff and a third-party consultant (Jeff Fuller of dBF Associates) in conducting Burns & McDonnell's September 2015 noise survey. The L_{90} sound level measured by the DEH in April 2016 was not provided to Lehigh.

(3) Presence of Wind. The comments section of the DEH reports for both days in April 2016 indicates the presence of wind during the subject period. ANSI standard S12.9, Part 3, *Quantities and Procedures for Description and Measurement of Environmental Sound*, states that to minimize effects of wind on the microphone, sound measurements should not be taken when wind speeds are greater than 11 mph. Reports from Lehigh's on-site meteorological station (Table 1) demonstrate that wind gusts exceeded 11 mph on both days, and average wind speed on 4/24/16 exceeded 11 mph. The presence of such wind speeds has two effects: (a) it causes additional extraneous non-Facility noise such as rustling leaves, trees, and paper; and (b) it affects the manner in which sound is carried. Sound modeling cannot exclude the first effect, thus the County's noise measurements would include extraneous noise *not* attributable to the Facility.

Table 1, Meteorological Data

Date / Time	Average Wind Speed (mph)	Wind Gusts (mph)
4/14/16	8.5	18
4/24/16	11.6	26

(4) Sound Modeling to Exclude Extraneous Noise. Burns & McDonnell conducted sound modeling in order to exclude extraneous noises, including wind noise, in the April 2016 measurements. Modeling results demonstrate that, based on the Facility noise measurements in September 2015, the increase in measured sound levels between September 2015 and April 2016 could *not* have been attributable to the Facility.

Burns & McDonnell developed an acoustical model of the Facility and the surrounding area based on the September 2015 measurement data, using industry-accepted sound modeling software (CadnaA). The model is a scaled, three-dimensional program that takes into account each piece of sound-emitting equipment at the facility, and predicts sound pressure levels over a gridded area of interest. The model calculates sound propagation based on the International Organization for Standardization (ISO) 9613-2:1996, *General Method of Calculation*. ISO 9613-2 assesses the sound levels based on the octave band center frequency range from 31.5 to 8,000 Hz. The ISO standard considers sound propagation and directivity. The sound-modeling software calculates sound propagation using omnidirectional, downwind sound propagation and worst-case directivity factors. In other words, the model assumes that each piece of equipment propagates its maximum sound level in all directions at all times. This will over-predict sound levels in certain directions, and field measurements have validated that this approach is conservative.

The atmospheric conditions were left at the program's default values for temperature (50 °F) and relative humidity (70 percent). The wind speed affecting the directivity of the sound exiting the induced draft (ID) fan exhaust stack was adjusted to 9 m/s to adjust for the wind conditions in the April 2016 measurements. These values are similar to the meteorological conditions recorded during the April measurements.

Layers in the atmosphere often form where temperature increases with height (temperature inversions). Sound waves can reflect off of the temperature inversion layer and return to the surface of the earth. This process can cause sound waves at the surface to travel farther than they would under normal atmospheric conditions, especially if the height of the inversion begins near the surface of the earth. Temperature inversions may cause sound waves at the surface to travel farther than they would under normal atmospheric conditions. The CadnaA software calculates the downwind sound in a manner that is favorable for propagation (i.e., the "worst-case" scenario) by assuming a well-developed, moderate ground-based temperature inversion. Therefore, by modeling worst-case scenario sound levels and sound propagation, the predicted sound level results should be higher that what would actually occur, even during an inversion. Table 2 provides a comparison of the measured and modeled sound levels.

Table 2, Comparison of Measured and Modeled Sound Levels

Date of Measurement	Time	Location	Measured Sound (dBA)[a]	Calculated Sound (dBA)[b]	Modeled Sound (dBA)
4/4/16	10:42-11:42 PM	Firwood Drive	49.9	46-48	34.3[c]
4/24/16	10:27-11:27 PM	Firwood Drive	49.4	48-49	34.3[c]
9/8/15	8:39-8:49 PM	Lebanon Drive	45.6	40.7	34.8
9/9/15	1:36-1:46 AM	Lebanon Drive	40.3	39.0	34.8
9/9/15	7:41-7:51 AM	Lebanon Drive	47.4	42.2	34.8
9/9/15	1:00-1:10 PM	Lebanon Drive	42.4	38.4	34.8

Footnotes:

(a) April 2016 measurements were performed by DEH staff; September 2015 measurements and modeling performed by Burns & McDonnell.
(b) Methodology for April data was not specified; September data used L_{90} to represent facility sound level.
(c) The wind speed affecting the directivity of the sound exiting the ID fan exhaust stack was adjusted to 9 m/s to adjust for the wind conditions in the April measurements.

Note the sound measurements in September 2015 were on Lebanon Drive, and the sound measurements by the County in April 2016 were on Firwood Drive. The modeled sound levels on Firwood Drive are lower than those on Lebanon Drive despite being closer to the Facility because Firwood Drive is closer to a hill, which shields that location from more of the sound. The sound modeling demonstrates that sound from the Facility at the measurement location to be less than 35 dBA.

Previously measured and modeled sound levels indicate that the Facility is significantly quieter (8 to 10 dB) than the level attributed to the Facility by DEH staff. Sound levels generated by the Facility combined with the impacts caused by changes in meteorological conditions and the presence of an inversion layer would not increase the noise level at the measurement location by 8 to 10 dB. Accordingly, based on Facility noise measurements in September 2015, the increase of measured sound levels conducted by the County in April could *not* have been attributable to the Facility.

(5) Noise Ordinance. DEH indicates that a 5 dB reduction to the ordinance sound limit should be applied because "the noise contains a steady, audible tone such as a whine, screech or hum." The ordinance does not define those terms but does define "pure tones" as "any sound that can be distinctly heard as a single pitch or a set of single pitches ... [A] pure tone will exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by five dB for center frequencies of 500 Hz and above and by eight dB for center frequencies between 160 and 400 Hz and by 15 dB for center frequencies less than or equal to 125 Hz."

The County did not provide any frequency data to support the presence of a pure tone. Burns & McDonnell's September 2015 study demonstrates that there were no pure tones present. Accordingly, a 5 dB reduction is not appropriate.

In your letter, you also rely on the ordinance's designation of noise levels for one- or two-family residential areas. However, the Firwood Drive location where the County took its April measurements is composed of multiple-family residential dwellings – townhouses with 3+ dwelling units in the same building. Accordingly, the ordinance's noise limit that should have been applied is 50 dBA for the 10:00 p.m. – 7:00 a.m. timeframe.

Conclusion

Based on the foregoing, the DEH's April 2016 sound measurements do not demonstrate that the Facility is in violation of the noise ordinance. The foregoing shows that the elevated sound levels are attributable to several factors unrelated to the Lehigh Facility. These factors include noise caused by high wind speeds, inclusion of extraneous noise sources in measured data, the presence of nearby industrial and tonal noise sources, and the unspecified methodology in attributing a sound level to Lehigh, and determining the source of the tonal noise.

Previously-measured and modeled sound levels indicate that the Lehigh facility is significantly quieter (by 8 to 10 dB) than the level attributed to the facility by DEH staff. Sound levels generated by Lehigh, combined with the impacts caused by changes in meteorological conditions and the presence of an inversion layer, are not anticipated to increase the noise level at the measurement location by 8 to 10 dB.

In any event, Lehigh is committed to fostering goodwill in the surrounding community, and is willing to take steps to reduce the sound pressure levels from some sources at the Facility. Currently, Lehigh is undertaking the installation of sound attenuating devices on some of the louder sources. Although this cannot be accomplished overnight, it should reduce any sound from Lehigh's Facility that may be audible off site. Of course, Lehigh's efforts will not reduce or attenuate any noises originating from *outside* of Lehigh's property, which may also be audible at complainants' residences.

Sincerely,

Sam Barket
Environmental Manager

cc (via email):

Kari Saragusa, Lehigh
Denzil Cotera, Lehigh
Alan Sabawi, Lehigh
Ana Damonte, Lehigh

Lehigh Hanson
HEIDELBERGCEMENT Group

24001 Stevens Creek Blvd.
Cupertino, CA 95014
(408) 996-4000

June 15, 2016

VIA CERTIFIED MAIL/RETURN RECEIPT
7015 0640 0007 4329 0570

Mr. Michael Balliet, Director
Santa Clara County
Department of Environmental Health
Consumer Protection Division
1555 Berger Drive, Suite 300
San Jose, CA 95112-2716

RE: Lehigh Southwest Cement Company—Permanente Plant
Update on Noise Projects

Dear Mr. Balliet:

On June 2nd Lehigh Southwest Cement Company responded to allegations that the Permanente facility had violated section B11-152 of the Santa Clara County noise ordinance. In that response, Lehigh committed to performing noise attenuation projects to reduce the emissions of noise into the surrounding community. This letter provides a summary of those activities to date.

The table, below, presents a list of noise attenuation projects. Each line includes sound level measurements taken both prior to and subsequent to project completion. Sound level readings were taken using an Extech Instruments Sound Level Meter #407732.

Projects Summary

Equipment Description	Project Description	Reading Before (dBA)	Reading After (dBA)
G-Cooler Insulation	Installed 1100 square feet of sound insulating blankets to G-cooler structure (11 @ 4' X 25')	83.5	77.9
Compressor Room	Operational change: closed north door to restrict sound escape	85.3	76.8
Compressor Room	Installed 360 square feet of double-thickness sound insulating blankets (9 @ 4' X 10')	88	78.9

This information has also been communicated to a local resident of Firwood Avenue, Mr. Karim Sharif, who has voiced complaints about noise from the facility in the past.

Lehigh proposes to provide the Santa Clara County Department of Environmental Health with periodic updates regarding further noise attenuation projects at the facility. These projects demonstrate Lehigh's ongoing commitment to enhancing community relations and improving the local environment.

Please feel free to contact anytime at 408-996-4269 if you have comments, or would like more information.

Sincerely,

Sam Barket
Environmental Manager

cc (via email):

Kari Saragusa, Lehigh
Denzil Cotera, Lehigh
Alan Sabawi, Lehigh
Ana Damonte, Lehigh

RECEIVED
JUL 19 2016
SANTA CLARA COUNTY
DEPT. OF ENVIRONMENTAL HEALTH

Lehigh Hanson
HEIDELBERGCEMENT Group

24001 Stevens Creek Blvd.
Cupertino, CA 95014
(408) 996-4000

July 18, 2016

VIA CERTIFIED MAIL/RETURN RECEIPT
7015 0640 0007 4329 0761

Mr. Michael Balliet, Director
County of Santa Clara
Department of Environmental Health
Consumer Protection Division
1555 Berger Drive
Suite 300
San Jose, CA 95112-2716

RE: Lehigh Southwest Cement Company—Permanente Plant
Update on Noise Projects

Dear Mr. Balliet:

On June 15, 2016, Lehigh Southwest Cement Company (Lehigh) committed to providing updates to the Santa Clara County Department of Environmental Health about ongoing projects intended to reduce the emissions of noise from the facility into the surrounding community. This letter details the past month's progress in that regard.

An on-site sound measurement survey had previously identified four (4) sources as creating the highest sound levels at the facility. These sources are identified below. Please note that the "FA" designation indicates that the source is a fan.

- 6FA19 (finish mill draft fan)
- 7FA10b (a dust collector fan)
- 7FA11 (a dust collector fan)
- 7FA21 (provides ventilation for tunnel number 3)

Lehigh has been in contact with dB Noise Reduction Inc. of Ontario, Canada, about the design and purchase of sound suppressors for these devices. Lehigh has provided them with detailed performance information on each source, and has received design proposals from dB Noise Reduction for a suppressor for each source. These proposals are under review. Upon acceptance by Lehigh, the manufacturer requires 6-8 weeks for construction of the devices.

RECEIVED
JUL 19 2016
SANTA CLARA COUNTY
DEPT. OF ENVIRONMENTAL HEALTH

These projects demonstrate Lehigh's ongoing commitment to enhancing community relations and improving the local environment.

Please feel free to contact me anytime at 408-996-4269 if you have comments, or if you would like more information.

Sincerely,

Sam Barket
Environmental Manager

cc (via email):

Kari Saragusa, Lehigh
Denzil Cotera, Lehigh
Alan Sabawi, Lehigh
Ana Damonte, Lehigh

County of Santa Clara

Department of Environmental Health

Consumer Protection Division
1555 Berger Drive, Suite 300
San Jose, CA 95112-2716
(408)918-3400 FAX (408)258-5891
www.EHinfo.org

August 17, 2016

Via Certified Mail# 70160910000157123537
(Sam.Barket@LehighHanson.com)

Lehigh Southwest Cement Company
Attn: Sam Barket
24001 Stevens Creek Blvd.
Cupertino, CA 95014

RE: Lehigh Response to the Notice of Violation of the Santa Clara County Noise Ordinance Section B11-152

Dear Mr. Barket:

The County is in receipt of Lehigh's letter dated June 2, 2016 responding to the Notice of Violation issued by the County to Lehigh Southwest Cement Company (Plant). In addition, the County received Lehigh's second letter dated June 15, 2016 and third letter dated July 18, 2016 describing upgrades on noise projects at the Plant. This letter responds and/or clarifies points raised in your three letters.

Lehigh's Analysis of County's Sound Data

Non-Lehigh Sources of Noise

County staff has previously performed noise measurements on Firwood Drive and at other locations that did not result in any exceedance of the noise standards established in the County's Ordinance Code. Unless otherwise noted, the Plant was audible as observed by County staff when the County measurements were taken. County staff has also been in the field when the Plant was not operating – and observed that no Plant noise was audible during that time. These field visits and observations confirmed the County staff familiarity with the sounds coming from the Plant. Therefore, the noise that was being measured originated from the Plant, it was the dominant noise, and it was noticeably louder on April 14 and 24, 2016. There was very little background noise or other noise sources during the monitoring period that would have interfered with the measurements.

Measurement Methodology

The County consistently reported all of its data in L_{EQ} throughout the entire reporting period, including both reports where the County provided measurement data. The County agreed that Lehigh could use the L_{90} as the basis for reporting; however, this did not change the County's methodology for reporting measurements. County staff observations clearly identify the Plant noise as the dominant noise during readings on April 14 and 24, 2016.

Furthermore, even if the L_{90} was used, it registered at 44.1 and 45.8 respectively for the April 14 and April 24 monitoring sessions. This measurement still exceeds the noise standards under the County Noise Ordinance.

Board of Supervisors: Cindy Chavez, Mike Wasserman, Dave Cortese, Ken Yeager, S. Joseph Simitian
County Executive: Jeffrey V. Smith

Presence of Wind

County staff always use a wind guard to mitigate some of the effects of wind on the sound meter microphone. In addition, County staff observed very little wind in the specific area where monitoring occurred. Therefore, the wind measurements at the Plant had negligible impacts on our measurement data.

Sound Modeling to Exclude Extraneous Noise

The County does not typically use sound modeling to determine compliance. The County allowed the Plant to utilize sound modeling during the study undertaken in 2015 because the sound modeling provided valuable information on sound levels at the Plant and estimation of sound travel. However, sound modeling is not a substitution for ongoing sound level monitoring.

The sound level measurements taken by County staff on April 14 and 24, 2016 show that there are fluctuations in the sound level that may not have occurred during the time the modeling was completed. As a result, the County is definitive in our determination that the sound that was measured originated from the Plant.

Noise Ordinance

The Santa Clara County Noise Ordinance (Ordinance) Section B11-152(b) states:

> *Correction for Character of Sound.* In the event the alleged offensive noise contains a steady, audible tone such as a whine, screech, or hum, or contains music or speech conveying information content, the standard limits set forth in Table B11-152 will be reduced by five dB.

While the Ordinance does not define "whine, screech, or hum", it also does not reference a "pure tone" requirement in order to apply this section and a pure tone is not required for the five dB reduction to apply – because the language specifically lists "steady, audible tone such as a whine, screech, or hum or contains speech conveying information content" none of which are required to have a "pure tone" as defined in the ordinance. The ordinance specifically references an "audible tone" which is any noise source that can be heard. The section calls for the reduction in ordinance limits for those ongoing annoying noises and consequently the County reduced the standard by 5 dB consistent with the Ordinance Code requirement.

The dwellings on Firwood Drive are all zoned as "single-family residential" by the City of Cupertino Planning Department. The Ordinance Sections B11-151(t) and B11-151(w) define multi-family and one- and two- residential units as follows:

> *Multiple-family dwelling residential* means any real property with dwellings of three or more units in any zoning district where the dwellings are a permitted use.
>
> *One- and two-family residential* means any real property in any zoning district where one- or two-family dwellings are a permitted use.

Each home where a measurement was taken is located on a legal parcel and is not considered a multi-family unit under the ordinance code. Therefore, the appropriate receiving land use category was

applied, which is 40 dB when taking into account the reduction of 5 dB under the *character of sound* reduction.

Ordinance Section B11-158(a) specifies that any noise measurements exceeding the noise limits are deemed to be prima facie evidence of a violation and prima facie evidence of irreparable harm. DEH stands by its measurements and the issuance of the Notice of Violation.

In conclusion, over the past year County staff has spent a significant amount of time monitoring the Plant's noise impacts in the surrounding community. The County has also worked with Lehigh's noise consultant during the Sound Compliance Study. The County performed independent monitoring on numerous occasions and which at the time did not result in a violation of the noise ordinance. County staff is very familiar with the Plant's sounds and are able to distinguish them from other extraneous sounds. County staff has received valuable training and experience related to Lehigh noise and this has prepared staff for the ongoing monitoring. To the County's knowledge, Lehigh is not performing monitoring and consequently has no definitive data to dispute the County's findings on April 14 and 24, 2016. The County continues to recommend that the Plant implement a formal noise monitoring program to account for fluctuations in sound level and other changes using real time monitoring.

The County appreciates the information presented in your June 15th and July 18th letters demonstrating an ongoing commitment by Lehigh to reduce the sound level at the Plant.

Lastly, the County's follow up measurements in the Firwood Drive area on June 17, 2016 showed a reduction in sound level to a level compliant with the County's standards. The County will continue to perform ongoing monitoring of the Plant noise.

The County requests that Lehigh continue to provide updates of the ongoing measures that are being taken to reduce the noise impacts on the community.

For further information, please contact me at (408) 918-1976 or Rochelle Gaddi at (408) 918-3449.

Sincerely,

Michael Balliet, Director
Consumer Protection Division

Cc: Rob Eastwood, County of Santa Clara Department of Planning and Development