CALIFORNIA AIR TOXICS
"HOT SPOTS"
INFORMATION AND ASSESSMENT ACT
(AB 2588)

2015 Air Toxics "Hot Spots"
Program Report
for the
Mojave Desert Air Quality
Management District

September 16, 2016

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INTRODUCTION

The California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) was enacted by the Legislature in 1987 to address public concern over the release of toxic air contaminants into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information to identify sources of toxic air contaminants, assess air toxic problems, locate resulting "hot spots," notify persons that may be exposed to significant risks, and develop effective strategies to reduce potential risks to the public.

A requirement of the Air Toxics "Hot Spots" Information and Assessment Act (Section 44363 of the California Health and Safety Code) is for local air pollution control districts to provide the public with an annual progress report on the program. This report fulfills that requirement by providing information about emission inventories, approved health risk assessments (HRA), public notification procedures, and steps undertaken to reduce public health risks. State and local health officials may use the report to establish priorities for developing and implementing air toxic control measures to protect public health.

This report summarizes the AB 2588 program elements, the current status of the program in the Mojave Desert Air Quality Management District (MDAQMD or District), results of local HRAs, current status of public notifications, and conclusions drawn from the program to date. Stationary source emission estimates, by facility, are available by request from the MDAQMD.

BACKGROUND

The District is the implementing agency for approximately 1,000 MDAQMD facilities required to comply with the Air Toxics "Hot Spots" Act. The law requires facilities to submit information that is used to achieve the objectives of the program. For larger industrial facilities, this information includes:

- **Emission Inventory Reports** - Facilities must submit the information needed by the District to prepare a toxic emissions inventory report. The District then prioritizes each facility to determine if a HRA is necessary based upon the amount and toxicity of the reported emissions.

- **Health Risk Assessments** - Facilities required to submit HRAs must determine the level of public exposure to emitted compounds and potential adverse public health impacts. The State Office of Environmental Health Hazard Assessment (OEHHA) assists the District in reviewing each HRA and is responsible for developing and providing risk managers in state and local government agencies with toxicological and medical information relevant to decisions involving public health.

- **Public Notification** - If an adverse health impact exceeding public notification levels (specified in District Rule 1320) is identified, the facility must provide notice to all exposed persons regarding the results of the HRA.

- **Risk Reduction Audits and Plans -** Facilities with emissions that pose a potentially significant public health risk must submit a risk reduction audit and plan to the District. This plan must demonstrate how the facility will reduce health risks below significant levels. The facility must implement the plan as approved by the District.

State Guidelines now allow local air districts such as Mojave Desert Air Quality Management District (MDAQMD or District) to utilize air toxics analyses conducted as part of its toxics permitting (Rule 1320 - New Source Review For Toxics Air Contaminants and Rule 1520 - Control of Toxic Air Contaminants From Existing Sources) process, in-lieu of requiring separate quantification of air toxics emissions to satisfy AB2588. Guidelines require the NSR permit contain conditions to ensure calculated toxic risk is not exceeded. Providing integration of the AB2588 with District's permitting program is a time and cost savings both for the District and affected facilities without compromising the intent of the regulation or public health.

FACILITY PRIORITIZATION

Prioritization procedures consider the magnitude of toxic air contaminant emissions from facilities and the toxicity of those emissions, but do not consider the expected health risks posed by the emissions. Requiring a facility to prepare a Prioritization Score does not mean the facility poses a significant risk to public health.

Facilities are placed into three categories: High Priority Category for facilities that are required to prepare and submit a HRA; Intermediate Priority Category for facilities that may be required to conduct a HRA at a future date; and Low Priority Category for facilities that are not required to conduct a HRA. Ranges of prioritization scores for each category are shown in Table 1.

Table 1: Prioritization Categories

	Prioritization Category		
	High	Intermediate	Low
Facility Score	Score $\geq$ 10	1 $\leq$ Score < 10	Score < 1

Facilities are reprioritized based on their most recently approved toxic emissions inventory report. Prioritization procedures can be found on the California Air Pollution Control Officers Association website at: www.capcoa.org

RISK ASSESSMENT

A HRA is a study of the possible public health risks that may be posed by emissions of toxic compounds. Each facility that has been prioritized as High Priority must prepare and submit a HRA to the District.

The assessment incorporates conservative pollutant dispersion estimates, human exposure assumptions, and health effects information to ensure that the final risk assessments are not underestimated. Accordingly, the results of a HRA may overstate actual health risks but are useful in

comparing the relative risks of sources and pollutants and setting priorities for mitigation. For example, a HRA typically will estimate the increased cancer risk for a hypothetical individual who would remain at the one location with the greatest potential for exposure to toxic air contaminant emissions from the facility for 24 hours a day, 365 days per year, over 70 years.

While the HRA procedures are generally considered to be conservative, some factors that may tend to underestimate impacts are difficult to evaluate. For example, a HRA is based on emission estimates for the indicated inventory year. These emissions are assumed to occur for 70 years to obtain a "lifetime" cancer risk. Years other than the inventory year, in particular for years before this program, may have higher (or lower) emissions. Additionally, the cumulative effect of emissions from other nearby mobile, area, and stationary sources, and the potential for complex mixtures of toxic air contaminants to create an additional health problem by their combined reaction to each other, cannot be estimated. Also, some facility emission estimates are based on average factors for individual types of equipment and actual emissions may be higher or lower. Finally, the HRA results only include potential impacts from compounds with Office of Environmental Health Hazard Assessment (OEHHA) -approved health values. Compounds without OEHHA-approved health values are not included.

CARB lists more than 700 compounds to be assessed under the Air Toxics "Hot Spots" program. The list includes potentially carcinogenic substances as well as compounds that may cause health problems such as respiratory irritation or central nervous system depression. The toxicity varies from compounds that pose concern if more than a few grams are emitted per day, to those that may pose no significant health risks if many pounds are emitted per day. OEHHA reviews and updates the toxicity of the listed compounds in addition to adding newly identified compounds of health concern. This updated information is then used in identifying facilities required to prepare HRA assessments and in preparing the assessments.

Each HRA is reviewed by the District and OEHHA to identify deficiencies requiring correction. The District then approves, modifies, or returns the HRA for corrections. The results of all HRA prepared under this program are available for public review. A summary of the results of the HRAs prepared under this program is presented in Table 2.

As with all emissions information accumulated by the District, MDAQMD’s air toxic emission inventory is public information and available for public review upon request to the District and can also be found on CARB website at http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php.

This annual report ranks and identifies facilities according to cancer and non-cancer risk posed, and describes toxic control measures. After presentation at a public hearing, it is distributed to the San Bernardino County Board of Supervisors, city councils in the District, and the County Health Officer.

CURRENT STATUS OF MDAQMD TOXIC EMISSION SOURCES

MDAQMQ has jurisdiction of the geographic area shown below.

Map Not to Scale

Stretched out over almost 20,000 square miles of California's vast desert expanse, the MDAQMD, is geographically, the second largest of the state's 35 air districts. The MDAQMD boundaries include the desert portion of San Bernardino County and those portions of the County of Riverside commonly known as the Palo Verde Valley.

The District's rural areas provide significant dispersion potential for most sources within the District's jurisdiction. The District has assessed potential health risk with the implementation of the May 1996 revision to ARB's "Emission Inventory Criteria and Guidelines Report." Each air toxics emission source within the District was placed into one of three categories, based upon potential adverse health effects created by the facility.

A summary of the results of the HRA prepared under this program is presented in Table 2.

Table 2: **Summary of Facility HRA Results** [7]

HRA Evaluation Period	Facility	Location	Max. Lifetime Cancer Risk per million (1)	Chronic THI (2)	Acute THI (3)
Facilities required to implement a risk reduction plan and conduct quadrennial public notification:					
2014	**(6)** Searles Valley Minerals	Trona	3.46	0.494	22.6
Facilities required to conduct quadrennial public notification.					
2009	Riverside Cement	Oro Grande	7	1.52	1.43
1997	Ducommun AeroStructures	Adelanto	12	0	1.01
Facilities that have implemented a risk reduction plan and currently have risks below the public notification:					
	There are no facilities in this category at this time.				
Facilities not required to implement a risk reduction plan and not required to conduct quadrennial public notification:					
	CEMEX- River Plant	Victorville	6	0	0.0015
2007	**(4)** Union Oil Molycorp	Mountain Pass	5	0	0.49
	Pacific Gas & Electric	Hinkley	2	0	0.09
2007	USMC MAGTFTC MCAQCC	Twentynine Palms	2	< 0.29	0.24
1999	**(5)** High Desert Power Project	Victorville	<1.	0.1	0.8
2000	**(5)** Blythe Energy Project	Blythe	0.4	0.21	0.03
2010	**(5)** Ivanpah Solar	Ivanpah	0.08	<1	<1
Facilities with previous health risk assessment results:					
1997	Southdown River Plant (Cemex River Plant)	Victorville	7.1	0.066	0.12
2001	Searles Valley Minerals	Trona	4.39	1.03	20.4
Facilities that have ceased operation:					
	There are no facilities in this category at this time.				

1. This column reports the maximum lifetime excess cancer risk estimate at an occupational or residential receptor (whichever is greater) approved by the District. The maximum estimated risk generally is possible at only one location. All other locations show lower risks. This estimate assumes that a person resides at the location of maximum impact 24 hours per day, 365 days per year, for 70 years of exposure or a person works at the location of maximum impact 8 hours per day, 245 days per year, for 40 years of exposure. Actual cancer risk will likely be less.
2. Chronic total health hazard index (THI) is the sum of the ratios of the average annual exposure level of each compound to the compound's reference exposure level (REL). Actual chronic THI will likely be less.
3. Acute THI is the sum of the ratios of the maximum one-hour exposure level of each compound to the compound's REL. Actual acute THI will likely be less.
4. Facility underwent major renovations and improvements from 2012 to 2015. Inventory updated to reflect upgrades resulting in lower emissions and a facility PS less than 8 (Intermediate Priority).
5. HRA results are from District approved screening risk assessment carried out pursuant to District air toxics permitting program. Air emissions are represented at maximum potential to emit.
6. SVM, as part of their RRAP, has contracted with an environmental consultant to reexamine their existing risk assessments to ensure accuracy of emissions dispersed to offsite receptors. A preliminary report has been submitted and is currently under review by the District.
7. HRA results reported in Table 2 are reflective of 2003 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

PUBLIC NOTIFICATION AND RISK REDUCTION

Once a HRA has been approved, the Air Toxics "Hot Spots" program requires facilities with risks over specified levels to provide public notice to all exposed persons. In addition, facilities with significant risks are required to reduce risks below the significant risk levels within five years. The California Health and Safety Code does not define "significant risk." The District, in consultation with interested parties, established public notification and significant risk levels (as well as public notification and risk reduction procedures) in District Rule 1320 and District Rule 1520. These levels are presented in Table 3.

Table 3: Public Notification and Significant Risk Levels

	Public Notification Level	Significant Risk Level
Maximum Incremental Cancer Risk	10	100
Cancer Burden	NA	0.5
Total Chronic Noncancer Health Hazard Index	1.0	10
Total Acute Noncancer Health Hazard Index	1.0	10

In establishing public notification procedures, the District considered input from the California Air Pollution Control Officers Association's Air Toxics "Hot Spots" Program Public Notification Guidelines (October 1992), CARB guidance, and other regulatory precedents. The procedures are generally consistent with procedures adopted by other California air districts.

Facilities required to perform public notification must distribute notices to each household and business that may be exposed to potential risks exceeding the District's public notification level. Notifications must be issued quadrenially until the facility demonstrates to the District that it has reduced the potential health risk below the notification thresholds.

As of January 1, 2014, three facilities with estimated risks above public notification levels were required to inform the public of their most recent approved HRA results. Based on the response from the public, one facility (Searles Valley Minerals) was required to hold a public meeting to provide further information regarding their emissions and their HRA results.

Public notification is required quadrennially based on the most recent approved HRA until it is demonstrated that potential health risks have been reduced below public notification levels. Table 4 lists the facilities currently required to conduct quadrennial public notification.

Table 4: Facilities Required to Conduct Quadrennial Public Notification

HRA Evaluation Period	Facility	Location	Most Recent Notification Date
2009	CalPortland Cement	Oro Grande	2014
1997	Ducommun Aerostructures	Adelanto	2014
2001	Searles Valley Mineral	Trona	2012

Pursuant to the “Hot Spots” Act, facilities with potentially significant public health risks must reduce those risks below significant risk levels within five years of the approval of a risk reduction plan. Of the seven approved HRAs under the "Hot Spots" program, one currently active facility had estimated risks above the significant risk mitigation levels.

RECENT AND EXPECTED CHANGES TO THE PROGRAM

Changes to the Air Toxics "Hot Spots" Act in 1992 required that OEHHA develop risk assessment guidelines for the Air Toxics "Hot Spots" Program, including a "likelihood of risks" approach to risk assessment. OEHHA has developed and published documents providing guidance for HRA work. These documents are: (1) The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, (2) Technical Support Document for the Derivation of Noncancer Reference Exposure Levels, (3) Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures, and (4) Technical Support Document for Exposure Assessment and Stochastic Analysis. To supplement OEHHA's guidelines, CARB provided a document titled Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk.

In February 2012, OEHHA presented a draft version of their Technical Support Document for Exposure Assessment and Stochastic Analyses for public comment. This document addresses the 8-hour RELs, the age sensitive adjustments and updates to the cancer potency. On March 2012, OEHHA approved modified non-cancer health data for nickel with the main effect being the acute toxicity increased 30 times. In March 2015, OEHHA finalized updates to The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. These changes consider the varying breathing rates of different age groups. The combined effects of these updates will, in most cases, result in a higher calculated risk. The higher calculated risk may range from a very small increase to as much as a factor of 2.7, depending on exposure type and other parameters. The District is working to develop tools and guidance to streamline the implementation of these new HRA procedures.

INDUSTRYWIDE SOURCE CATEGORIES

Some of the District's smallest emitters are subject to the AB2588 program, for example auto body shops, dry cleaners, and gasoline retailers. To provide some relief from the burden of reporting, these sources are identified in the Program as "industry-wide" sources. CARB, in cooperation with the California Air Pollution Control Officers Association (CAPCOA), has adopted and continues to develop health risk guidelines, risk reduction plans, and audit plans that Districts may utilize to assess, reduce, and verify toxics emissions from industry-wide sources. The "Auto Body Shop Industry-Wide Risk Assessment Guidelines" was approved by CAPCOA September 26, 1996, and the "Gasoline Service Station Industry-Wide Risk Assessment Guidelines" was approved in December, 1997 (Appendix E updated in November 2001). The "Perchloroethylene (Perc) Dry Cleaner Industry-Wide Risk Assessment" was never finalized. However, on January 25, 2007, the California Air Resources Board (ARB) approved amendments to the Dry Cleaning Air Toxic Control Measure (ATCM) and adopted requirements for Perc manufacturers and distributors.

CONCLUSIONS

Industrial facilities still emit substantial quantities of toxic air contaminants although emissions from industrial sources have been greatly reduced since 1989. Motor vehicles and area and natural sources are also key contributors of toxic air contaminants. The majority of local facilities are in compliance with current District emission standards, which now focus on both criteria air pollutants (e.g., volatile organic compounds, oxides of nitrogen, particulate matter) and toxic air contaminants.

Current and future air quality programs at the local, state, and federal levels will further reduce toxic air contaminants emissions. Measures to reduce vehicle trips and miles traveled as well as alternative fueled and electric vehicle market penetration will reduce toxic emissions which result from the burning of gasoline. Measures to reduce emissions of volatile organic compounds as ozone precursors will also decrease emissions of toxic volatile organic compounds.

State ATCMs are reducing emissions of diesel particulate matter from engines, Perc from dry cleaning operations, hexavalent chromium from electroplating operations, hexavalent chromium and nickel from metal deposition operations, and toxic metals from metal melting operations. Federal National Emission Standards for Hazardous Air Contaminants/Maximum Achievable Emission Standards (NESHAP/MACT) emission control programs have produced dramatic emission reductions of chlorofluorocarbons and methyl chloroform. The District also requires best available control technology for many new and modified sources of toxic air contaminants. For a complete listing of all ATCM please visit CARB website; http://www.arb.ca.gov/toxics/atcm/atcm.htm. For a complete listing of all Federal NESHAP/MACT please visit USEPA website at; http://www.epa.gov/ttn/atw/mactfnlalph.html

Ongoing implementation of the Air Toxics "Hot Spots" Program will continue to reduce local public health risks associated with emissions of toxic air contaminants. Those efforts will improve information on levels of exposure and risk as well as identifying compounds, processes, and facilities that are potentially causing significant risks.