Bay Area Air Quality Management District December 2,2016
Board of Directors
375 Beale Street, Suite 600
San Francisco, CA 94105

Via Email: vdouglas@baaqmd.gov; Victor Douglas

Reference: Comments on Regulation 12, Rule 16 and Regulation 11, Rule 18

Dear Mr. Douglas:

Thank you for the opportunity to comment on these important Regulations.

Comments on Regulation 12 Rule 16

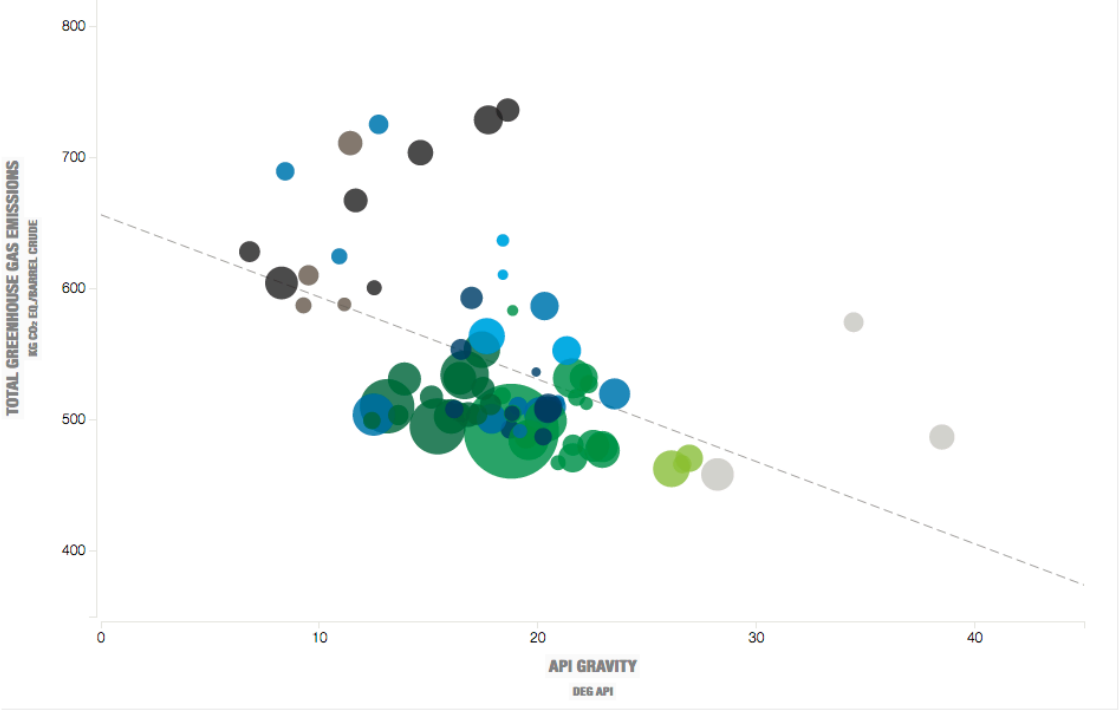
I believe a fixed emission cap, such as presented in the current draft, is a viable way to Regulate GHG and other pollutants from the Refineries. In 2013 the District passed "Resolution Urging the President of the United States of America to Reject the Application of TransCanada Corporation to Construct the Keystone XL Pipeline." The rationale for the resolution was that the total life-cycle extraction thru end-use of Alberta Tar Sands bitumen Crude Oil resulted much greater release of GHG than other sources of crude oil. In part, the GHG releases are so high is that the exceptional energy required in processing it and there is substantial low-energy products.

The board would be hypocritical in allowing local Refineries to increase their GHG emissions in order to accommodate Tar Sands bitumen or similar high-density crude.

A report by Carbon Tracker "The $2 Trillion stranded assets danger zone: How fossil fuel firms risk destroying investor returns" explains how the high-cost and high-

GHG emissions make exploiting high-density crude both a financial and environmental madness.

Researchers at the Carnegie Endowment have analyzed the GHG lifecycle emissions from the extraction, transportation, processing and finally end-use (usually combustion) of petroleum products from crude oil. They have found that the combustion of Petroleum Coke (Petcoke) from heavy crude is a significant factor in the overall GHG impact. The following graph is from the Oil.Carneigieendowment.org website. It clearly shows the greater release of carbon dioxide from denser crude oil than light crude.



Total Greenhouse Gas Emissions (LgCO2EQ/Barrel of Crude) vs. API Gravity

Note: API Gravity is an inverse measure of crude oil physical density so the lower numbers refer to denser crude oil.

The Lehigh Cement Plant is regulated by both emission caps and by a Health Risk Assessment. If the Board adopts the caps in Regulation 12 Rule 15, and the HRA specified in Regulation 11 Rule 18, this would be a similar regulation to the Lehigh Cement Plant.

Comments on Regulation 11 Rule 18

The viability of this Rule to improve public health depends on an accurate Health Risk Assessment. In reviewing the 2014 HRA for the Lehigh Cement Plant the consultants found several deficiencies in the District's process. I have tried to make this experience into a series of recommendation to improve future HRAs.

When the citizens in the region of the Lehigh Cement Plant hired consultants (Dr. Jim Staudt on emission control technology and a San Jose State University Professor on Heath Risk Assessment) to evaluate the 2014 HRA and the regulations resulting from the it, the consultants found several errors and unsubstantiated assumptions in the December 2014 HRA. While the District willingly corrected the errors, the District maintained its position on several assumptions that the citizen's found unreasonable.

I recommend the following items, which should allow for a scientifically accurate and credible HRA for regulations for major point sources:

1. All Emission Control Equipment should be operated 24 hours by 7 days. Dr. Jim Staudt, from Andover Technologies, made this recommendation in evaluating the 2014 HRA. The District concurred and the equipment has been operated continuously. As a consequence the emission levels of mercury were found to be substantially below the regulation and the emissions of NOx was somewhat below the regulation. **I attribute these low emissions and their positive health consequences to the full-time operation of the emission control equipment.**
2. Fugitive Dust Calculations must be combined with extensive On-Site Measurements. Calculations of fugitive dust are complex and inherently subject to errors. The actual dust blown off land surfaces depends on many parameters that cannot be accurately known, and even if known their

implications are difficult to calculate. The dust blown off surfaces can vary depending on gustiness of the wind, vegetation, exact composition of the material, moisture content of the surfaces, and numerous other parameters. Consequently, it is critical to monitor regularly for particularly harmful pollutants such as Chromium VI. Winegar Associates, under contract with MidPenn, conducted Air Quality measurements near the boarder with Lehigh. The consultant, Dr. Eric Winegar of Winegar Air Sciences detected a level of 0.40 ng/m^3, which is a factor of ten or more over other measurements in the general metropolitan area. Below is a sample set of extensive measurements conducted by the South Coast Air Quality Management District in Riverside County (SCAQMD). SCAQMD conducted hundreds of measurements over a five-month period in evaluating the chromium 6 emissions from all sources. I believe Bay Area citizens should have comparable measurements made in the vicinity of major facilities. This table is a sample from the SCAQMD website.
http://www.aqmd.gov/home/library/air-quality-data-studies/special-monitoring/hexavalent-chromium

HEXAVALENT CHROMIUM (Cr^{6+}) SAMPLING RESULTS

	24-hour Cr^{6+} concentrations in n						
Sample Date	**Site-1**	**Site-2**	**Site-3**	**Site-4**	**Site-5**	**Site-6**	**Site-7**
02/12/08	NS	NS	0.71	0.85	0.27		
02/13/08	3.31	0.92	0.25	0.30	0.54		
02/14/08	0.35	0.23	0.71	0.44	0.07		
02/15/08	2.73	0.84	0.25	0.30	0.10		
02/16/08	3.83	1.58	0.29	0.37	0.31		
02/17/08	2.53	0.46	0.92	0.27	0.28		
02/18/08	1.69	0.91	0.15	0.20	0.18		
02/19/08	1.33	NS	0.16	0.25	0.05		
02/20/08	1.40	NS	0.13	0.18	0.06		
02/21/08	1.79	0.31	0.19	0.26	0.15		
02/24/08	4.79	0.28	0.14	0.23	NS		
02/27/08	5.97	2.01	0.58	0.45	0.54		
03/01/08	5.50	0.06	0.23	0.15	0.06		
03/04/08	6.78	4.87	NS	0.58	0.68		
03/07/08	0.24	1.43	0.71	0.44	0.45		
03/10/08	1.72	0.21	0.76	0.27	0.33		
03/13/08	2.71	0.96	0.26	0.14	0.24		
03/16/08	1.80	0.21	0.21	0.06	0.33		
03/19/08	1.73	NS	0.20	0.23	0.31	0.79	
03/22/08	2.00	2.62	0.37	0.55	0.87	0.35	
03/25/08	2.29	2.39	0.31	0.60	0.62	NS	
03/28/08	1.90	0.68	0.21	0.31	0.09	0.82	
03/31/08	2.03	0.14	0.13	0.23	0.13	0.7	
04/03/08	0.72	0.01	0.05	0.18	0.06	0.92	
04/06/08	0.83	NS	0.02	0.03	0.03	0.37	
04/09/08	0.90	0.18	0.06	0.11	NS	0.53	
04/12/08	0.65	NS	0.16	0.45	0.34	0.09	
04/15/08	0.86	NS	NS	0.15	0.05	NS	
04/17/08	NS	NS	Moved	NS	NS	NS	0.41
04/18/08	2.37	NS	to Site 7	NS	NS	NS	0.36
04/20/08	1.07	NS		NS	NS	NS	0.23
04/21/08	1.07	0.10		0.07	0.05	0.27	0.18
04/24/08	2.32	0.16		0.15	0.04	0.44	0.22
04/27/08	0.15	0.20		NS	0.08	0.06	0.12
04/30/08	0.17	0.12		0.18	0.03	0.16	0.10
05/03/08	0.14	0.31		0.09	0.13	0.09	0.08
05/06/08	0.65	0.05		NS	0.04	0.09	0.10
05/09/08	0.56	0.07		NS	0.04	0.16	0.24
05/10/08	0.63						
05/11/08	1.35						
05/12/08	0.43	0.09		NS	0.04	0.27	0.04
05/13/08	0.71						
05/14/08	0.81						
05/15/08	0.79	0.54		NS	0.16	0.10	0.40
05/16/08	0.54						
05/17/08	0.51						
05/18/08	0.82	0.45		0.32	0.22	0.09	0.33
05/19/08	0.74						
05/20/08	0.80						
05/21/08	1.58	0.27		0.12	0.03	0.27	0.14
05/22/08	0.50						

3. The presence and concentration of hazardous chemicals in the rock piles must be performed frequently and hazardous materials, which are not explicitly detected in the rock piles, should be assigned a level of the Minimal

Detection Limit. One of the disputes between the citizen's consultants and the District regarding the 2014 HRA for Lehigh was that the District insisted on using "zero" concentration for the presence of Chromium 6 in the raw materials. However, the process to detect Chromium 6 had its limitations – it could only detect its presence at some minimal detection level (MDL). Thus, Chromium 6 in concentrations less than MDL would not be accounted for in the HRA. The assumption of zero concentration is clearly erroneous since as reference previously, Winegar Air Sciences did detect Chromium 6 in the atmosphere near the facility.

4. Emission Measurements of TACs should be performed regularly. In order to estimate the emissions of TACs, the District uses the standard procedure of continuous measurement of HAPS and then applies a ratio of a few TAC to HAPs direct measurement. A more accurate determination would be by direct measurement of one or two TACs such as benzene. I understand that continuous monitors are not available at this time. However, monthly On-Site Measurements are feasible.
5. Accurate and comprehensive Measurement of Meteorological Conditions must be performed. In the initial 2014 HRA the calculations involved the use of an amateur's meteorological station. This station was found to be deficient on several aspects. It was not elevated over uniform ground as specified by the EPA, but it was simply placed at the edge of fence overlooking a valley. While this was corrected after discussion with the District, the incident reveals the importance of good meteorological measurements that conform to all the EPA specifications.
6. The Social Economic Impact Analyses must include the costs of health effects. The social economic benefit study performed for Lehigh regulation failed to account for the cost of health effects. The District has the ability to monitor the health impact associated with a particular facility in a fashion similar to what was done for the 2010 Clean Air Plan Volume 1, Adopted September 15, 2010 by ABAG, MTC, and BCDC. While this plan examined all the pollutants

from the entire region, the same methodology should be applied to a specific point source or a group of point sources such as the collection of Refineries.

7. All averages of individual measurements must be consistently and statistically accurately calculated. Usually the On-site measurements incorporate many individual measurements and then report a combined value for further use in HRAs, violation consideration, etc. One the disputes between the citizens and the District was due to the removal of several of the on-site benzene measurements in determining the "average" benzene emissions. This directly changed the health risk at several locations. Often the "averaging" individual measurements exclude without explanation several individual measurements. Below is an example of measurements of a Relative Accuracy Test (RAT), which was performed at Lehigh. Without explanation three of the highest differences were eliminated in performing the "average."

TABLE 6-2
RELATIVE ACCURACY TEST AUDIT
CO_2 (% VOLUME DRY)
LEHIGH - PERMANENTE PLANT
CEMS #1 (KMDC1)

Run Number	Date	Time	Avogadro CEMS	Plant CEMS	Difference
Run 1	6/27/13	0905-0926	14.39	14.11	0.280
Run 2	6/27/13	0948-1009	14.23	14.09	0.140
~~Run 3~~	~~6/27/13~~	~~1033-1054~~	~~14.88~~	~~14.59~~	~~0.290~~
Run 4	6/27/13	1122-1143	14.82	14.62	0.200
Run 5	6/27/13	1205-1226	14.50	14.34	0.160
Run 6	6/27/13	1249-1310	14.67	14.62	0.050
Run 7	6/27/13	1328-1349	12.77	12.55	0.220
Run 8	6/27/13	1411-1432	12.23	11.98	0.250
Run 9	6/27/13	1456-1517	12.96	12.76	0.200
Run 10	6/27/13	1547-1608	13.44	13.18	0.260
~~Run 11~~	~~6/27/13~~	~~1628-1649~~	~~12.96~~	~~12.63~~	~~0.330~~
~~Run 12~~	~~6/27/13~~	~~1721-1742~~	~~12.95~~	~~12.65~~	~~0.300~~
AVERAGES:			13.78	13.58	0.196
STANDARD DEVIATION:					0.071
CONFIDENCE COEFFICIENT:					0.055
RELATIVE ACCURACY, %:					**0.20**

Note: Relative accuracy is based on the absolute difference of 1 %.

Thank you again for the opportunity to comment on the development of new regulations designed to improve the health of residents of the San Francisco Bay Area.

Sincerely,

Gary Latshaw, Ph.D.