

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT



Annual Report on AB 2588 Air Toxics “Hot Spots” Program

July 2016

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EXECUTIVE SUMMARY

A key statewide program implemented by air districts to address health risks from existing permitted facilities, called the Air Toxics Hot Spots Information and Assessment Act (AB 2588), requires the South Coast Air Quality Management District (SCAQMD) to prepare an Annual Report of activities under that program. This report fulfills that requirement and also provides a summary of staff activities in relation to other toxic air contaminant programs in calendar year 2015.

In 2015, staff reviewed a variety of work products submitted by 31 different facilities as a requirement of AB 2588. Staff initiated audit activities on 22 facilities with priority score greater than 10, continued reviews of three detailed Air Toxics Inventory Reports (ATIRs), six Health Risk Assessments (HRAs), and four Risk Reduction Plans (RRPs). Comment letters were provided on two HRAs and two RRP. Four HRAs were approved, and as a result, staff conducted four public notification meetings. One RRP was also approved. Staff continues to work on incorporating analyses of onsite ambient air quality monitoring data into the HRAs for several different facilities. The monitoring data from these sites provides a new source of information on fugitive emissions of toxics that has previously been uncertain or unquantified.

In addition to AB 2588 activities, SCAQMD staff worked on a variety of other toxic programs in 2015. This included completing rule development work on Rules 1401, 1401.1, and 1402 to incorporate revised OEHHA risk values into our toxic rules. Other rule activity include amendments to 1420.1, and 1420.2, both addressing lead emissions as well as amendments to 1156 regarding cement manufacturing. Staff continued its work on the Clean Communities Plan and published the Final Multiple Air Toxics Exposure Study IV (MATES IV) Report.

1.0 INTRODUCTION

The South Coast Air Quality Management District (SCAQMD) has a comprehensive air toxics program. At the heart of this program are Rule 1401 – New Source Review of Toxic Air Contaminants to ensure toxic emissions from new and modified sources do not exceed specified risk thresholds and Rule 1402 – Control of Toxic Air Contaminants from Existing Sources which implements various aspects of AB 2588. AB 2588 is the Air Toxics “Hot Spots” Information and Assessment Act, H&S Code Section 44300 et seq. The SCAQMD’s air toxic program also includes a series of source specific rules that address toxic air contaminants for specific industries or equipment categories. The 2010 Clean Communities Plan (CCP) also includes measures to reduce toxic air contaminants.

This report summarizes the SCAQMD’s air toxics program activities in 2015, including AB 2588 activities, rule development activities, and other air toxic related programs such as implementation of the Clean Communities Plan, Multiple Air Toxics Exposure Study (MATES), and source testing and air monitoring efforts in support of AB 2588. This report also satisfies Section 44363 of the California Health and Safety Code that requires the SCAQMD to annually prepare and publish a status and forecast report of AB 2588 activities.

The AB 2588 program, combined with implementation of Rule 1402, includes requirements for toxic emissions inventories, categorizing and prioritizing facilities, and reviewing and approving detailed Air Toxic Inventory Reports (ATIRs), Health Risk Assessments (HRAs), public notifications, and Risk Reduction Plans (RRPs).

1.1 Background

There are two broad classes of facilities within the AB 2588 program, ‘Core’ facilities, and facilities in Industry-wide categories. Industry-wide facilities are generally small businesses with relatively similar emission profiles (such as gas stations and dry cleaners using perchloroethylene). Facilities that are in an Industry-wide category have fewer requirements under AB 2588 than Core facilities and are discussed further in Section 2.5 of this report. Core facilities must regularly report their toxic emissions, and conduct a HRA if their emissions exceed certain thresholds. If the HRA shows that risks are above thresholds set in Rule 1402, a Core facility must also conduct risk reduction activities and/or public notification. An overview of the AB 2588 program for ‘Core’ facilities is illustrated in Figure 1. Historically, a total of 1,640 facilities have been in SCAQMD’s Core AB 2588 program, although currently there are only 346.

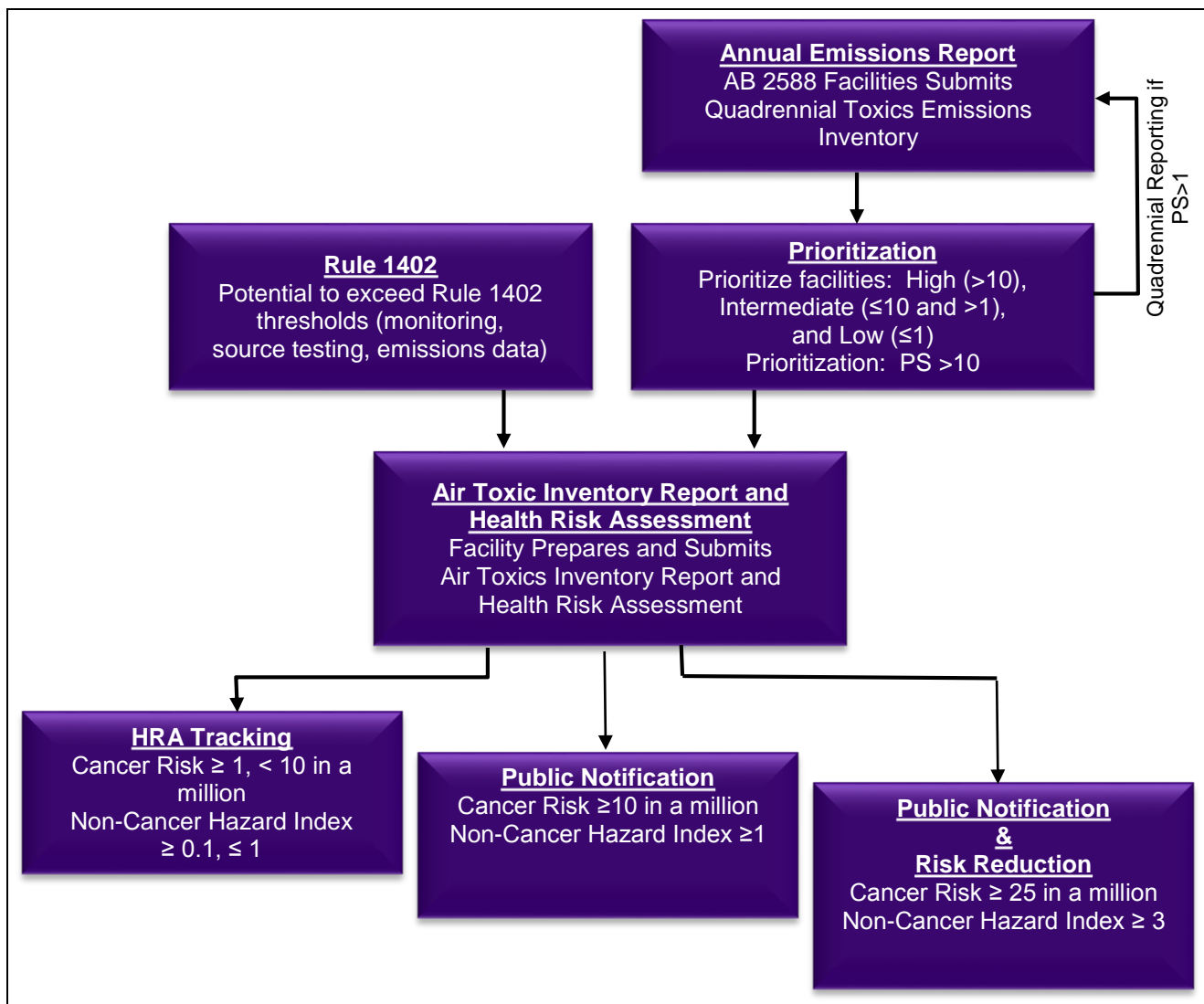


Figure 1. Overview of the AB 2588 Hot Spots Program

SCAQMD staff reviews HRAs to ensure they follow methodologies established by the state Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board (CARB), as required by H&S Code Section 44360(c). The health risk values presented in this Annual Report prior to 2015 were calculated using the methodologies available at the time of HRA approval, and have not been recalculated based on more recent guidance.¹ OEHHA's revised HRA guidance was approved in early 2015 and now takes into account more recent science that has documented greater risks when children are exposed to cancer causing compounds, in addition to other changes. This change in methodology results in residential cancer risks that are about two to six times

¹ The potential effect of the most recently revised HRA Guidance from OEHHA on the District AB 2588 Program is discussed in detail in the staff report to amended Rules 212, 1401, 1401.1, and 1402 found here: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-jun1-028>.

higher for a given level of exposure compared to the previous methodology. The risks in all HRAs finalized by SCAQMD staff in 2015 were recalculated to reflect the updated OEHHA HRA Guidelines.

From the beginning of the program in 1987 through the end of 2015, staff has reviewed and approved 339 HRAs from 307 facilities. Of these facilities, 53 facilities were required to perform public notification activities and 25 facilities were required to implement risk reduction measures. As a result of the AB 2588 program, about 95% of 1,640 Core facilities now have HRAs demonstrating that cancer risks are below ten in a million and acute and chronic non-cancer hazard indices are less than 1, or their emissions have been low enough to not require an HRA. The results from the 339 approved HRAs are illustrated in Figures 2, 3, and 4. Appendix A lists the Core facilities and the risks from their approved HRAs. Table A-1 lists the facilities in order of their cancer risks and Table A-2 is ordered by facility ID. Table A-3 lists facilities which have prepared risk reduction plans for the AB 2588 program and their corresponding risks [Section 44363(a) (2) and (3)]. Appendix B shows trends in ambient air toxics in the South Coast Air Basin and vicinity.

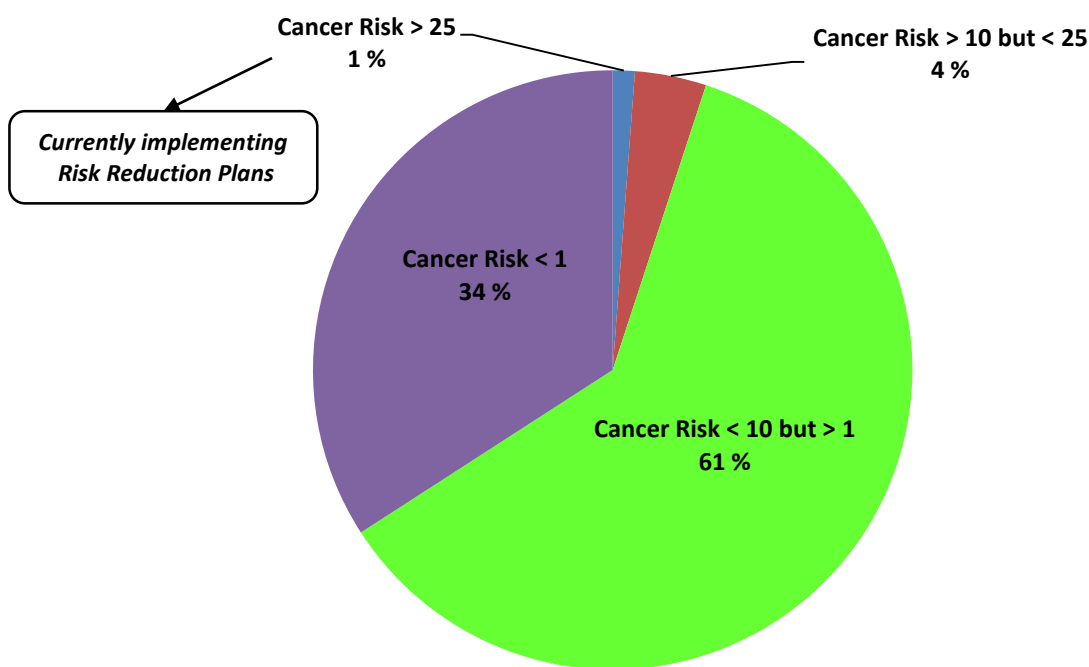


Figure 2. Distribution of Cancer Risks for AB 2588 Facilities that have an Approved HRA (Chances in a Million)

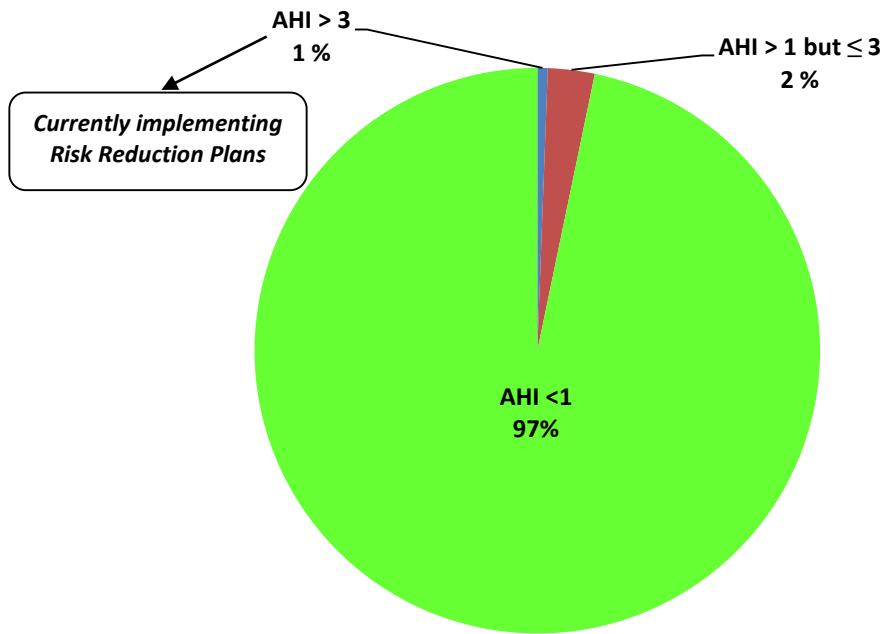


Figure 3. Distribution of Acute Hazard Indices for AB 2588 Facilities that have an Approved HRA

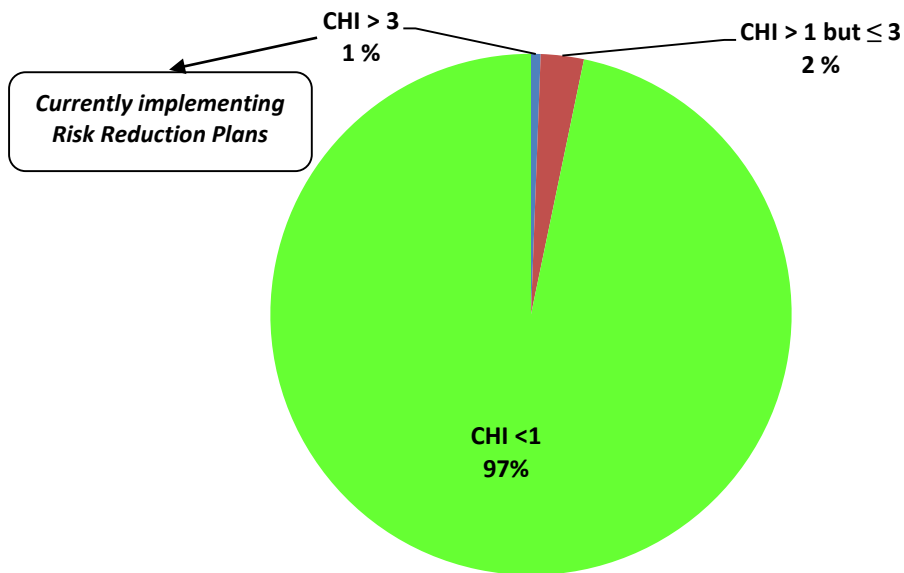


Figure 4. Distribution of Chronic Hazard Indices for AB 2588 Facilities that have an Approved HRA

2.0 2015 TOXICS ACTIVITIES

This section highlights SCAQMD staff activities in 2015 for various stages of the AB 2588 program, implementation of Rules 1402 and 1401, air monitoring and source testing projects done in conjunction with AB 2588 and Rule 1402, development of industry-wide source category HRAs, and source-specific air toxic rule development efforts that address toxic air contaminants for specific industries or equipment categories.

2.1 Air Toxic Inventory Reports (ATIR) and Health Risk Assessments (HRAs)

Under the AB 2588 program, facilities are required to report their toxic emissions to the SCAQMD quadrennially (i.e., once every four years) through the web-based Annual Emissions Reporting (AER) program in a streamlined reporting process to obtain a preliminary toxic inventory. Under this process, facilities report emissions of 177 toxic compounds along with the distance to the nearest residential and worker receptor to calculate priority scores for each facility. Every year, criteria and toxic emissions data for the previous calendar year are posted to the SCAQMD FIND website.^{II} In 2015, 140 facilities submitted quadrennial toxic emissions inventory updates. Based on emissions inventory submittals, the SCAQMD staff calculates priority scores for each facility which takes into account potency, toxicity, and the amount of toxics released into the air, as well as the distance to workers, residents and sensitive receptors (such as hospitals, schools, nursing homes, and day care centers).

Upon initial prioritization of facilities, the SCAQMD staff conducts a more detailed evaluation and audit of those facilities with a priority score greater than 10 to confirm use of the correct emission factors, control efficiencies, source test methods, and relative proportions of toxic compounds. In addition, staff conducts further analyses to confirm the distance to the sensitive receptors and workers, and reviews emissions trends and facility changes such as new or modified permitted equipment or pollution controls. In the cases where the facility has a prior HRA, staff compares the priority score results with the last HRA submittal or Risk Reduction Plan, if applicable. The additional information obtained through priority score auditing will often negate the need to require an HRA. If, however, the prioritization score remains greater than 10, the facility is asked to prepare an ATIR and HRA.

There are two general paths in rule 1402 which a facility will be required to prepare an ATIR and HRA: 1) Audited quadrennial toxic inventory reporting shows that the facility has a priority score greater than 10 as explained above; and 2) the Executive Officer, based upon investigation, determines that emission levels from the facility could potentially cause

^{II} <http://www.aqmd.gov/home/tools/public/find>

exceedance of the action risk thresholds of Rule 1402 (e.g., monitoring or source testing shows elevated levels of toxic air contaminants).

Facilities that prepare an ATIR and HRA must submit a detailed inventory of approximately 450 toxic compounds as well as provide stack parameters and locations using the latest CARB Hotspots Analysis and Reporting Program (HARP 2)^{III}. HARP 2 replaces the prior version and incorporates the methodologies from the 2015 OEHHA Guidance Manual. HARP 2 also incorporates U.S. EPA's air quality dispersion model called AERMOD^{IV} to estimate the concentration of pollutants in place of the previously used ISCST3 model. ISCST3 dispersion modeling is no longer allowed for determining TAC concentrations under Rule 1402. Meteorological data^V for use in HARP 2 and AERMOD can be downloaded from the SCAQMD website.

2.2 Air Monitoring and Source Testing Activities to Support the AB 2588 Program

In addition to collecting and reviewing quadrennial emission inventories based on emission calculations, SCAQMD staff regularly conducts or reviews monitoring or source testing at and near facilities. SCAQMD staff review and approve source test protocols and reports submitted by facilities to determine air toxic emissions for the AB 2588 program, along with occasionally conducting or observing source tests. For example, in 2015, the SCAQMD staff conducted source testing and monitoring efforts on a variety of metal industries.

2.3 Summary of SCAQMD Staff Activities on Specific AB 2588 Facilities in 2015

In 2015, staff actively addressed 31 facilities in various stages of the AB 2588 process. Specifically, staff initiated audit activities on 22 facilities with priority scores greater than 10, continued reviews of three ATIRs, six HRAs, and four RRP. Comment letters were provided on two HRAs and two RRP. Four HRAs were approved, and as a result, staff conducted four public notification meetings. One RRP was also approved. Table 1 presents a summary of key activities associated with each facility required to submit an ATIR, HRA, or RRP. A description of these key activities for each facility follows Table 1.

^{III} CARB 2015. Hotspots Analysis and Reporting Program (HARP 2) can be found at: <http://www.arb.ca.gov/toxics/harp/harp.htm>.

^{IV} http://www.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod

^V <http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/data-for-aermod>

Table 1 - Disposition of AB 2588 Facilities

Facility Name	ID #	ATIR			HRA			RRP			Public Notice	Source Testing	Air Monitoring
		R	C	A	R	C	A	R	C	A			
All American Asphalt	132954				x								
The Boeing Company	16660				xx	xx	x						
Bowman Plating Company	18989				x		x				x		
Carlton Forge Works	22911				x							x	x
Exide Technologies	124838												x
Hixson Metal Finishing	11818				x	x	x	x	xx	x	xx	x	x
Kaiser Aluminum	16338		x										
Quemetco	8547				x	x						x	x
Gerdau	18931				x	xx	x	x			x		x

For ATIRs, HRAs, and RRP: R=Report Received, and staff review initiated; C=Comment letter on report sent to facility; A=Report Approved. Multiple 'x' marks indicate that multiple reports were received or comments were sent.

2.3.1 All American Asphalt (ID 132954) – San Fernando

All American Asphalt, located in San Fernando, is a material production and construction company which provides grading, paving, concrete and grinding services. They also produce rubberized asphalt concrete. The facility was required to prepare and submit an ATIR and HRA. The facility's ATIR was approved in 2014 and they subsequently submitted their HRA. SCAQMD staff completed its preliminary review and has submitted the HRA to OEHHHA for its review which is expected to be complete in 2016.

2.3.2 The Boeing Company (ID 16660) – Huntington Beach

The Boeing Company, located in Huntington Beach, is an aerospace research and development facility which manufactures metal parts either by processing them in chromic acid anodizing tanks and/or coating in spray booths or from composite materials. The facility was required to prepare an updated HRA to demonstrate compliance with Rule 1469.1 (d)(3)(C) based on a revised facility emission inventory that differed from the inventory in a previously approved HRA (2006). The Boeing Company submitted their first HRA in early 2014 and two subsequent revised HRAs; one in late 2014 and one in early 2015 to incorporate comments by SCAQMD staff. In conjunction with OEHHHA's updated Guidelines, on March 6, 2015 CARB approved a new version of its HARP2 software to analyze health risks consistent with the new OEHHHA HRA Guidelines. Due to these changes, SCAQMD staff recalculated the risks using the new HARP2 software. The facility's approved HRA showed a revised maximum cancer risk of 6.39 in a million

mainly from diesel particulate matter (DPM) and hexavalent chromium emissions, and did not require public notification.

2.3.3 Bowman Plating Company, Inc. (ID 18989) – Unincorporated LA County

Bowman Plating Company, located near Compton, has been in operation since 1945, provides metal finishing and non-destructive testing, and processes materials including aluminum, titanium, composite, steel, and stainless steel for aerospace, defense and related industries. The facility's previously approved HRA from 2007 showed a maximum cancer risk of 14.2 in a million, mainly due to hexavalent chromium (Cr+6) emissions from paint spraying operation. Since then, Bowman has continued to report its toxics emissions every four years pursuant to AB 2588. The SCAQMD staff compared the facility's 2010 quadrennial inventory update with the 2007 approved HRA which resulted in similar risk numbers. However, subsequent AERs submitted by the facility for calendar years 2011 through 2013 showed increased use of Cr+6 containing spray paints and lower control efficiencies, and consequently, the 2007 HRA (using 2006 emissions inventory year) was no longer representative of the facility's current health risks. As a result, staff required Bowman Plating Company to submit an updated HRA using the 2013 emission inventory.

Bowman Plating submitted an HRA update for 2013 air toxic emissions on 10/24/14. This HRA was then updated by SCAQMD staff to incorporate the new OEHHA HRA Guidelines resulting in a maximum residential cancer risk of 110 in a million for the maximum residential receptor, and 17 in a million for the maximum exposed worker receptor, both primarily from hexavalent chromium emissions. Since the cancer risks exceeded action thresholds specified in SCAQMD's Rule 1402, Bowman Plating was required to conduct public notification and Risk Reduction. Notices of the public meeting were sent out to 118 people in the area where there was potential health risk above the risk thresholds established in Rule 1402. A public meeting to present the results of the HRA was held on February 9th, 2016 and the Risk Reduction Plan was submitted in June 2016.

2.3.4 Carlton Forge Works (ID 22911) - Paramount^{VI}

Carlton Forge Works (CFW) manufactures forged high-temperature alloy rings for aerospace, gas turbine, and other industries, using principal alloy metals such as nickel, titanium, aluminum, cobalt, zirconium, niobium, and iron. The facility is located in a mixed residential/industrial area of Paramount, CA.

Complaints of burnt metallic odors reported by local community members led SCAQMD staff to supplement ongoing complaint investigations, inspections and surveillance activities with preliminary air sampling in February, April and May of 2013 to investigate potential health impacts from exposure to gaseous and particulate pollutants emitted by

^{VI} A web page with additional details regarding CFW can be found on SCAQMD's web page here: <http://www.aqmd.gov/home/library/public-information/2014-news-archives/carlton-forge-works-information>

CFW operations. Because the major activities at CFW are forging, abrasive blasting, coating, and grinding, particular attention was given to the monitoring of the metallic components of particle emissions to better characterize the emissions and potential exposure off-site in the community.

In addition, a series of source tests was conducted in the summer of 2013 to better assess the locations and levels of emissions. Starting in August 2013, based on the preliminary air and soil sampling results, SCAQMD began ambient field measurements for the monitoring of the metallic components of particle emissions at two nearby sites downwind. Nickel and Cr+6 were observed at higher levels than background. One of the monitoring sites was relocated to a location slightly farther away in November 2013 to collect gradient information. Reductions in ambient levels have been observed since sampling began due to improvements at the facility.

Based on elevated levels of metals found in nearby monitors and preliminary risk estimates using CFW's draft ATIR, CFW was asked to prepare an ATIR, HRA, and RRP on March 21, 2014. In August 2014, CFW provided a revised ATIR and a draft HRA. Subsequently, on October 28, 2014 CFW provided a revised HRA that corrected an error in the dispersion modeling in the August 2014 HRA. Both draft HRAs indicated that a RRP was not required because risks were below SCAQMD Rule 1402 thresholds. SCAQMD staff is continuing to review the draft HRA and ATIR in conjunction with the nearby monitoring to ensure that the HRA appropriately analyzes all emissions from CFW. Monitoring data continues to be collected near CFW and the levels of the pollutants of concern recorded at the monitors since 2014 are generally lower than what was previously found in 2013.^{VII}

In 2015 SCAQMD staff initiated rule development to address potential toxic emissions from forging and grinding operations. More information regarding toxic rule development activities in 2015 are discussed in the section titled "Rule Making".

2.3.5 Exide Technologies (ID 124838) – Vernon^{VIII}

Exide Technologies is a secondary lead smelting facility which recovers lead from recycled automotive batteries, and had been in operation since 1922, and it has currently ceased operations. Equipment used in the battery recycling process included machines to break batteries apart and separate different materials, furnaces and kettles to melt metals, and miscellaneous equipment including storage tanks, conveying equipment, and engines. The facility's approved HRA in 2013 showed a cancer risk of up to 156 in a million at a worker

^{VII} A preliminary report on monitoring data through 2014 can be found online here:
www.aqmd.gov/home/library/public-information/2014-news-archives/carlton-forge-works-information

^{VIII} A web page with additional details regarding Exide can be found on SCAQMD's web page here:
<http://www.aqmd.gov/home/regulations/compliance/exide-updates>

receptor, primarily from arsenic. AB 2588 activities related to Exide were completed prior to 2015.

In April 2015, DTSC informed Exide of its plans to deny their permit application and required Exide to submit a Closure Plan to describe how the facility will be closed in a manner that is protective of public health and the environment. As a result, Exide notified SCAQMD that it was shutting down its facility and would initiate a closure and cleanup process. Exide remains under intense scrutiny by SCAQMD including ongoing inspections, ambient monitoring, and continued Hearing Board review in an effort to reduce potential emissions and health risk to the public, during facility closure activities.

2.3.6 Hixson Metal Finishing (ID 11818) - Newport Beach^{IX}

Hixson Metal Finishing located in Newport Beach is a metal finishing facility that conducts anodizing, testing, plating, coating, and painting operations on various parts for use in the aerospace and defense industries. Some of the potential onsite sources of emissions include the chrome anodizing line, nickel and cadmium plating, curing and drying ovens, paint spray booths, abrasive blasting equipment, waste water treatment system and miscellaneous natural gas combustion sources. The major source of concern with Hixson's operation is fugitive dust containing hexavalent chromium (Cr+6). In April 2014 SCAQMD staff required Hixson to prepare and submit an AB 2588 HRA and RRP, in conjunction with a stipulated order of Abatement approved by the SCAQMD Hearing Board that limited Hixson's activities, and required shutdown of certain operations using Cr+6 if monitored ambient levels exceeded specified Cr+6 levels at adjacent residential or worker exposure sites.

Hixson submitted their HRA to SCAQMD in November 2014, however they did not submit the RRP on time and SCAQMD staff issued Hixson a Notice of Violation in February 2015. Hixson submitted their proposed RRP in March 2015. Upon detailed review and use of the new OEHA HRA Guidelines, SCAQMD staff finalized that HRA. The approved HRA showed a maximum residential cancer risk of 1502 per million mainly from Cr+6 emissions. However, it should be noted that the calculated risk was based on emissions occurring before the facility instituted various control measures and today's level of risk are substantially lower. Since the HRA results were above thresholds established in Rule 1402, Hixson was required to notify the public about the health risk. Notices of the public meeting were sent out over 7,300 people in the area where there was potential health risk above the risk thresholds established in Rule 1402. SCAQMD staff held a community meeting at the Hoag Hospital Conference Center on June 17, 2015.

^{IX} A web page with additional details regarding Hixson can be found on SCAQMD's web page here: <http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588/hixson-metal-finishing>

SCAQMD staff rejected Hixson's first two draft RRP's dated March 2015 and June 2015, deeming them inadequate, and directed Hixson to revise their RRP to improve the control measures. Hixson resubmitted the revised RRP on July 1, 2015, and SCAQMD staff conditionally approved it on July 24, 2015. Staff subsequently approved a Mitigated Negative Declaration and permits to implement the RRP in December, 2015. Hixson is currently implementing the RRP.

2.3.7 Kaiser Aluminum Fabricated Products, LLC (ID 16338) – Los Angeles

Kaiser Aluminum Fabricated Products located in Los Angeles, develops fabricated aluminum products for major suppliers and manufacturers in the aerospace, general automotive, engineering and custom industrial markets. They also manufacture aluminum extrusions, cast logs, billets, and semi-fabricated products. The facility was required to prepare and submit an ATIR based on the facility's quadrennial emissions inventory which resulted in a facility priority score greater than 10. SCAQMD staff conducted a site visit in October 2014 to verify the sources of emissions identified in the ATIR and is continuing to review the facility's emissions profile. Staff completed most of the review of the ATIR in 2015 and approval of facility's ATIR is pending final approval of their source testing results.

2.3.8 Quemetco (ID 8547) – City of Industry

Quemetco operates a battery recycling and lead recovery facility. At this facility, used batteries are received, fragmented and the lead-containing materials are recovered and purified. The primary pollutants for this facility are arsenic, lead, benzene, and 1,3-butadiene.

Multiple AB 2588 HRAs have been approved for Quemetco in the past, most recently in 2010. In October and November 2013, the SCAQMD staff conducted source tests at Quemetco. The results of the 2013 source tests showed elevated arsenic, benzene, and 1,3-butadiene emissions compared to previous 2009, 2010, and 2012 source tests. As a result, in 2013, SCAQMD staff requested that Quemetco prepare and submit an HRA pursuant to Rule 1402. SCAQMD staff has commented on and asked for multiple revisions of the draft HRA. On September 16, 2015, SCAQMD sent Quemetco a tentative approval of the staff-modified HRA. Quemetco subsequently commented that the monitoring data that they collect onsite required revision before incorporating into the HRA. SCAQMD staff subsequently evaluated Quemetco's monitoring data in late 2015 and early 2016.^x

^x SCAQMD staff approved Quemetco's HRA in 2016. The HRA approval activity will be summarized in the 2016 Annual Report. Current information regarding Quemetco can be found here:
<http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588/quemetco>

2.3.9 R J Noble (ID 19167) – Orange

R.J. Noble Company, located in Orange produces, manufactures, and recycles asphalt, asphalt rubber, recycled asphalt (RAP), rock, sand, and concrete products. They also produce products including: aggregate base, recrushed base, sand products, gravel products, and recycled asphalt. Based on the facility's 2013 quadrennial air toxic emissions report, staff calculated a priority score greater than 10 and as a result, the facility was required to prepare and submit an ATIR. The submitted ATIR is currently under review.

2.3.10 Gerdau (ID 18931) - Rancho Cucamonga

Gerdau North America acquired the TAMCO Rancho Cucamonga steel mini mill in October, 2010. The company produces steel reinforcing bars that are commonly used in construction. Ferrous steel scrap is recycled and delivered to the Mill by trucks and rail, and then melted in an Electric Arc Furnace (EAF) to produce steel billets. The billets are reheated in a reheat furnace to form concrete reinforcing bar (rebar). The primary pollutants for this facility are Cr+6, nickel, manganese, mercury, and arsenic.

In April 2013, Gerdau was required to prepare and submit an HRA and SCAQMD staff asked for revisions prior to approval. An amended HRA was submitted by Gerdau on April 2014. On November 20, 2014, staff asked Gerdau to revise its HRA to evaluate the facility's impact relative to the lead National Ambient Air Quality Standard, among other changes. This revised HRA was submitted in early 2015.

SCAQMD staff recalculated the risks using the new OEHHA HRA Guidelines and approved Gerdau's HRA on October 8, 2015. Several health risk endpoints from the recalculated HRA exceed thresholds specified in Rule 1402. The maximum residential cancer risk (52.7 per million), mainly from hexavalent chromium, dioxins, and diesel particulate matter (DPM), the cancer burden (3.08), the maximum worker chronic hazard index (3.19) mainly from manganese and arsenic, and the maximum acute hazard index (3.04) mainly from nickel, all exceed the risk reduction thresholds in Rule 1402. Another pollutant of concern from Gerdau's operation is lead. Gerdau was therefore required to notify the public regarding the results of its HRA, and also submit a Risk Reduction Plan by April 6, 2016. Notices of public meeting were sent out to 118 people in the area where there was potential health risk above the thresholds established in Rule 1402. SCAQMD staff held a community meeting at Victoria Gardens Cultural Center in Rancho Cucamonga on November 30, 2015 to explain the impact of Gerdau's emissions on public health and to discuss next steps.^{XI} Gerdau also provided a presentation of their facility's operations at this meeting.

^{XI} <http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588/gerdau>

2.4 Industry-Wide Category Sources

Industry-wide category sources are smaller facilities that share the same Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) code, and thus can be easily and generically characterized. For the most part, these facilities are small businesses that would suffer economic hardships by individual compliance, if HRA's were required. The SCAQMD has identified seven industry-wide categories:

- Retail Gasoline Dispensing;
- Perchloroethylene Dry Cleaning;
- Auto Body Shops;
- Fiberglass Molding;
- Printing;
- Metal Plating, and
- Wood Stripping / Refinishing.

An advantage for industry-wide categories is that compliance can be handled collectively. Health and Safety Code Section 44323 states that an air district may prepare an industry-wide emission inventory and health risk assessment for the industry-wide facilities. The California Air Pollution Control Officers Association's (CAPCOA) Toxics Committee has been developing statewide emission inventory and risk assessment guidelines for several of these industry-wide categories. The guidelines provide a cost-effective and uniform method for calculating facility emissions and estimating toxic risks for these facilities under the SCAQMD's jurisdiction.

Eventually industry-wide risk assessments will be prepared for all the categories listed above. To date, risk assessments are available for Retail Gas Stations and Perc Dry Cleaners. Detailed maps of estimated cancer risks from these facilities can be found on SCAQMD's website.^{XII} In 2015, staff began work to update the industry-wide HRA for gas stations. This updated industry-wide HRA will be completed once the Air Resources Board completes updates to its guidance regarding emissions from gas stations.

2.5 Pilot Study for Multi-Metals In-Stack and Ambient Continuous Monitors

SCAQMD staff initiated a technology demonstration pilot study for in-stack continuous emissions monitoring system (CEMS) and fence-line/perimeter ambient air monitoring for multi-metals in 2014. Contracts with Cooper Environmental Services, the only manufacturer of these types of continuous monitors, were initiated in 2014 to implement

^{XII} <http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588/iws-facilities>

the study. The pilot study was conducted at Quemetco and Gerdau for a period of two months. SCAQMD staff continued this pilot test in 2015 at Quemetco. Preliminary findings from 2015 for ambient multi-metal monitor shows favorable results for lead and less quantitative results for other metals, but most results are useful for trend detection. Assessment of the CEMS data were still ongoing in 2015, and showed promising results. Both units show promise for providing real-time information about metal emissions.

2.6 Rule 1401 Permitting and HRA Modeling Projects

Under Rule 1401, any new, relocated, or modified permit units which emit toxic air contaminants as specified in the rule are subject to specific allowable limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI). In 2015, SCAQMD staff processed approximately 1,630 Rule 1401 applications for 1,050 facilities. Under Rule 1401, the SCAQMD staff also conducts an air dispersion modeling to confirm that new and modified permits do not exceed the health risk thresholds and also provides analyses for Hearing Board cases. In 2015, SCAQMD staff reviewed and approved 24 toxic risk modeling projects for permitting.

2.7 Multiple Air Toxics Exposure Study (MATES)

MATES IV^{XIII} is the fourth in a series of urban toxics monitoring and evaluation studies conducted in the Basin and is part of the SCAQMD Governing Board Environmental Justice Initiatives adopted in 1997. The study is a follow-up to previous studies which took place in 1985-86, 1998-99, and 2004-06. MATES IV consists of several elements including a comprehensive monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize Basin risk. The study focuses on the carcinogenic risk from exposure to air toxics. The measurement of ultrafine particle concentrations was a new focus for MATES IV. In addition, shorter-term measurements were conducted at various locations, such as airports, freeways, rail yards, and busy intersections near warehouse operations to assess exposures to ultrafine particles and black carbon. Sampling began in June 2012 and concluded June 2013, providing a full year of ambient data.

The final MATES IV report was released on May 1, 2015 in addition to an interactive map of the Basin which is available on the SCAQMD web site, to identify the estimated modeled carcinogenic risk from air toxics by geographic location.

The study shows that compared to past MATES studies of air toxics in the Basin, diesel particulate exposure has been substantially reduced, but is still unacceptably high, especially near sources of diesel emissions such as the ports and transportation corridors. The results confirm the need for a continued focus on the reduction of toxic emissions, particularly from diesel exhaust. The MATES IV study found that the average residential

^{XIII} The MATES studies and an interactive map are available here:
<http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies>

cancer risk from air pollution in the SCAQMD is about 900 chances per million, reflecting a reduction of about 57% compared to MATES III.

2.8 National-Scale Air Toxics Assessment (NATA) Support

Every three years, beginning in 1996, the U.S. EPA prepares a National-Scale Air Toxics Assessment (NATA).^{xiv} NATA is somewhat analogous to SCAQMD's Multiple Air Toxic Exposure Study (MATES). Whereas MATES looks at population risks in the four county jurisdiction of the SCAQMD, all 50 states are addressed in NATA. The purpose of NATA is to: (1) identify and prioritize the toxic air contaminants of greatest concern, (2) determine the risk contribution from each of the major source categories (i.e., on-road, off-road, point, and area), and (3) identify local areas (i.e., census tracts) with potentially elevated risks. In 2015, AB 2588 staff reviewed preliminary results from NATA and worked with EPA and CARB to refine results based on local data prior to final publication of the 2011 NATA in December 2015. SCAQMD staff continues to work with EPA to ensure that future NATA efforts (including the upcoming 2014 NATA) continue to use the best available local emissions data.

2.9 Rule Development

2.9.1 Assessment of OEHHA Revised Air Toxics Hot Spots Program Risk Assessment Guidelines and Development of Amendments to Rules 1401, 1401.1, 1402, and 212 (2015)

AB 2588 requires that OEHHA develop health risk assessment guidelines for implementation of the Toxics Hot Spots Program. In 2003, OEHHA developed and approved the Health Risk Assessment Guidance used throughout all of SCAQMD's risk based programs (permitting, AB 2588, CEQA, public notification, etc.).^{xv} Since the adoption of the 2003 Guidelines, new scientific information has shown that early-life exposures to air toxics contribute to an increased estimated lifetime risk of developing cancer and other adverse health effects, compared to exposures that occur in adulthood. Based on this information, OEHHA developed and released a draft of its new Air Toxics Hot Spots Program Guidance Manual for Preparation of Risk Assessments (Revised OEHHA Guidelines) in October, 2014. The final Revised OEHHA Guidelines document was approved by OEHHA on March 6, 2015. The Revised OEHHA Guidelines incorporate age sensitivity factors which increase cancer risk estimates to residential and sensitive receptors, based on the change in methodology. Under the Revised OEHHA Guidelines, even when the toxic emissions from a facility have not increased, estimated cancer risk to a residential receptor will increase due to the change in methodology. Cancer risks for off-site worker receptors are similar between the existing and revised methodology because the methodology for adulthood exposures remains relatively unchanged. The proposed

^{xiv} The U.S. EPA's web portal to NATA is at: <http://www.epa.gov/ttn/atw/natamain/>.

^{xv} All of OEHHA's current and past risk guidance materials can be found online here: <http://oehha.ca.gov/air/air-toxics-hot-spots>

new method includes utilizing higher estimates of cancer potency during early life exposures. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, risks for the same inhalation exposure level will be about 2.3 times higher using the updated methods and approximately six times higher for toxic air contaminants with multi-pathway exposures.

After an extensive outreach process, staff completed rule development activities for Rules 1401, 1401.1, 1402, and 212, updated all 1401 risk assessment guidance materials and screening tools for permitting, and updated the AB 2588 Prioritization Procedures and risk assessment guidance. On June 5, 2015, the SCAQMD Governing Board adopted amendments to Rule 1401 - New Source Review of Toxic Air Contaminants, Rule 1401.1 - Requirements for New and Relocated Facilities near Schools, and Rule 1402 - Control of Toxic Air Contaminants from Existing Sources to incorporate the Revised OEHHA Health Risk Assessment Guidelines.

2.9.2 Amended Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-acid Battery Recycling Facilities (March 6, 2015 and September 4, 2015)

This rule applies to lead-acid battery recycling facilities that have processed more than 50,000 tons of lead per year in any one of the five calendar years prior to November 5, 2010, or annually thereafter. On October 2008, the U.S. EPA reduced the National Ambient Air Quality Standard (NAAQS) for lead tenfold to 0.15 micrograms/cubic meter ($\mu\text{g}/\text{m}^3$). Lead is classified as both “criteria pollutant” under the federal Clean Air and as a carcinogenic toxic air contaminant (TAC). Lead has many health effects, including neurotoxicity. Young children are especially vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ. In order to achieve attainment with the federal standard, Rule 1420.1 was adopted in November 2010 and applies to lead-acid battery recycling facilities that process more than 50,000 tons of lead annually. There is currently only one large lead-acid battery recycler in the Basin, Quemetco Inc. located in the City of Industry. In April 2015 Exide Technologies in Vernon, another large lead-acid battery recycler, notified the California Department of Toxic Substances Control (DTSC) that the facility was permanently closing.

The rule includes ambient lead and arsenic concentration limits, facility mass point source limits, as well as housekeeping and maintenance provisions such as regular cleaning periods, inspections and proper handling of lead containing dust and waste. In March 2015, the Governing Board adopted amendments to the rule to further reduce the accumulation of lead dust in the community by lowering the ambient lead concentration limit to 0.100 $\mu\text{g}/\text{m}^3$ and lowering the point source lead emission rate to 0.023 lb/hr, effective January 1, 2016, as well as adding other housekeeping and maintenance measures. Rule 1420.1 was amended again in September 2015 to lower the point source emission rate to 0.003 pounds per hour and include provisions to ensure emissions from lead are appropriately controlled during closure and clean-up activities of a large lead-acid battery recycling facility.

2.9.3 Adopted Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities (October 2, 2015)

The SCAQMD Governing Board adopted Rule 1420.2 in October 2015 with the objective of protecting public health by minimizing public exposure to lead emissions and preventing exceedances of the lead NAAQS in the Basin. Rule 1420.2 establishes ambient lead monitoring requirements, stricter ambient lead thresholds, enclosure requirements, and more comprehensive housekeeping provisions for lead-acid battery manufacturers, secondary smelters, scrap recyclers, and an iron and steel mini-mill. Rule 1420.2 phases in an ambient lead concentration limit of $0.100 \mu\text{g}/\text{m}^3$, similar to Rule 1420.1.

2.9.4 Amended Rule 1156 – Further Emission Reductions of Particulate Emissions from Cement Manufacturing Facilities (November 6, 2015)

This rule requires cement manufacturing facilities to comply with specific requirements applicable to various operations, including materials storage, handling and transport at the facilities, as well as requiring monitoring of hexavalent chromium (Cr+6) and keeping below a specific fence-line limit. The November 2015 amendments further minimize Cr+6 emissions and risk from cement manufacturing operations and the property after facility closure while streamlining Cr+6 ambient monitoring. The amendments established the conditions under which monitoring can be reduced or eliminated. In addition, the amendments included a modification to the fence-line ambient Cr+6 threshold to reflect changes made by the OEHHA.

2.10 Toxic Program Impacts with New or Revised Toxics Air Contaminants (TACs)

Pursuant to Rule 1402, once OEHHA finalizes the identification of a new TAC or revises a risk value for an existing TAC, SCAQMD staff provides notice to the Board and affected industries. Use of any new TAC or a more stringent risk value in health risk assessments is either 12 months after the Governing Board receives and files a report containing such notification, or another Board-approved implementation schedule. This report also includes a preliminary estimate of Rule 1402 program impacts. Rule 1401 includes additional requirements for reporting to the Board on permitting impacts. The report for Rule 1401 impacts will be provided later in 2016.

Background

On March 28, 2016, OEHHA adopted new and revised Reference Exposure Levels (RELs) for toluene diisocyanate (TDI) and methylene diphenyl diisocyanate (MDI) for use in the Air Toxics Hot Spots Program.^{xvi} RELs are airborne concentrations of a chemical that are

^{xvi} The documents are available at: <http://oehha.ca.gov/air/report-hot-spots/notice-adoption-reference-exposure-levels-toluene-diisocyanate-and-methylene>

not anticipated to result in adverse non-cancer health effects for specified exposure durations in the general population, including sensitive subpopulations. The adopted RELs cover different types of exposure to TDI and MDI in air: infrequent 1-hour exposures, repeated 8-hour exposures, and continuous long-term exposure. The updated chronic REL and added acute REL result in more stringent risk values. The revised health risk values are shown in Table 2 – Existing and Revised Health Risk Values for TDI and MDI.

Toluene Diisocyanate –TDI is used principally to make flexible polyurethane foam products, but is also in adhesives, sealants, coatings, and elastomers (e.g., shoe soles). Similar to MDI, no detectable levels of TDI have been found to be emitted from new polyurethane consumer products but it may be emitted from manufacturing facilities.

Methylene Diphenyl Diisocyanate – MDI is used in the preparation of polyurethane resin and spandex fibers, and to bond rubber to rayon and nylon. Its use in polyurethane foams accounts for approximately 80% of the MDI consumed worldwide. Emissions of detectable levels of free MDI and TDI from polyurethane consumer products and other products made with MDI (e.g. mattresses, adhesives, sealants and other products for consumer use) have not been found, however it may be emitted from the manufacturing of these materials.

Table 2 - Existing and Revised Health Risk Values for TDI and MDI

CAS #	Compound	Chronic REL		8-Hour REL		Acute REL	
		Old	New	Old	New	Old	New
584849	Toluene Diisocyanate	0.07	0.008	NA	0.015	NA	2
101688	Methylene Diphenyl diisocyanate	0.7	0.08	NA	0.16	NA	12

Rule 1402 –Assessment of Impacts to Existing Facilities

Rule 1402 requires existing facilities with a non-cancer risk exceeding specified thresholds to conduct public notification, submit a risk reduction plan, and reduce risk. Seventeen facilities reported annual emissions of toluene diisocyanate and methylene diphenyl diisocyanate compounds, but only six facilities reported these compounds in quantities sufficient to exceed a screening level which could trigger a requirement to submit a HRA. Four of the facilities that reported TDI and MDI emissions were aerospace engine and engine parts manufacturing facilities, one facility's emissions were from plating and polishing, and the other facility's emissions were from plastic foam product and urethane manufacturing operations.

Five of the facilities have approved Health Risk Assessments requirements of the AB 2588 program; however, other more potent TACs contribute the majority of these facilities' total

risk and the revised TDI and MDI health risk values would have negligible effect on the overall health risk from these facilities. Therefore no additional impacts are expected.

Analysis of one facility with reported emissions of TDI showed that non-cancer risk from toluene diisocyanate compounds was the “risk driver” and the facility has already implemented a RRP. This facility still reports its toxic emissions quadrennially, and staff will review its next report to determine if a new HRA is required based on its most recent emissions.

3.0 FUTURE ACTIVITIES

3.1 AB 2588 Activities

In 2016, staff will prioritize about 140 facilities and notify those with high priority scores to prepare ATIRs and HRAs. About 10 facility HRAs and 10 ATIRs will be reviewed. Public notification will also occur for multiple facilities including Quemetco (ID 8547), Carlton Forge Works (ID 22911), and potentially others.

3.2 Model-Monitor Reconciliation

In response to community concerns regarding fugitive emissions and difficulties quantifying those emissions, SCAQMD staff will continue to investigate options regarding model-monitor reconciliation. Often, modeling analysis predicts concentrations that are substantially lower than those found in the monitoring results. This difference is usually due to fugitive emissions that are not captured in traditional emission inventories.

At its June 3, 2016 meeting, the Governing Board approved a contract for Protocol Development for Reconciling Air Quality Monitoring Data with Dispersion Modeling Results to provide support in developing a consistent methodology for facilities to use when preparing AB 2588 HRAs. Staff will continue to work on this project throughout 2016.

3.3 Rulemaking

Proposed Amended Rule 1402 - Control of Toxic Air Contaminants from Existing Sources (October 2016) - During amendments to Rule 1402 in 2015, some business representatives requested that the SCAQMD consider a program that would allow facilities to implement risk reductions that would go below those required under Rule 1402. Proposed Amended Rule 1402 includes a Voluntary Risk Reduction Program that would allow certain facilities to make early reductions that go beyond the Action Risk Threshold with a modified public notification process. In addition, staff is proposing amendments to clarify rule requirements and streamline the program. The proposed rule will include an update to SCAQMD’s Prioritization Procedures to further streamline the AB 2588 process.

Proposed Rule 1430.1 (Revise to 1430) - Control of Toxic Air Contaminants from Grinding Operations at Metal Forging Facilities (November 2016) –Staff is developing a proposed new rule to control toxic metal particulate emissions from grinding operations located at forging facilities. In general, there are currently no SCAQMD regulatory requirements for metal grinding operations, and this activity is exempt from permitting. Results of sampling data collected by SCAQMD staff at multiple forging facilities have shown that fugitive metallic dust generated from metal grinding activities include TACs such as cadmium, hexavalent chromium, cobalt, and nickel. Ambient air monitoring conducted at one forging facility has shown elevated concentrations of nickel in the ambient air due to metal grinding activities. Some of these forging facilities are located in close proximity to sensitive receptors including residences, schools, and hospitals.

Appendix A

Health Risk from Facilities with an Approved Health Risk Assessment (HRA)

The tables in Appendix A lists the facilities and the risks identified in their HRAs or RRP as reviewed and approved by staff. Risks presented in this table were calculated based on guidance that was available from the state Office of Environmental Health Hazard Assessment (OEHHA) at the time of HRA approval. For example, the risks presented in this appendix for facilities with HRA approval date prior to 2015 do not include the recent updated health risk calculation methodologies (OEHHA, 2015) that accounts for the differences in children's breathing rates and place greater emphasis on their susceptibility to cancer risk in comparison to adults. The risks in all HRAs finalized by SCAQMD staff in 2015 were recalculated to reflect the updated OEHHA HRA Guidelines.

Table A-1 lists the facilities in order of their cancer risks and Table A-2 is ordered by facility ID. The listed risks are from an approved HRA, unless an approved risk reduction plan has been fully implemented. In those instances, the listed risks reflect the risks after the implementation of the risk reduction plan. Table A-3 lists the status of the facility's risk reduction plan and is presented by Facility ID. Attention should also be given to the other footnotes in the table denoting facilities with updated HRAs pending approval and facilities with risk including emergency diesel internal combustion engines. It also provides the current status of each facility as follows:

- A – Active
- I – Inactive
- OB – Out of business

“Inactive” and “out of business” facilities have been retained for historical purposes since staff occasionally receives public inquiries regarding “inactive” or “out of business” facilities. Staff realizes that facilities that have gone through change of ownership could have different name and facility ID numbers. The following risk levels are identified in SCAQMD Rule 1402 – Control of Toxic Air Contaminants from Existing Sources:

- **Action Risk Levels:** Cancer risk ≥ 25 in a million; Acute HI ≥ 3.0 ; Chronic HI ≥ 3.0 , Cancer Burden ≥ 0.5
- **Public Notification Levels:** Cancer risk ≥ 10 in a million; Acute HI > 1.0 ; Chronic HI > 1.0
- **Exemption Levels:** Cancer risk < 1 in a million; Acute HI < 0.1 ; Chronic HI < 0.1

APPENDIX A-1
Health Risks from Facilities with an Approved HRA
(Listed in descending order by cancer risk)

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
11818	A	HIXSON METAL FINISHING	NEWPORT BEACH	1502.0	1.09	0.2	0.1	2015
124838	OB	EXIDE TECHNOLOGIES	LOS ANGELES	156.0	10	3.8	63.0	2013
18989	A	BOWMAN PLATING CO INC	COMPTON	97.72	0.10	0.07	0.10	2015
18931	A	GERDAU	RANCHO CUCAMONGA	52.7	3.08	3.0	3.2	2015
171107	A	PHILLIPS 66 CO/LA REFINERY WILMINGTON PL	WILMINGTON	23.2	0.29	0.1	0.7	2013
122822	I	CONSOLIDATED FILM INDUSTRIES	HOLLYWOOD	21.0	ND	0.1	0.4	2000
176967	A	GAS RECOVERY SYSTEMS, INC	IRVINE	20.1	0.18	0.6	0.3	2009
14495	A	VISTA METALS CORP	FONTANA	19.8	0.06	0.0	0.3	2008
165192	A	TRIUMPH AEROSTRUCTURES, LLC (b)	HAWTHORNE	19.7	ND	0.6	0.2	1999
11142	OB	KEYSOR-CENTURY CORP	SAUGUS	17.0	ND	0.5	0.1	2000
35302	A	OWENS CORNING (c)	COMPTON	14.0	0.02	0.1	0.1	2000
41229	A	LUBECO INC	LONG BEACH	14.0	ND	0.0	0.1	2002
48323	A	SIGMA PLATING CO INC	LA PUENTE	13.8	ND	0.0	0.7	2001
23907	A	JOHNS MANVILLE CORP	CORONA	13.0	ND	0.4	2.7	1999
18648	OB	CROWN CITY PLATING CO.	EL MONTE	12.0	ND	0.4	0.1	2000
29110	A	ORANGE, COUNTYOF - SANITATION DISTRICT (d)	HUNTINGTON BEACH	10.7	ND	1.8	0.5	2007
800436	A	TESORO REFINING AND MARKETING CO	WILMINGTON	10.7	0.37	0.3	0.4	2013
155828	A	GARRETT AVIATION SVCS. LLC DBA STANDARD	LOS ANGELES	< 10	0.001	0.2	0.3	2002
106797	OB	SAINT-GOBAIN CONTAINERS LLC	LOS ANGELES	9.9	ND	0.0	0.1	2000
101380	OB	GENERAL DYNAMICS OTS (DOWNEY) INC	DOWNEY	9.8	ND	0.0	0.1	2000
148925	A	CHERRY AEROSPACE LLC	SANTA ANA	9.7	ND	0.1	0.2	1999
800373	I	CENCO REFINING COMPANY	SANTA FE SPRINGS	9.7	ND	0.3	0.1	2000
800183	A	PARAMOUNT PETR CORP (EIS USE)	PARAMOUNT	9.6	ND	0.0	0.0	2002
800318	A	GRISWOLD INDUSTRIES	COSTA MESA	9.5	0.01	0.1	0.0	2001
15504	A	SCHLOSSER FORGE CO	RANCHO CUCAMONGA	9.5	ND	1.6	1.1	2002
800149	A	US BORAX INC	WILMINGTON	9.5	ND	0.0	0.0	2000
10510	A	GREGG INDUSTRIES INC	EL MONTE	9.4	ND	0.6	0.6	2008
62897	OB	NORTHROP GRUMMAN CORP, MASD	PICO RIVERA	9.4	ND	1.0	0.5	2000
42922	OB	CMC PRINTED BAG INC	WHITTIER	9.0	ND	0.0	0.0	1995
174710	A	TESORO LOGISTICS OP LLC, VINVALE MARKETI	SOUTH GATE	9.0	ND	0.0	0.0	1994
169990	A	SPS TECHNOLOGIES, LLC	GARDENA	8.9	ND	0.1	0.1	1999
800184	A	GOLDEN WEST REF CO	SANTA FE SPRINGS	8.8	ND	0.2	0.1	1997

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
1744	A	KIRKHILL RUBBER CO	BREA	8.7	0.001	0.2	0.1	2007
175124	A	AEROJET ROCKETDYNE OF DE, INC.	CANOGA PARK	8.7	ND	0.0	0.0	1995
44454	A	STRUCTURAL COMPOSITES IND	POMONA	8.6	0.001	0.0	0.2	2002
107168	I	ADVANCED SPA DESIGNS	LA HABRA	8.6	ND	0.0	0.0	1995
2680	A	LA CO., SANITATION DISTRICT	WHITTIER	8.6	ND	0.0	0.0	1999
15736	A	HENRY CO	HUNTINGTON PARK	8.5	ND	0.0	0.0	2000
800057	A	KINDER MORGAN LIQUIDS TERMINALS, LLC	CARSON	8.5	ND	0.0	0.1	1999
800079	A	PETRO DIAMOND TERMINAL CO	LONG BEACH	8.3	ND	0.0	0.2	1998
125281	OB	MODERN PLATING, ALCO CAD-NICKEL PLATING	LOS ANGELES	8.2	ND	0.1	0.0	1995
21615	OB	PERKINELMER OPTOELECTRONICS SC, INC	AZUSA	8.1	ND	0.2	0.1	1998
8547	A	QUEMETCO INC (c)	INDUSTRY	8.1	0.66	0.1	0.8	2016
110924	A	WESTWAY TERMINAL COMPANY	SAN PEDRO	8.0	ND	0.3	0.5	1997
3609	I	AL'S PLATING CO INC	LOS ANGELES	7.8	ND	0.3	0.2	1999
37603	A	SGL TECHNIC INC, POLYCARBON DIVISION	VALENCIA	7.8	ND	0.0	0.4	1998
800182	A	RIVERSIDE CEMENT CO (c)	RIVERSIDE	7.8	0.11	0.1	0.1	2001
13920	A	ST. JOSPEH HOSPITAL	ORANGE	7.7	0.004	0.8	0.3	2008
800089	A	EXXONMOBIL OIL CORPORATION	TORRANCE	7.7	0.15	0.2	0.5	2013
18294	A	NORTHROP GRUMMAN CORP, AIRCRAFT DIV	EL SEGUNDO	7.6	ND	0.1	0.1	1999
113170	A	SANTA MONICA - UCLA MEDICAL CENTER (b)	SANTA MONICA	7.6	0.14	0.2	0.0	1997
800214	A	LA CITY, SANITATION BUREAU (c)	PLAYA DEL REY	7.6	ND	0.1	0.0	1999
20197	A	LAC/USC MEDICAL CENTER	LOS ANGELES	7.5	ND	0.7	0.4	2007
800032	A	CHEVRON U.S.A. INC (EIS USE)	MONTEBELLO	7.5	0.14	0.0	0.2	1999
800150	A	US GOVT, AF DEPT, MARCH AFB (NSR USE)	RIVERSIDE	7.4	0.02	0.3	0.0	2008
108701	A	SAINT-GOBAIN CONTAINERS LLC	EL MONTE	7.3	ND	0.1	0.1	2000
117560	A	EQUILON ENTER, LLC-SHELL OIL PROD. US	WILMINGTON	7.3	ND	0.0	0.1	1998
174655	A	TESORO REFINING & MARKETING CO, LLC	CARSON	7.3	ND	0.3	0.1	2000
800026	A	ULTRAMAR INC (NSR USE ONLY)	WILMINGTON	7.2	0.18	0.7	0.2	2012
800113	A	ROHR,INC	RIVERSIDE	7.2	0.01	0.9	0.0	2007
800236	A	LA CO. SANITATION DIST	CARSON	7.2	ND	0.2	0.1	2007
49387	A	UNIV CAL, RIVERSIDE	RIVERSIDE	7.1	ND	0.0	0.0	1999
27343	OB	CON AGRA INC, GILROY FOODS DBA	SANTA ANA	7.1	ND	0.2	0.1	1995
57094	A	GS ROOFING PRODUCTS CO, INC/CERTAINTEED (c)	WILMINGTON	7.0	ND	0.0	0.0	2000
140499	A	AMERESCO HUNTINGTON BEACH, L.L.C.	HUNTINGTON BEACH	7.0	ND	0.0	0.0	1995
800209	A	BKK CORPORATION, LANDFILL DIVISION GNRL	WEST COVINA	6.9	ND	0.0	0.1	2000
800372	A	EQUILON ENTER. LLC, SHELL OIL PROD. US	CARSON	6.9	ND	0.4	0.1	2001
20280	A	METAL SURFACES INC	BELL GARDENS	6.8	0	0.9	0.3	2011

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
5723	A	DUCOMMUN AEROSTRUCTURES INC	ORANGE	6.7	ND	0.0	0.1	1999
173913	A	TRIUMPH PROCESSING, EMBEE DIV., INC.	SANTA ANA	6.6	ND	0.2	0.6	2000
17301	A	ORANGE, COUNTY OF - SANITATION DISTRICT	FOUNTAIN VALLEY	6.6	0.001	0.4	0.3	2007
118998	OB	CYTEC FIBERITE INC	CULVER CITY	6.6	ND	0.0	0.2	1997
171109	A	PHILLIPS 66 COMPANY/LOS ANGELES REFINERY	CARSON	6.6	0.11	0.0	0.3	2011
6643	A	TECHNICOLOR INC	NORTH HOLLYWOOD	6.5	ND	0.0	0.1	2007
34764	A	CADDOCK ELECTRONICS INC	RIVERSIDE	6.5		0.0	0.1	
168088	A	PCCR USA	LYNWOOD	6.5	ND	0.1	1.6	1995
11726	A	GE ENGINE SERVICES	ONTARIO	6.5	ND	0.1	0.6	1999
2852	A	THE WALT DISNEY COMPANY	BURBANK	6.4	0.03	0.0	0.0	1997
800066	A	HITCO CARBON COMPOSITES INC	GARDENA	6.4	ND	0.3	0.0	1995
16660	A	THE BOEING COMPANY	HUNTINGTON BEACH	6.39	0.02	0.01	0.08	2015
4477	A	SO CAL EDISON CO	AVALON	6.3	0.02	0.0	0.0	2012
1226	A	HYATT DIE CAST & ENGINEERING CORP	CYPRESS	6.2	ND	0.0	0.1	1996
800067	A	BOEING SATELLITE SYSTEMS INC	EL SEGUNDO	6.2	ND	0.0	0.1	2000
146570	A	ROHM AND HAAS CHEMICALS LLC	LA MIRADA	6.2	ND	0.5	0.8	1999
45262	A	LA CO, SANITATION DISTRICT UNIT NO.02	GLENDALE	6.2	ND	0.0	0.1	1998
140961	A	GKN AEROSPACE TRANSPARENCY SYS INC	GARDEN GROVE	6.0	ND	0.0	0.5	1996
800022	A	CALNEV PIPE LINE CO (NSR USE)	BLOOMINGTON	5.9	ND	0.0	0.1	1999
800047	I	FLETCHER OIL & REF CO	CARSON	5.9	ND	0.0	0.0	1998
800198	A	ULTRAMAR INC (NSR USE ONLY)	WILMINGTON	5.9	ND	0.0	0.1	1999
800279	A	SFPP, L.P.	ORANGE	5.9	ND	0.0	0.2	1999
8578	OB	ASSOCIATED CONCRETE PROD. INC	SANTA ANA	5.8	ND	0.1	0.6	1999
136148	A	E/M COATING SERVICES	NORTH HOLLYWOOD	5.8	ND	0.3	0.6	1998
65382	A	SFPP, L.P.	BLOOMINGTON	5.8	ND	0.0	0.0	1996
164864	A	ARROWHEAD BRASS & PLUMBING	LOS ANGELES	5.7	ND	0.3	0.0	1995
800288	A	UNIV CAL IRVINE (NSR USE ONLY)	IRVINE	5.6	ND	0.0	0.1	1996
22410	A	PALACE PLATING	LOS ANGELES	5.6	ND	0.7	0.4	2004
38971	A	RICOH ELECTRONICS INC	IRVINE	5.6	ND	0.0	0.4	1995
14146	A	MAC GREGOR YACHT CORP	COSTA MESA	5.5	ND	0.0	0.1	1998
43201	A	SNOW SUMMIT INC	BIG BEAR LAKE	5.5	ND	0.2	0.0	2007
54424	A	L & L CUSTOM SHUTTERS	PLACENTIA	5.5	ND	0.2	0.2	2001
800409	A	NORTHROP GRUMMAN SPACE & MISSION SYSTEMS	REDONDO BEACH	5.5	ND	0.5	0.2	1998
800196	A	AMERICAN AIRLINES INC (EIS USE)	LOS ANGELES	5.4	ND	0.9	0.1	2002
800171	A	EXXONMOBIL OIL CORPORATION	VERNON	5.3	ND	0.1	0.0	1997
134018	A	INDUSTRIAL CONTAINER SERVICES-CA LLC	MONTEBELLO	5.2	ND	0.6	0.2	2000

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
109198	A	TORCH OPERATING COMPANY	BREA	5.0	ND	0.0	0.0	2001
103888	A	SARGENT FLETCHER INC	EL MONTE	4.9	ND	0.2	0.0	1999
800037	A	DEMENNO/KERDOON	COMPTON	4.9	0.01	0.0	0.0	2009
11192	A	HI-SHEAR CORPORATION	TORRANCE	4.8	ND	0.0	0.0	2008
800038	A	THE BOEING COMPANY - C17 PROGRAM	LONG BEACH	4.8	ND	0.2	0.1	1999
800264	A	EDGINGTON OIL COMPANY	LONG BEACH	4.8	0.001	0.0	0.0	2002
101977	A	SIGNAL HILL PETROLEUM INC	LONG BEACH	4.7	ND	0.6	1.0	1998
3950	A	CROWN CORK & SEAL CO INC	LA MIRADA	4.6	ND	0.0	0.1	1997
83102	A	LIGHT METALS INC	INDUSTRY	4.5	0.01	0.0	2.7	2002
157451	A	VERNON MACHINE CORP, BENDER US DBA	VERNON	4.4	0.001	1.0	0.0	2002
800041	A	DOW CHEM U.S.A. (NSR USE)	TORRANCE	4.4	ND	0.1	0.0	2000
93346	A	WAYMIRE DRUM CO,INC.,S EL MONTE FACILITY	SOUTH EL MONTE	4.3	ND	0.1	0.2	1997
174591	A	TESORO REFINING & MARKETING CO LLC, CAL (c)	WILMINGTON	4.3	ND	0.1	0.2	1995
177042	A	SOLVAY USA, INC	LONG BEACH	4.3	ND	0.3	0.0	2001
124506	A	BOEING ELECTRON DYNAMIC DEVICES INC	TORRANCE	4.2	ND	0.5	0.1	1995
6459	OB	HONEYWELL INTERNATIONAL INC	VERNON	4.1	ND	0.0	0.0	1999
7533	A	HUGO NEU-PROLER CO	TERMINAL ISLAND	4.1		1.3	0.1	
18439	OB	ACE PLATING CO INC	LOS ANGELES	4.1	ND	0.6	0.2	1998
45489	A	ABBOTT CARDIOVASCULAR SYSTEMS, INC.	TEMECULA	3.8	0.01	1.3	0.0	2002
126060	A	STERIGENICS US, LLC	ONTARIO	3.8	0	0.0	0.0	2007
8820	A	REULAND ELECTRIC CO, H.BRITTON LEES	INDUSTRY	3.7	ND	0.0	0.0	1996
9114	I	SOMITEX PRINTS OF CAL INC	INDUSTRY	3.7	ND	0.1	0.0	1996
17325	A	ACE CLEARWATER ENTER.	PARAMOUNT	3.7	ND	0.0	0.0	2002
106838	A	VALLEY-TODECO, INC	SYLMAR	3.7	ND	0.2	0.2	2000
105598	A	SENIOR FLEXONICS INC/STAINLESS STEEL DVN	BURBANK	3.6	ND	1.0	0.5	2001
7427	A	OWENS-BROCKWAY GLASS CONTAINER INC	VERNON	3.6	0.02	0.0	0.1	1999
800007	OB	ALLIED SIGNAL INC (NSR USE ONLY)	EL SEGUNDO	3.6	ND	0.0	0.5	2000
126197	A	STERIGENICS US, INC.	LOS ANGELES	3.6	ND	0.0	0.0	1996
127568	A	ENGINEERED POLYMER SOLUTION, VALSPAR	MONTEBELLO	3.5	ND	0.1	0.5	2000
151899	A	VINTAGE PRODUCTION CALIFORNIA LLC	NEWHALL	3.5	ND	0.0	0.2	2000
140811	A	DUCOMMUN AEROSTRUCTURES INC	MONROVIA	3.5	0.01	0.0	0.0	2002
8015	A	ANADITE INC	SOUTH GATE	3.5	ND	0.6	0.8	1998
9163	A	INLAND EMPIRE UTL AGEN, A MUN WATER DIS	ONTARIO	3.4	ND	0.3	0.0	2007
57329	OB	KWIKSET CORP	ANAHEIM	3.4	ND	0.0	0.1	2000
151415	A	LINN WESTERN OPERATING, INC	BREA	3.4	ND	0.0	0.0	1999
800204	OB	SIMPSON PAPER CO	POMONA	3.4	ND	0.0	0.0	1996

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
153546	A	HUCK INTL INC. DBA ALCOA FASTENING SYS.	CARSON	3.3	ND	0.0	0.0	1999
126191	A	STERIGENICS US, INC.	LOS ANGELES	3.3	ND	0.0	0.0	1996
800063	A	GROVER PROD. CO (EIS USE)	LOS ANGELES	3.3	ND	0.9	0.1	2001
800189	A	DISNEYLAND RESORT	ANAHEIM	3.3	0.03	0.1	0.1	2009
18396	A	SPRAYLAT CORP	LOS ANGELES	3.2	0	0.7	0.0	2012
6384	A	LA CO., RANCHO LOS AMIGOS MEDICAL CENTER	DOWNEY	3.1	ND	0.0	0.1	1999
113676	A	VICKERS	LOS ANGELES	3.0	ND	0.0	0.0	1995
11435	A	THE PQ CORP	SOUTH GATE	3.0	ND	0.0	0.0	1998
174703	A	TESORO REFINING & MARKETING CO LLC CARSO	CARSON	3.0	ND	0.0	0.0	1994
10005	A	ELECTRONIC CHROME GRINDING CO INC	SANTA FE SPRINGS	3.0	0.01	0.2	0.1	2001
52517	A	REXAM PLC, REXAM BEVERAGE CAN COMPANY	CHATSWORTH	2.9	0.01	0.7	0.1	2009
18452	A	UCLA (REGENTS OF UC) (c)	LOS ANGELES	2.9	ND	0.0	0.1	1999
2613	A	US GOVT, NAVY DEPT,NAVAL WEAPONS STN	SEAL BEACH	2.9	ND	0.1	0.0	2002
116868	A	EQUILON ENT LLC/RIALTO TERMINAL	BLOOMINGTON	2.9	ND	0.0	0.0	1999
800035	A	CONTINENTAL AIRLINES INC (NSR USE ONLY)	LOS ANGELES	2.8	ND	0.0	0.1	1995
48274	A	FENDER MUSICAL INST	CORONA	2.8	ND	0.0	0.4	1997
151798	A	TESORO REFINING AND MARKETING CO	CARSON	2.8	ND	0.1	0.0	1999
167981	A	TESORO LOGISTICS OPERATIONS LLC	WILMINGTON	2.8	ND	0.0	0.0	2000
800030	A	CHEVRON PRODUCTS CO.	EL SEGUNDO	2.7	0.28	0.3	0.1	2001
5887	A	NEXGEN PHARMA INC	IRVINE	2.7	ND	0.0	0.0	1997
16642	A	ANHEUSER-BUSCH INC., (LA BREWERY)	VAN NUYS	2.7	ND	0.0	0.1	1999
25440	A	ROBERTSHAW CONTROLS CO, GRAYSON CONTROLS	LONG BEACH	2.7	ND	0.0	1.0	1998
27701	A	CADDOCK ELECTRONIC	RIVERSIDE	2.7	ND	0.0	0.1	2002
46268	A	CALIFORNIA STEEL INDUSTRIES INC	FONTANA	2.7	0.02	0.2	0.0	1995
137517	A	PACIFIC TERMINALS LLC	ETIWANDA	2.7	ND	0.0	0.2	2000
175191	A	FREEPORT-MCMORAN OIL & GAS	LOS ANGELES	2.7	ND	0.0	0.1	1997
35483	A	WARNER BROTHERS STUDIO FACILITIES	BURBANK	2.6	ND	0.1	0.3	1997
134943	A	ALCOA GLOBAL FASTENERS, INC. SOUTH BAY	TORRANCE	2.6	ND	0.6	0.0	2008
37507	A	TROJAN BATTERY COMPANY	SANTA FE SPRINGS	2.6	0.001	1.1	1.3	2012
7949	A	CUSTOM FIBERGLASS MFG CO/CUSTOM HARDTOP	LONG BEACH	2.5	ND	0.0	0.0	1995
65381	A	SFPP, L.P. (NSR USE)	CARSON	2.4	ND	0.0	0.1	1999
79682	A	RAMCAR BATTERIES INC	COMMERCE	2.4	1	0.0	0.2	1998
18508	A	AIR PROD & CHEM INC	LOS ANGELES	2.4	ND	0.1	0.8	1999
800202	A	UNIVERSAL STUDIOS INC (EIS USE)	UNIVERSAL CITY	2.4	ND	0.0	0.0	1996
800387	A	CAL INST OF TECH	PASADENA	2.4	ND	0.1	0.0	2007
172878	A	TESORO LOGISTICS OPERATIONS LLC LONG BEA	LONG BEACH	2.4	ND	0.0	0.0	1999

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
133405	A	BODYCOTE INC/BODYCOTE THERMAL PROCESSING	LOS ANGELES	2.4	ND	0.0	0.2	1999
800039	I	DOUGLAS PRODUCTS DIVISION	TORRANCE	2.4	ND	0.0	0.0	1996
1208	OB	MICROSEMI CORP	SANTA ANA	2.3	ND	0.0	0.0	2001
90546	OB	SORIN BIOMEDICAL INC	IRVINE	2.3	ND	0.0	0.0	1996
160437	A	SOUTHERN CALIFORNIA EDISON	SAN BERNARDINO	2.3	<0.01	<0.01	<0.01	2013
800056	A	KINDER MORGAN LIQUIDS TERMINALS, LLC	WILMINGTON	2.3	0.01	0.0	0.0	1997
800111	OB	THE BOEING COMPANY	DOWNEY	2.3	ND	0.0	0.1	1996
103659	OB	4MC-BURBANK, INC.	BURBANK	2.2	ND	0.6	0.0	2004
99773	A	CYTEC FIBERITE INC	ANAHEIM	2.2	0.0004	0.0	0.2	2000
9668	A	DELUXE LABORATORIES INC,DELUXE LABORATOR	HOLLYWOOD	2.1	ND	0.0	0.0	2000
40829	A	HAWKER PACIFIC INC	SUN VALLEY	2.1	0.0003	0.0	0.1	2009
142267	A	FS PRECISION TECH LLC	RANCHO DOMINGUEZ	2.0	ND	0.1	0.2	2001
800181	A	CALIFORNIA PORTLAND CEMENT CO (c)	COLTON	2.0	ND	0.0	0.4	1996
2605	A	3M PHARMACEUTICALS	NORTHRIDGE	2.0	ND	0.4	0.4	1996
14502	A	VERNON CITY, LIGHT & POWER DEPT	VERNON	2.0	0.0004	0.0	0.0	2007
54627	A	HICKORY SPRINGS OF CAL INC	COMMERCE	2.0	ND	0.0	0.5	1998
800325	A	TIDELANDS OIL PRODUCTION CO	LONG BEACH	1.9	ND	0.1	0.6	1999
10245	A	LA CITY,SANITATION BUREAU,TERMINAL ISLAN	SAN PEDRO	1.8	ND	0.0	0.0	2000
23559	OB	JOHNSON CONTROLS BATTERY GROUP INC	FULLERTON	1.8	ND	0.0	0.1	2001
800003	A	HONEYWELL INTERNATIONAL INC	TORRANCE	1.8	ND	0.0	0.0	1999
8309	A	CAMBRO MANUFACTURING CO	HUNTINGTON BEACH	1.7	ND	0.0	0.1	2000
22467	A	LEFIELL MFG CO	SANTA FE SPRINGS	1.7	ND	0.7	0.2	2000
82512	A	BREA CANON OIL CO	WILMINGTON	1.7	ND	0.0	0.0	1996
119907	A	BERRY PETROLEUM COMPANY	SANTA CLARITA	1.6	ND	0.2	0.7	1999
119920	A	PECHINEY CAST PLATE INC	VERNON	1.6	ND	0.3	0.3	1996
133660	A	HAYDEN INDUSTRIAL PRODUCTS	CORONA	1.6	ND	0.8	0.4	1998
107350	A	NATIONAL O-RINGS	DOWNEY	1.5	ND	0.0	0.0	2001
2638	A	OCCIDENTAL COLLEGE	LOS ANGELES	1.5	ND	0.1	0.0	2007
126536	A	CONSOLIDATED FOUNDRIES - POMONA	POMONA	1.5	ND	0.0	0.0	1999
25070	A	LA CO., SANITATION DISTRICT (c)	WHITTIER	1.5	0.003	0.3	0.1	2009
82513	A	BREA CANON OIL COMPANY INC	HARBOR CITY	1.4	ND	0.0	0.0	1996
800408	A	NORTHROP GRUMMAN SPACE & MISSION SYSTEMS	MANHATTAN BEACH	1.4	ND	0.9	0.1	1998
3968	A	TABC, INC	LONG BEACH	1.4	ND	0.1	0.2	1999
62679	A	KOP-COAT INC	VERNON	1.3	ND	0.0	0.5	1997
126544	A	PAC FOUNDRIES-INDUSTRY	INDUSTRY	1.3	ND	0.6	0.1	1996
161300	A	SAPA EXTRUDER, INC	INDUSTRY	1.3	ND	0.0	0.0	1999

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
2526	A	CHEVRON PRODUCTS CO	VAN NUYS	1.3	ND	0.0	0.0	1996
22551	A	THUMS LONG BEACH CO	SAN PEDRO	1.2	ND	0.0	0.0	2000
42633	A	LA CO., SANITATION DIST	POMONA	1.2	ND	0.0	0.0	1996
106009	A	VENOCO INC.	BEVERLY HILLS	1.2	ND	0.0	0.0	2005
152054	A	LINN WESTERN OPERATING INC	BREA	1.1	ND	0.0	0.1	1996
42514	A	LA CO.,SANITATION DIST,CALABASAS LNDFILL	AGOURA	1.1	0	0.1	0.0	2010
124806	OB	EXIDE TECHNOLOGIES	INDUSTRY	1.0	ND	0.0	0.0	1999
800127	A	SO CAL GAS CO (EIS USE)	MONTEBELLO	1.0	0	0.0	0.0	2009
7730	A	CARPENTER CO	RIVERSIDE	1.0	ND	0.0	1.3	2003
20375	A	PRUDENTIAL OVERALL SUPPLY	RIVERSIDE	1.0	ND	0.0	0.1	1997
6670	A	TRU CUT INC	LOS ANGELES	< 1	ND	0.0	0.0	2002
22808	I	PRICE PFISTER INC	PACOIMA	0.9	ND	0.2	0.1	1996
47056	OB	MYERS CONTAINER CORP, IMACC CORP DIV	HUNTINGTON PARK	0.9	ND	0.2	2.0	2002
5177	A	ITT GILFILLAN UNIT NO.02	VAN NUYS	0.9	ND	0.1	0.2	1998
3134	A	THUMS LONG BEACH CO, UNIT NO.05	SAN PEDRO	0.8	ND	0.0	0.0	1996
18378	A	GRUBER SYS INC	VALENCIA	0.8	ND	0.1	0.1	2004
22556	A	THUMS LONG BEACH CO, UNIT NO.02	SAN PEDRO	0.8	ND	0.0	0.0	1996
111415	A	VAN CAN COMPANY	FONTANA	0.8	ND	0.0	0.1	1996
14544	OB	SANTA FE ENAMELING & METAL FINISHING CO	SANTA FE SPRINGS	0.8	ND	0.0	0.4	1999
120088	A	BREITBURN ENERGY COMPANY, LLC	SANTA FE SPRINGS	0.8	ND	0.0	0.0	1998
118406	A	CARSON COGENERATION COMPANY	CARSON	0.8	ND	0.2	0.0	2007
126964	A	EDWARDS LIFESCIENCES LLC	IRVINE	0.8	ND	0.0	0.0	1995
22373	A	JEFFERSON SMURFIT CORPORATION (U.S.)	LOS ANGELES	0.7	ND	0.0	0.0	1996
24060	A	TOMKINS INDUSTRIES INC-LASCO PRODS GROUP	ANAHEIM	0.7	ND	0.0	0.0	1996
800091	A	MOBIL OIL CORP (NSR USE ONLY)	ANAHEIM	0.7	ND	0.0	0.0	1999
772	A	DEFT INC	IRVINE	0.7	ND	0.0	0.0	1995
24756	A	CRANE CO, HYDRO-AIRE DIV	BURBANK	0.6	ND	0.0	0.1	1997
115394	A	AES ALAMITOS, LLC	LONG BEACH	0.6	ND	0.0	0.0	1999
134931	A	ALCOA GLOBAL FASTENERS, INC.	FULLERTON	0.6	ND	1.9	0.0	1997
800327	A	GLENDALE CITY, GLENDALE WATER & POWER	GLENDALE	0.6	ND	0.0	0.0	1999
15647	A	CUSTOM ENAMELERS INC	FOUNTAIN VALLEY	0.6	ND	0.1	0.0	2000
3093	A	LA CO., OLIVE VIEW/UCLA MEDICAL CENTER	SYLMAR	0.5	ND	0.0	0.0	1999
21895	A	AC PRODUCTS INC	PLACENTIA	0.5	ND	0.0	0.0	2003
6281	A	US GOVT,MARINE CORPS AIR STATION,EL TORO	SANTA ANA	0.5	ND	0.0	0.0	1996
1634	OB	STEELCASE INC, WESTERN DIV	TUSTIN	0.5	ND	0.0	0.0	1995
39388	A	THUMS LONG BEACH CO, UNIT NO.03	SAN PEDRO	0.5	ND	0.0	0.0	1996

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
61160	A	GE ENGINE SERVICES	ONTARIO	0.5	ND	0.7	0.0	2003
800267	A	TRIUMPH PROCESSING, INC.	LYNWOOD	0.5	0	0.1	0.4	2012
152501	A	PRECISION SPECIALTY METALS INC	LOS ANGELES	0.5	ND	0.4	0.2	2001
43436	A	TST, INC.	FONTANA	0.4	0.11	0.0	0.4	1997
18990	A	LIFE PAINT CO	SANTA FE SPRINGS	0.4	ND	0.0	0.0	2001
12660	I	GOLDSHIELD FIBERGLASS, INC, PLANT #58	FONTANA	0.4	ND	0.0	0.0	1994
44577	A	LONG BEACH CITY, SERRF PROJECT	LONG BEACH	0.4	0	0.0	0.1	2011
115536	A	AES REDONDO BEACH, LLC	REDONDO BEACH	0.4	ND	0.0	0.0	1998
122295	A	FALCON FOAM, A DIV OF ATLAS ROOFING CORP	LOS ANGELES	0.4	ND	0.0	0.0	1999
115663	A	EL SEGUNDO POWER, LLC	EL SEGUNDO	0.3	ND	0.0	0.0	2000
25638	A	BURBANK CITY, PUB SERV DEPT	BURBANK	0.3	ND	0.3	0.0	1996
124805	A	EXIDE TECHNOLOGIES	COMMERCE	0.3	ND	0.0	0.0	2000
112192	OB	CONSOLIDATED DRUM RECONDITIONING CO INC	SOUTH GATE	0.3	ND	0.0	0.0	1997
550	A	LA CO., INTERNAL SERVICE DEPT	LOS ANGELES	0.3	ND	0.0	0.0	2008
800343	A	BOEING SATELLITE SYSTEMS, INC	EL SEGUNDO	0.3	ND	0.0	0.2	1996
24520	A	LA CO, SANITATION DISTRICTS	ROLLING HILLS ESTATE	0.3	ND	0.0	0.0	1998
99119	A	INTERPLASTIC CORP	HAWTHORNE	0.3	ND	0.1	0.3	1999
122300	A	BASF CORPORATION	COLTON	0.3	ND	0.6	0.0	2002
19989	OB	PARKER HANNIFIN AEROSPACE CORP	IRVINE	0.3	ND	0.0	0.0	1999
107149	A	MARKLAND MANUFACTURING INC	SANATA ANA	0.3	ND	0.1	0.1	2007
161142	A	FOAMEX INNOVATIONS, INC.	COMPTON	0.3	0	0.0	0.0	2010
16264	A	INTL COATINGS CO INC	CERRITOS	0.2	ND	0.0	0.0	1999
800074	A	LA CITY, DWP HAYNES GENERATING STATION	LONG BEACH	0.2	ND	0.0	0.0	2000
48300	A	PRECISION TUBE BENDING	SANTA FE SPRINGS	0.2	ND	0.0	0.0	2002
800168	A	PASADENA CITY, DWP (EIS USE)	PASADENA	0.2	ND	0.7	0.0	1996
800193	A	LA CITY, DWP VALLEY GENERATING STATION	SUN VALLEY	0.2	ND	0.3	0.0	1999
37336	A	COMMERCE REFUSE TO ENERGY FACILITY	COMMERCE	0.1	0	0.0	0.0	2010
42676	A	AES PLACERITA INC	NEWHALL	0.1	ND	0.1	0.0	2003
114801	A	RHODIA INC.	LONG BEACH	0.1	ND	0.0	0.1	2006
115389	A	AES HUNTINGTON BEACH, LLC	HUNTINGTON BEACH	0.1	ND	0.0	0.0	1999
7416	A	PRAXAIR INC	WILMINGTON	0.1	ND	0.0	0.0	2001
1992	A	PRUDENTIAL OVERALL SUPPLY	VAN NUYS	0.1	ND	0.0	0.0	1997
16044	I	SPECIALTY ORGANICS, INC.	IRWINDALE	0.1	ND	0.0	0.2	1997
24812	A	FARMER BROS CO	TORRANCE	0.1	ND	0.0	0.0	1999
25012	A	AMADA MFG AMERICA, INC	LA MIRADA	0.1	ND	0.0	0.0	2002
94872	A	METAL CONTAINER CORP	MIRA LOMA	0.1	ND	0.4	0.4	2002

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
111110	A	BRISTOL FIBERLITE INDUSTRIES, INC	SANTA ANA	0.1	ND	0.0	0.0	1995
24118	A	DEVOE COATINGS CO	RIVERSIDE	0.1	ND	0.3	0.1	1999
156741	A	HARBOR COGENERATION CO	WILMINGTON	0.1	ND	0.0	0.0	2002
20144	OB	CANON BUSINESS MACHINES INC	COSTA MESA	0.0	ND	0.0	0.1	1999
800320	A	AMVAC CHEMICAL CORP	LOS ANGELES	0.0	ND	0.1	0.3	2004
14217	OB	MODERN FAUCET MFG COMPANY	LOS ANGELES	0.0	ND	0.0	0.5	1996
45938	A	E.M.E. INC/ELECTRO MACHINE & ENGINEERING	COMPTON	0.0	ND	0.0	0.0	1999
117785	A	BALL METAL BEVERAGE CONTAINER CORP.	TORRANCE	0.0	ND	0.2	0.9	2001
22229	A	PROCESSES BY MARTIN INC	LYNWOOD	0.0	ND	0.0	0.0	2002
800075	A	LA CITY, DWP SCATTERGOOD GENERATING STA	PLAYA DEL REY	0.0	ND	0.0	0.0	2000
160150	A	ERGON ASPHALT & EMULSIONS, INC.	FONTANA	0.0	ND	0.3	0.0	1999
115586	A	SUNDANCE SPAS, INC	CHINO	0.0	ND	0.0	0.4	1996
51620	A	WHEELABRATOR NORWALK ENERGY CO INC	NORWALK	0.0	ND	0.0	0.0	1996
61743	A	AMERON STEEL FABRICATION DIVISION	FONTANA	0.0	ND	0.2	0.2	2000
55711	A	SUNLAW COGENERATION PARTNERS I	VERNON	0.0	ND	0.0	0.0	1996
124016	A	OAKLITE PRODUCTS (BRENT AMERICA, INC./ LEEDER ARDOX)	LA MIRADA	0.0	ND	0.1	0.1	2000
55714	A	SUNLAW COGENERATION PARTNERS I	VERNON	0.0	ND	0.0	0.0	1996
119127	A	PRC-DE SOTO INTERNATIONAL	GLENDALE	0.0	ND	0.0	0.0	2000
809	A	GARNER GLASS CO	CLAREMONT	0.0	ND	0.0	0.0	1996
1732	OB	INTL ELECTRONIC RESEARCH CORP	BURBANK	0.0	ND	0.0	0.0	1996
1746	A	UNITED ALLOYS INC	LOS ANGELES	0.0	ND	0.0	0.0	1998
3084	A	CARDINAL INDUSTRIAL FINISHES INC	SOUTH EL MONTE	0.0	ND	0.0	0.0	1996
3100	A	BAXTER HEALTHCARE CORP, I V SYSTEMS	IRVINE	0.0	ND	0.0	0.4	1994
3578	A	PRUDENTIAL OVERALL SUPPLY	CARSON	0.0	ND	0.0	0.0	1995
4616	OB	SUPERIOR IND INTL INC	VAN NUYS	0.0	ND	0.0	0.4	1997
5125	OB	UTILITY TRAILER MFG CO	INDUSTRY	0.0	ND	0.0	0.3	1996
5645	OB	STANDARD NICKEL CHROMIUM PLATING CO INC	LOS ANGELES	0.0	ND	0.0	0.0	1999
6163	A	OHLINE	GARDENA	0.0	ND	0.3	0.7	1996
6315	A	FLO-KEM, INC.	RANCHO DOMINGUEZ	0.0	ND	0.0	0.6	1999
6362	OB	JACUZZI WHIRLPOOL BATH INC	SANTA ANA	0.0	ND	0.0	0.0	1995
7010	A	PRUDENTIAL OVERALL SUPPLY	IRVINE	0.0	ND	0.0	0.0	1995
8560	A	PRUDENTIAL OVERALL SUPPLY CO	COMMERCE	0.0	ND	0.2	0.4	1995
8935	A	TRAIL RITE INC	SANTA ANA	0.0	ND	0.0	0.3	1996
10656	A	NEWPORT LAMINATES	SANTA ANA	0.0	ND	0.0	0.0	1996
12493	A	REMO INC	NORTH HOLLYWOOD	0.0	ND	0.0	0.0	1997
12879	OB	CYTEC ENGINEERED MATERIALS, INC	SAUGUS	0.0	ND	0.0	0.0	1994

Appendix A-1. Continued.

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
14191	I	NIKLOR CHEMICAL COMPANY INC	CARSON	0.0	ND	0.0	0.0	2002
19953	OB	RISTON KELLER INC	IRVINE	0.0	ND	0.0	0.0	1996
21544	A	US GOVT, MARINE CORPS AIR STA @BLD	Tustin	0.0	ND	0.0	0.0	2000
22092	A	WESTERN TUBE & CONDUIT CORP	LONG BEACH	0.0	ND	0.0	0.6	1997
24647	A	J. B. I. INC	COMPTON	0.0	ND	0.0	0.2	1999
40806	A	NEW BASIS	RIVERSIDE	0.0	ND	0.7	0.2	1997
47459	OB	JACUZZI WHIRLPOOL BATH	IRVINE	0.0	ND	0.0	0.0	1995
51849	A	ELIMINATOR CUSTOM BOATS	MIRA LOMA	0.0	ND	0.0	0.0	1995
61209	OB	AKZO NOBEL CHEM INC, FILTROL CORP SUB OF	LOS ANGELES	0.0	ND	0.0	0.0	1996
70021	A	XERXES CORP (A DELAWARE CORP)	ANAHEIM	0.0	ND	0.0	0.0	1996
132343	A	SPECTRUM PAINT & POWDER, INC.	ANAHEIM	0.0	ND	0.2	0.7	1997
144677	A	PRATT & WHITNEY ROCKETDYNE/RUBY ACQ ENT	CANOGA PARK	0.0	ND	0.0	0.0	1996
149241	A	REGAL CULTURED MARBLE	POMONA	0.0	ND	0.0	0.2	1995
160916	A	FOAMEX INNOVATIONS, INC.	ORANGE	0.0	ND	0.4	0.4	1994
800087	A	MENASCO MFG CO (EIS USE)	BURBANK	0.0	ND	0.0	0.0	1997
800273	OB	CHEMOIL REF CORP (NSR USE ONLY)	SIGNAL HILL	0.0	ND	0.0	0.0	2000
800337	OB	CHEVRON U.S.A., INC (NSR USE)	LA HABRA	0.0	ND	0.0	0.0	1996

Notes:

- (a) A = Active; I = Inactive; OB = Out of Business (with the year in which the facility went out of business)
- (b) The specific risk driver listed in this HRA is no longer in use & the resulting risk has been eliminated or minimized.
- (c) SCAQMD staff has requested these facilities to update their HRAs.
- (d) This includes risk attributable to the emergency DICE. The total facility risks excluding the emergency DICE are less than 10 in a million.
- (e) All HRAs with HRA Approval Year dated 2015 and later have used the revised OEHHA Guidelines for preparation of their HRA.

APPENDIX A-2
Health Risks from Facilities with an Approved HRA
(listed by Facility ID)

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
550	A	LA CO., INTERNAL SERVICE DEPT	LOS ANGELES	0.3	ND	0.0	0.0	2008
772	A	DEFT INC	IRVINE	0.7	ND	0.0	0.0	1995
809	A	GARNER GLASS CO	CLAREMONT	0.0	ND	0.0	0.0	1996
1208	OB	MICROSEMI CORP	SANTA ANA	2.3	ND	0.0	0.0	2001
1226	A	HYATT DIE CAST & ENGINEERING CORP	CYPRESS	6.2	ND	0.0	0.1	1996
1634	OB	STEELCASE INC, WESTERN DIV	TUSTIN	0.5	ND	0.0	0.0	1995
1732	OB	INTL ELECTRONIC RESEARCH CORP	BURBANK	0.0	ND	0.0	0.0	1996
1744	A	KIRKHILL RUBBER CO	BREA	8.7	0.001	0.2	0.1	2007
1746	A	UNITED ALLOYS INC	LOS ANGELES	0.0	ND	0.0	0.0	1998
1992	A	PRUDENTIAL OVERALL SUPPLY	VAN NUYS	0.1	ND	0.0	0.0	1997
2526	A	CHEVRON PRODUCTS CO	VAN NUYS	1.3	ND	0.0	0.0	1996
2605	A	3M PHARMACEUTICALS	NORTHRIDGE	2.0	ND	0.4	0.4	1996
2613	A	US GOVT, NAVY DEPT,NAVAL WEAPONS STN	SEAL BEACH	2.9	ND	0.1	0.0	2002
2638	A	OCCIDENTAL COLLEGE	LOS ANGELES	1.5	ND	0.1	0.0	2007
2680	A	LA CO., SANITATION DISTRICT	WHITTIER	8.6	ND	0.0	0.0	1999
2852	A	THE WALT DISNEY COMPANY	BURBANK	6.4	0.03	0.0	0.0	1997
3084	A	CARDINAL INDUSTRIAL FINISHES INC	SOUTH EL MONTE	0.0	ND	0.0	0.0	1996
3093	A	LA CO., OLIVE VIEW/UCLA MEDICAL CENTER	SYLMAR	0.5	ND	0.0	0.0	1999
3100	A	BAXTER HEALTHCARE CORP, I V SYSTEMS	IRVINE	0.0	ND	0.0	0.4	1994
3134	A	THUMS LONG BEACH CO, UNIT NO.05	SAN PEDRO	0.8	ND	0.0	0.0	1996
3578	A	PRUDENTIAL OVERALL SUPPLY	CARSON	0.0	ND	0.0	0.0	1995
3609	I	AL'S PLATING CO INC	LOS ANGELES	7.8	ND	0.3	0.2	1999
3950	A	CROWN CORK & SEAL CO INC	LA MIRADA	4.6	ND	0.0	0.1	1997
3968	A	TABC, INC	LONG BEACH	1.4	ND	0.1	0.2	1999
4477	A	SO CAL EDISON CO	AVALON	6.3	0.02	0.0	0.0	2012
4616	OB	SUPERIOR IND INTL INC	VAN NUYS	0.0	ND	0.0	0.4	1997
5125	OB	UTILITY TRAILER MFG CO	INDUSTRY	0.0	ND	0.0	0.3	1996
5177	A	ITT GILFILLAN UNIT NO.02	VAN NUYS	0.9	ND	0.1	0.2	1998
5645	OB	STANDARD NICKEL CHROMIUM PLATING CO INC	LOS ANGELES	0.0	ND	0.0	0.0	1999
5723	A	DUCOMMUN AEROSTRUCTURES INC	ORANGE	6.7	ND	0.0	0.1	1999
5887	A	NEXGEN PHARMA INC	IRVINE	2.7	ND	0.0	0.0	1997
6163	A	OHLINE	GARDENA	0.0	ND	0.3	0.7	1996

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
6281	A	US GOVT,MARINE CORPS AIR STATION,EL TORO	SANTA ANA	0.5	ND	0.0	0.0	1996
6315	A	FLO-KEM, INC.	RANCHO DOMINGUEZ	0.0	ND	0.0	0.6	1999
6362	OB	JACUZZI WHIRLPOOL BATH INC	SANTA ANA	0.0	ND	0.0	0.0	1995
6384	A	LA CO., RANCHO LOS AMIGOS MEDICAL CENTER	DOWNEY	3.1	ND	0.0	0.1	1999
6459	OB	HONEYWELL INTERNATIONAL INC	VERNON	4.1	ND	0.0	0.0	1999
6643	A	TECHNICOLOR INC	NORTH HOLLYWOOD	6.5	ND	0.0	0.1	2007
6670	A	TRU CUT INC	LOS ANGELES	< 1	ND	0.0	0.0	2002
7010	A	PRUDENTIAL OVERALL SUPPLY	IRVINE	0.0	ND	0.0	0.0	1995
7416	A	PRAXAIR INC	WILMINGTON	0.1	ND	0.0	0.0	2001
7427	A	OWENS-BROCKWAY GLASS CONTAINER INC	VERNON	3.6	0.02	0.0	0.1	1999
7533	A	HUGO NEU-PROLER CO	TERMINAL ISLAND	4.1		1.3	0.1	
7730	A	CARPENTER CO	RIVERSIDE	1.0	ND	0.0	1.3	2003
7949	A	CUSTOM FIBERGLASS MFG CO/CUSTOM HARDTOP	LONG BEACH	2.5	ND	0.0	0.0	1995
8015	A	ANADITE INC	SOUTH GATE	3.5	ND	0.6	0.8	1998
8309	A	CAMBRO MANUFACTURING CO	HUNTINGTON BEACH	1.7	ND	0.0	0.1	2000
8547	A	QUEMETCO INC (c)	INDUSTRY	8.10	0.66	0.11	0.83	2016
8560	A	PRUDENTIAL OVERALL SUPPLY CO	COMMERCE	0.0	ND	0.2	0.4	1995
8578	OB	ASSOCIATED CONCRETE PROD. INC	SANTA ANA	5.8	ND	0.1	0.6	1999
8820	A	REULAND ELECTRIC CO, H.BRITTON LEES	INDUSTRY	3.7	ND	0.0	0.0	1996
8935	A	TRAIL RITE INC	SANTA ANA	0.0	ND	0.0	0.3	1996
9114	I	SOMITEX PRINTS OF CAL INC	INDUSTRY	3.7	ND	0.1	0.0	1996
9163	A	INLAND EMPIRE UTL AGEN, A MUN WATER DIS	ONTARIO	3.4	ND	0.3	0.0	2007
9668	A	DELUXE LABORATORIES INC,DELUXE LABORATOR	HOLLYWOOD	2.1	ND	0.0	0.0	2000
10005	A	ELECTRONIC CHROME GRINDING CO INC	SANTA FE SPRINGS	3.0	0.01	0.2	0.1	2001
10245	A	LA CITY,SANITATION BUREAU,TERMINAL ISLAN	SAN PEDRO	1.8	ND	0.0	0.0	2000
10510	A	GREGG INDUSTRIES INC	EL MONTE	9.4	ND	0.6	0.6	2008
10656	A	NEWPORT LAMINATES	SANTA ANA	0.0	ND	0.0	0.0	1996
11142	OB	KEYSOR-CENTURY CORP	SAUGUS	17.0	ND	0.5	0.1	2000
11192	A	HI-SHEAR CORPORATION	TORRANCE	4.8	ND	0.0	0.0	2008
11435	A	THE PQ CORP	SOUTH GATE	3.0	ND	0.0	0.0	1998
11726	A	GE ENGINE SERVICES	ONTARIO	6.5	ND	0.1	0.6	1999
11818	A	HIXSON METAL FINISHING	NEWPORT BEACH	1502.0	1.09	0.2	0.1	2015
12493	A	REMO INC	NORTH HOLLYWOOD	0.0	ND	0.0	0.0	1997
12660	I	GOLDSHIELD FIBERGLASS, INC, PLANT #58	FONTANA	0.4	ND	0.0	0.0	1994
12879	OB	CYTEC ENGINEERED MATERIALS, INC	SAUGUS	0.0	ND	0.0	0.0	1994

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
13920	A	ST. JOSPEH HOSPITAL	ORANGE	7.7	0.004	0.8	0.3	2008
14146	A	MAC GREGOR YACHT CORP	COSTA MESA	5.5	ND	0.0	0.1	1998
14191	I	NIKLOR CHEMICAL COMPANY INC	CARSON	0.0	ND	0.0	0.0	2002
14217	OB	MODERN FAUCET MFG COMPANY	LOS ANGELES	0.0	ND	0.0	0.5	1996
14495	A	VISTA METALS CORP	FONTANA	19.8	0.06	0.0	0.3	2008
14502	A	VERNON CITY, LIGHT & POWER DEPT	VERNON	2.0	0.0004	0.0	0.0	2007
14544	OB	SANTA FE ENAMELING & METAL FINISHING CO	SANTA FE SPRINGS	0.8	ND	0.0	0.4	1999
15504	A	SCHLOSSER FORGE CO	RANCHO CUCAMONGA	9.5	ND	1.6	1.1	2002
15647	A	CUSTOM ENAMELERS INC	FOUNTAIN VALLEY	0.6	ND	0.1	0.0	2000
15736	A	HENRY CO	HUNTINGTON PARK	8.5	ND	0.0	0.0	2000
16044	I	SPECIALTY ORGANICS, INC.	IRWINDALE	0.1	ND	0.0	0.2	1997
16264	A	INTL COATINGS CO INC	CERRITOS	0.2	ND	0.0	0.0	1999
16642	A	ANHEUSER-BUSCH INC., (LA BREWERY)	VAN NUYS	2.7	ND	0.0	0.1	1999
16660	A	THE BOEING COMPANY	HUNTINGTON BEACH	6.39	0.02	0.01	0.08	2015
17301	A	ORANGE, COUNTY OF - SANITATION DISTRICT	FOUNTAIN VALLEY	6.6	0.001	0.4	0.3	2007
17325	A	ACE CLEARWATER ENTER.	PARAMOUNT	3.7	ND	0.0	0.0	2002
18294	A	NORTHROP GRUMMAN CORP, AIRCRAFT DIV	EL SEGUNDO	7.6	ND	0.1	0.1	1999
18378	A	GRUBER SYS INC	VALENCIA	0.8	ND	0.1	0.1	2004
18396	A	SPRAYLAT CORP	LOS ANGELES	3.2	0	0.7	0.0	2012
18439	OB	ACE PLATING CO INC	LOS ANGELES	4.1	ND	0.6	0.2	1998
18452	A	UCLA (REGENTS OF UC) (c)	LOS ANGELES	2.9	ND	0.0	0.1	1999
18508	A	AIR PROD & CHEM INC	LOS ANGELES	2.4	ND	0.1	0.8	1999
18648	OB	CROWN CITY PLATING CO.	EL MONTE	12.0	ND	0.4	0.1	2000
18931	A	GERDAU	RANCHO CUCAMONGA	52.7	3.08	3.0	3.2	2015
18989	A	BOWMAN PLATING CO INC	COMPTON	97.72	0.10	0.07	0.10	2015
18990	A	LIFE PAINT CO	SANTA FE SPRINGS	0.4	ND	0.0	0.0	2001
19953	OB	RISTON KELLER INC	IRVINE	0.0	ND	0.0	0.0	1996
19989	OB	PARKER HANNIFIN AEROSPACE CORP	IRVINE	0.3	ND	0.0	0.0	1999
20144	OB	CANON BUSINESS MACHINES INC	COSTA MESA	0.0	ND	0.0	0.1	1999
20197	A	LAC/USC MEDICAL CENTER	LOS ANGELES	7.5	ND	0.7	0.4	2007
20280	A	METAL SURFACES INC	BELL GARDENS	6.8	0	0.9	0.3	2011
20375	A	PRUDENTIAL OVERALL SUPPLY	RIVERSIDE	1.0	ND	0.0	0.1	1997
21544	A	US GOVT, MARINE CORPS AIR STA @BLD	Tustin	0.0	ND	0.0	0.0	2000
21615	OB	PERKINELMER OPTOELECTRONICS SC, INC	AZUSA	8.1	ND	0.2	0.1	1998
21895	A	AC PRODUCTS INC	PLACENTIA	0.5	ND	0.0	0.0	2003

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
22092	A	WESTERN TUBE & CONDUIT CORP	LONG BEACH	0.0	ND	0.0	0.6	1997
22229	A	PROCESSES BY MARTIN INC	LYNWOOD	0.0	ND	0.0	0.0	2002
22373	A	JEFFERSON SMURFIT CORPORATION (U.S.)	LOS ANGELES	0.7	ND	0.0	0.0	1996
22410	A	PALACE PLATING	LOS ANGELES	5.6	ND	0.7	0.4	2004
22467	A	LEFIELL MFG CO	SANTA FE SPRINGS	1.7	ND	0.7	0.2	2000
22551	A	THUMS LONG BEACH CO	SAN PEDRO	1.2	ND	0.0	0.0	2000
22556	A	THUMS LONG BEACH CO, UNIT NO.02	SAN PEDRO	0.8	ND	0.0	0.0	1996
22808	I	PRICE PFISTER INC	PACOIMA	0.9	ND	0.2	0.1	1996
23559	OB	JOHNSON CONTROLS BATTERY GROUP INC	FULLERTON	1.8	ND	0.0	0.1	2001
23907	A	JOHNS MANVILLE CORP	CORONA	13.0	ND	0.4	2.7	1999
24060	A	TOMKINS INDUSTRIES INC-LASCO PRODS GROUP	ANAHEIM	0.7	ND	0.0	0.0	1996
24118	A	DEVOE COATINGS CO	RIVERSIDE	0.1	ND	0.3	0.1	1999
24520	A	LA CO, SANITATION DISTRICTS	ROLLING HILLS ESTATE	0.3	ND	0.0	0.0	1998
24647	A	J. B. I. INC	COMPTON	0.0	ND	0.0	0.2	1999
24756	A	CRANE CO, HYDRO-AIRE DIV	BURBANK	0.6	ND	0.0	0.1	1997
24812	A	FARMER BROS CO	TORRANCE	0.1	ND	0.0	0.0	1999
25012	A	AMADA MFG AMERICA, INC	LA MIRADA	0.1	ND	0.0	0.0	2002
25070	A	LA CO., SANITATION DISTRICT (c)	WHITTIER	1.5	0.003	0.3	0.1	2009
25440	A	ROBERTSHAW CONTROLS CO, GRAYSON CONTROLS	LONG BEACH	2.7	ND	0.0	1.0	1998
25638	A	BURBANK CITY, PUB SERV DEPT	BURBANK	0.3	ND	0.3	0.0	1996
27343	OB	CON AGRA INC, GILROY FOODS DBA	SANTA ANA	7.1	ND	0.2	0.1	1995
27701	A	CADDOCK ELECTRONIC	RIVERSIDE	2.7	ND	0.0	0.1	2002
29110	A	ORANGE, COUNTYOF - SANITATION DISTRICT (d)	HUNTINGTON BEACH	10.7	ND	1.8	0.5	2007
34764	A	CADDOCK ELECTRONICS INC	RIVERSIDE	6.5		0.0	0.1	
35302	A	OWENS CORNING (c)	COMPTON	14.0	0.02	0.1	0.1	2000
35483	A	WARNER BROTHERS STUDIO FACILITIES	BURBANK	2.6	ND	0.1	0.3	1997
37336	A	COMMERCE REFUSE TO ENERGY FACILITY	COMMERCE	0.1	0	0.0	0.0	2010
37507	A	TROJAN BATTERY COMPANY	SANTA FE SPRINGS	2.6	0.001	1.1	1.3	2012
37603	A	SGL TECHNIC INC, POLYCARBON DIVISION	VALENCIA	7.8	ND	0.0	0.4	1998
38971	A	RICOH ELECTRONICS INC	IRVINE	5.6	ND	0.0	0.4	1995
39388	A	THUMS LONG BEACH CO, UNIT NO.03	SAN PEDRO	0.5	ND	0.0	0.0	1996
40806	A	NEW BASIS	RIVERSIDE	0.0	ND	0.7	0.2	1997
40829	A	HAWKER PACIFIC INC	SUN VALLEY	2.1	0.0003	0.0	0.1	2009
41229	A	LUBECO INC	LONG BEACH	14.0	ND	0.0	0.1	2002
42514	A	LA CO.,SANITATION DIST,CALABASAS LND FILL	AGOURA	1.1	0	0.1	0.0	2010

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
42633	A	LA CO., SANITATION DIST	POMONA	1.2	ND	0.0	0.0	1996
42676	A	AES PLACERITA INC	NEWHALL	0.1	ND	0.1	0.0	2003
42922	OB	CMC PRINTED BAG INC	WHITTIER	9.0	ND	0.0	0.0	1995
43201	A	SNOW SUMMIT INC	BIG BEAR LAKE	5.5	ND	0.2	0.0	2007
43436	A	TST, INC.	FONTANA	0.4	0.11	0.0	0.4	1997
44454	A	STRUCTURAL COMPOSITES IND	POMONA	8.6	0.001	0.0	0.2	2002
44577	A	LONG BEACH CITY, SERRF PROJECT	LONG BEACH	0.4	0	0.0	0.1	2011
45262	A	LA CO, SANITATION DISTRICT UNIT NO.02	GLENDALE	6.2	ND	0.0	0.1	1998
45489	A	ABBOTT CARDIOVASCULAR SYSTEMS, INC.	TEMECULA	3.8	0.01	1.3	0.0	2002
45938	A	E.M.E. INC/ELECTRO MACHINE & ENGINEERING	COMPTON	0.0	ND	0.0	0.0	1999
46268	A	CALIFORNIA STEEL INDUSTRIES INC	FONTANA	2.7	0.02	0.2	0.0	1995
47056	OB	MYERS CONTAINER CORP, IMACC CORP DIV	HUNTINGTON PARK	0.9	ND	0.2	2.0	2002
47459	OB	JACUZZI WHIRLPOOL BATH	IRVINE	0.0	ND	0.0	0.0	1995
48274	A	FENDER MUSICAL INST	CORONA	2.8	ND	0.0	0.4	1997
48300	A	PRECISION TUBE BENDING	SANTA FE SPRINGS	0.2	ND	0.0	0.0	2002
48323	A	SIGMA PLATING CO INC	LA PUENTE	13.8	ND	0.0	0.7	2001
49387	A	UNIV CAL, RIVERSIDE	RIVERSIDE	7.1	ND	0.0	0.0	1999
51620	A	WHEELABRATOR NORWALK ENERGY CO INC	NORWALK	0.0	ND	0.0	0.0	1996
51849	A	ELIMINATOR CUSTOM BOATS	MIRA LOMA	0.0	ND	0.0	0.0	1995
52517	A	REXAM PLC, REXAM BEVERAGE CAN COMPANY	CHATSWORTH	2.9	0.01	0.7	0.1	2009
54424	A	L & L CUSTOM SHUTTERS	PLACENTIA	5.5	ND	0.2	0.2	2001
54627	A	HICKORY SPRINGS OF CAL INC	COMMERCE	2.0	ND	0.0	0.5	1998
55711	A	SUNLAW COGENERATION PARTNERS I	VERNON	0.0	ND	0.0	0.0	1996
55714	A	SUNLAW COGENERATION PARTNERS I	VERNON	0.0	ND	0.0	0.0	1996
57094	A	GS ROOFING PRODUCTS CO, INC/CERTAINTEED (c)	WILMINGTON	7.0	ND	0.0	0.0	2000
57329	OB	KWIKSET CORP	ANAHEIM	3.4	ND	0.0	0.1	2000
61160	A	GE ENGINE SERVICES	ONTARIO	0.5	ND	0.7	0.0	2003
61209	OB	AKZO NOBEL CHEM INC, FILTROL CORP SUB OF	LOS ANGELES	0.0	ND	0.0	0.0	1996
61743	A	AMERON STEEL FABRICATION DIVISION	FONTANA	0.0	ND	0.2	0.2	2000
62679	A	KOP-COAT INC	VERNON	1.3	ND	0.0	0.5	1997
62897	OB	NORTHROP GRUMMAN CORP, MASD	PICO RIVERA	9.4	ND	1.0	0.5	2000
65381	A	SFPP, L.P. (NSR USE)	CARSON	2.4	ND	0.0	0.1	1999
65382	A	SFPP, L.P.	BLOOMINGTON	5.8	ND	0.0	0.0	1996
70021	A	XERXES CORP (A DELAWARE CORP)	ANAHEIM	0.0	ND	0.0	0.0	1996
79682	A	RAMCAR BATTERIES INC	COMMERCE	2.4	1	0.0	0.2	1998
82512	A	BREA CANON OIL CO	WILMINGTON	1.7	ND	0.0	0.0	1996

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
82513	A	BREA CANON OIL COMPANY INC	HARBOR CITY	1.4	ND	0.0	0.0	1996
83102	A	LIGHT METALS INC	INDUSTRY	4.5	0.01	0.0	2.7	2002
90546	OB	SORIN BIOMEDICAL INC	IRVINE	2.3	ND	0.0	0.0	1996
93346	A	WAYMIRE DRUM CO,INC.,S EL MONTE FACILITY	SOUTH EL MONTE	4.3	ND	0.1	0.2	1997
94872	A	METAL CONTAINER CORP	MIRA LOMA	0.1	ND	0.4	0.4	2002
99119	A	INTERPLASTIC CORP	HAWTHORNE	0.3	ND	0.1	0.3	1999
99773	A	CYTEC FIBERITE INC	ANAHEIM	2.2	0.0004	0.0	0.2	2000
101380	OB	GENERAL DYNAMICS OTS (DOWNEY) INC	DOWNEY	9.8	ND	0.0	0.1	2000
101977	A	SIGNAL HILL PETROLEUM INC	LONG BEACH	4.7	ND	0.6	1.0	1998
103659	OB	4MC-BURBANK, INC.	BURBANK	2.2	ND	0.6	0.0	2004
103888	A	SARGENT FLETCHER INC	EL MONTE	4.9	ND	0.2	0.0	1999
105598	A	SENIOR FLEXONICS INC/STAINLESS STEEL DVN	BURBANK	3.6	ND	1.0	0.5	2001
106009	A	VENOCO INC.	BEVERLY HILLS	1.2	ND	0.0	0.0	2005
106797	OB	SAINT-GOBAIN CONTAINERS LLC	LOS ANGELES	9.9	ND	0.0	0.1	2000
106838	A	VALLEY-TODECO, INC	SYLMAR	3.7	ND	0.2	0.2	2000
107149	A	MARKLAND MANUFACTURING INC	SANATA ANA	0.3	ND	0.1	0.1	2007
107168	I	ADVANCED SPA DESIGNS	LA HABRA	8.6	ND	0.0	0.0	1995
107350	A	NATIONAL O-RINGS	DOWNEY	1.5	ND	0.0	0.0	2001
108701	A	SAINT-GOBAIN CONTAINERS LLC	EL MONTE	7.3	ND	0.1	0.1	2000
109198	A	TORCH OPERATING COMPANY	BREA	5.0	ND	0.0	0.0	2001
110924	A	WESTWAY TERMINAL COMPANY	SAN PEDRO	8.0	ND	0.3	0.5	1997
111110	A	BRISTOL FIBERLITE INDUSTRIES, INC	SANTA ANA	0.1	ND	0.0	0.0	1995
111415	A	VAN CAN COMPANY	FONTANA	0.8	ND	0.0	0.1	1996
112192	OB	CONSOLIDATED DRUM RECONDITIONING CO INC	SOUTH GATE	0.3	ND	0.0	0.0	1997
113170	A	SANTA MONICA - UCLA MEDICAL CENTER (b)	SANTA MONICA	7.6	0.14	0.2	0.0	1997
113676	A	VICKERS	LOS ANGELES	3.0	ND	0.0	0.0	1995
114801	A	RHODIA INC.	LONG BEACH	0.1	ND	0.0	0.1	2006
115389	A	AES HUNTINGTON BEACH, LLC	HUNTINGTON BEACH	0.1	ND	0.0	0.0	1999
115394	A	AES ALAMITOS, LLC	LONG BEACH	0.6	ND	0.0	0.0	1999
115536	A	AES REDONDO BEACH, LLC	REDONDO BEACH	0.4	ND	0.0	0.0	1998
115586	A	SUNDANCE SPAS, INC	CHINO	0.0	ND	0.0	0.4	1996
115663	A	EL SEGUNDO POWER, LLC	EL SEGUNDO	0.3	ND	0.0	0.0	2000
116868	A	EQUILON ENT LLC/RIALTO TERMINAL	BLOOMINGTON	2.9	ND	0.0	0.0	1999
117560	A	EQUILON ENTER, LLC-SHELL OIL PROD. US	WILMINGTON	7.3	ND	0.0	0.1	1998
117785	A	BALL METAL BEVERAGE CONTAINER CORP.	TORRANCE	0.0	ND	0.2	0.9	2001

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
118406	A	CARSON COGENERATION COMPANY	CARSON	0.8	ND	0.2	0.0	2007
118998	OB	CYTEC FIBERITE INC	CULVER CITY	6.6	ND	0.0	0.2	1997
119127	A	PRC-DE SOTO INTERNATIONAL	GLENDALE	0.0	ND	0.0	0.0	2000
119907	A	BERRY PETROLEUM COMPANY	SANTA CLARITA	1.6	ND	0.2	0.7	1999
119920	A	PECHINEY CAST PLATE INC	VERNON	1.6	ND	0.3	0.3	1996
120088	A	BREITBURN ENERGY COMPANY, LLC	SANTA FE SPRINGS	0.8	ND	0.0	0.0	1998
122295	A	FALCON FOAM, A DIV OF ATLAS ROOFING CORP	LOS ANGELES	0.4	ND	0.0	0.0	1999
122300	A	BASF CORPORATION	COLTON	0.3	ND	0.6	0.0	2002
122822	I	CONSOLIDATED FILM INDUSTRIES	HOLLYWOOD	21.0	ND	0.1	0.4	2000
124016	A	OAKLITE PRODUCTS (BRENT AMERICA, INC./ LEEDER ARDOX)	LA MIRADA	0.0	ND	0.1	0.1	2000
124506	A	BOEING ELECTRON DYNAMIC DEVICES INC	TORRANCE	4.2	ND	0.5	0.1	1995
124805	A	EXIDE TECHNOLOGIES	COMMERCE	0.3	ND	0.0	0.0	2000
124806	OB	EXIDE TECHNOLOGIES	INDUSTRY	1.0	ND	0.0	0.0	1999
124838	OB	EXIDE TECHNOLOGIES	LOS ANGELES	156.0	10	3.8	63.0	2013
125281	OB	MODERN PLATING, ALCO CAD-NICKEL PLATING	LOS ANGELES	8.2	ND	0.1	0.0	1995
126060	A	STERIGENICS US, LLC	ONTARIO	3.8	0	0.0	0.0	2007
126191	A	STERIGENICS US, INC.	LOS ANGELES	3.3	ND	0.0	0.0	1996
126197	A	STERIGENICS US, INC.	LOS ANGELES	3.6	ND	0.0	0.0	1996
126536	A	CONSOLIDATED FOUNDRIES - POMONA	POMONA	1.5	ND	0.0	0.0	1999
126544	A	PAC FOUNDRIES-INDUSTRY	INDUSTRY	1.3	ND	0.6	0.1	1996
126964	A	EDWARDS LIFESCIENCES LLC	IRVINE	0.8	ND	0.0	0.0	1995
127568	A	ENGINEERED POLYMER SOLUTION, VALSPAR	MONTEBELLO	3.5	ND	0.1	0.5	2000
132343	A	SPECTRUM PAINT & POWDER, INC.	ANAHEIM	0.0	ND	0.2	0.7	1997
133405	A	BODYCOTE INC/BODYCOTE THERMAL PROCESSING	LOS ANGELES	2.4	ND	0.0	0.2	1999
133660	A	HAYDEN INDUSTRIAL PRODUCTS	CORONA	1.6	ND	0.8	0.4	1998
134018	A	INDUSTRIAL CONTAINER SERVICES-CA LLC	MONTEBELLO	5.2	ND	0.6	0.2	2000
134931	A	ALCOA GLOBAL FASTENERS, INC.	FULLERTON	0.6	ND	1.9	0.0	1997
134943	A	ALCOA GLOBAL FASTENERS, INC. SOUTH BAY	TORRANCE	2.6	ND	0.6	0.0	2008
136148	A	E/M COATING SERVICES	NORTH HOLLYWOOD	5.8	ND	0.3	0.6	1998
137517	A	PACIFIC TERMINALS LLC	ETIWANDA	2.7	ND	0.0	0.2	2000
140499	A	AMERESCO HUNTINGTON BEACH, L.L.C.	HUNTINGTON BEACH	7.0	ND	0.0	0.0	1995
140811	A	DUCOMMUN AEROSTRUCTURES INC	MONROVIA	3.5	0.01	0.0	0.0	2002
140961	A	GKN AEROSPACE TRANSPARENCY SYS INC	GARDEN GROVE	6.0	ND	0.0	0.5	1996
142267	A	FS PRECISION TECH LLC	RANCHO DOMINGUEZ	2.0	ND	0.1	0.2	2001
144677	A	PRATT & WHITNEY ROCKETDYNE/RUBY ACQ ENT	CANOCA PARK	0.0	ND	0.0	0.0	1996

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
146570	A	ROHM AND HAAS CHEMICALS LLC	LA MIRADA	6.2	ND	0.5	0.8	1999
148925	A	CHERRY AEROSPACE LLC	SANTA ANA	9.7	ND	0.1	0.2	1999
149241	A	REGAL CULTURED MARBLE	POMONA	0.0	ND	0.0	0.2	1995
151415	A	LINN WESTERN OPERATING, INC	BREA	3.4	ND	0.0	0.0	1999
151798	A	TESORO REFINING AND MARKETING CO	CARSON	2.8	ND	0.1	0.0	1999
151899	A	VINTAGE PRODUCTION CALIFORNIA LLC	NEWHALL	3.5	ND	0.0	0.2	2000
152054	A	LINN WESTERN OPERATING INC	BREA	1.1	ND	0.0	0.1	1996
152501	A	PRECISION SPECIALTY METALS INC	LOS ANGELES	0.5	ND	0.4	0.2	2001
153546	A	HUCK INTL INC. DBA ALCOA FASTENING SYS.	CARSON	3.3	ND	0.0	0.0	1999
155828	A	GARRETT AVIATION SVCS. LLC DBA STANDARD	LOS ANGELES	< 10	0.001	0.2	0.3	2002
156741	A	HARBOR COGENERATION CO	WILMINGTON	0.1	ND	0.0	0.0	2002
157451	A	VERNON MACHINE CORP, BENDER US DBA	VERNON	4.4	0.001	1.0	0.0	2002
160150	A	ERGON ASPHALT & EMULSIONS, INC.	FONTANA	0.0	ND	0.3	0.0	1999
160437	A	SOUTHERN CALIFORNIA EDISON	SAN BERNARDINO	2.3	<0.01	<0.01	<0.01	2013
160916	A	FOAMEX INNOVATIONS, INC.	ORANGE	0.0	ND	0.4	0.4	1994
161142	A	FOAMEX INNOVATIONS, INC.	COMPTON	0.3	0	0.0	0.0	2010
161300	A	SAPA EXTRUDER, INC	INDUSTRY	1.3	ND	0.0	0.0	1999
164864	A	ARROWHEAD BRASS & PLUMBING	LOS ANGELES	5.7	ND	0.3	0.0	1995
165192	A	TRIUMPH AEROSTRUCTURES, LLC (b)	HAWTHORNE	19.7	ND	0.6	0.2	1999
167981	A	TESORO LOGISTICS OPERATIONS LLC	WILMINGTON	2.8	ND	0.0	0.0	2000
168088	A	PCCR USA	LYNWOOD	6.5	ND	0.1	1.6	1995
169990	A	SPS TECHNOLOGIES, LLC	GARDENA	8.9	ND	0.1	0.1	1999
171107	A	PHILLIPS 66 CO/LA REFINERY WILMINGTON PL	WILMINGTON	23.2	0.29	0.1	0.7	2013
171109	A	PHILLIPS 66 COMPANY/LOS ANGELES REFINERY	CARSON	6.6	0.11	0.0	0.3	2011
172878	A	TESORO LOGISTICS OPERATIONS LLC LONG BEA	LONG BEACH	2.4	ND	0.0	0.0	1999
173913	A	TRIUMPH PROCESSING, EMBEE DIV, INC.	SANTA ANA	6.6	ND	0.2	0.6	2000
174591	A	TESORO REFINING & MARKETING CO LLC, CAL (c)	WILMINGTON	4.3	ND	0.1	0.2	1995
174655	A	TESORO REFINING & MARKETING CO, LLC	CARSON	7.3	ND	0.3	0.1	2000
174703	A	TESORO REFINING & MARKETING CO LLC CARSO	CARSON	3.0	ND	0.0	0.0	1994
174710	A	TESORO LOGISTICS OP LLC, VINVALE MARKETI	SOUTH GATE	9.0	ND	0.0	0.0	1994
175124	A	AEROJET ROCKETDYNE OF DE, INC.	CANOGA PARK	8.7	ND	0.0	0.0	1995
175191	A	FREEPORT-MCMORAN OIL & GAS	LOS ANGELES	2.7	ND	0.0	0.1	1997
176967	A	GAS RECOVERY SYSTEMS, INC	IRVINE	20.1	0.18	0.6	0.3	2009
177042	A	SOLVAY USA, INC	LONG BEACH	4.3	ND	0.3	0.0	2001
800003	A	HONEYWELL INTERNATIONAL INC	TORRANCE	1.8	ND	0.0	0.0	1999
800007	OB	ALLIED SIGNAL INC (NSR USE ONLY)	EL SEGUNDO	3.6	ND	0.0	0.5	2000

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
800022	A	CALNEV PIPE LINE CO (NSR USE)	BLOOMINGTON	5.9	ND	0.0	0.1	1999
800026	A	ULTRAMAR INC (NSR USE ONLY)	WILMINGTON	7.2	0.18	0.7	0.2	2012
800030	A	CHEVRON PRODUCTS CO.	EL SEGUNDO	2.7	0.28	0.3	0.1	2001
800032	A	CHEVRON U.S.A. INC (EIS USE)	MONTEBELLO	7.5	0.14	0.0	0.2	1999
800035	A	CONTINENTAL AIRLINES INC (NSR USE ONLY)	LOS ANGELES	2.8	ND	0.0	0.1	1995
800037	A	DEMENNO/KERDOON	COMPTON	4.9	0.01	0.0	0.0	2009
800038	A	THE BOEING COMPANY - C17 PROGRAM	LONG BEACH	4.8	ND	0.2	0.1	1999
800039	I	DOUGLAS PRODUCTS DIVISION	TORRANCE	2.4	ND	0.0	0.0	1996
800041	A	DOW CHEM U.S.A. (NSR USE)	TORRANCE	4.4	ND	0.1	0.0	2000
800047	I	FLETCHER OIL & REF CO	CARSON	5.9	ND	0.0	0.0	1998
800056	A	KINDER MORGAN LIQUIDS TERMINALS, LLC	WILMINGTON	2.3	0.01	0.0	0.0	1997
800057	A	KINDER MORGAN LIQUIDS TERMINALS, LLC	CARSON	8.5	ND	0.0	0.1	1999
800063	A	GROVER PROD. CO (EIS USE)	LOS ANGELES	3.3	ND	0.9	0.1	2001
800066	A	HITCO CARBON COMPOSITES INC	GARDENA	6.4	ND	0.3	0.0	1995
800067	A	BOEING SATELLITE SYSTEMS INC	EL SEGUNDO	6.2	ND	0.0	0.1	2000
800074	A	LA CITY, DWP HAYNES GENERATING STATION	LONG BEACH	0.2	ND	0.0	0.0	2000
800075	A	LA CITY, DWP SCATTERGOOD GENERATING STA	PLAYA DEL REY	0.0	ND	0.0	0.0	2000
800079	A	PETRO DIAMOND TERMINAL CO	LONG BEACH	8.3	ND	0.0	0.2	1998
800087	A	MENASCO MFG CO (EIS USE)	BURBANK	0.0	ND	0.0	0.0	1997
800089	A	EXXONMOBIL OIL CORPORATION	TORRANCE	7.7	0.15	0.2	0.5	2013
800091	A	MOBIL OIL CORP (NSR USE ONLY)	ANAHEIM	0.7	ND	0.0	0.0	1999
800111	OB	THE BOEING COMPANY	DOWNEY	2.3	ND	0.0	0.1	1996
800113	A	ROHR, INC	RIVERSIDE	7.2	0.01	0.9	0.0	2007
800127	A	SO CAL GAS CO (EIS USE)	MONTEBELLO	1.0	0	0.0	0.0	2009
800149	A	US BORAX INC	WILMINGTON	9.5	ND	0.0	0.0	2000
800150	A	US GOVT, AF DEPT, MARCH AFB (NSR USE)	RIVERSIDE	7.4	0.02	0.3	0.0	2008
800168	A	PASADENA CITY, DWP (EIS USE)	PASADENA	0.2	ND	0.7	0.0	1996
800171	A	EXXONMOBIL OIL CORPORATION	VERNON	5.3	ND	0.1	0.0	1997
800181	A	CALIFORNIA PORTLAND CEMENT CO (c)	COLTON	2.0	ND	0.0	0.4	1996
800182	A	RIVERSIDE CEMENT CO (c)	RIVERSIDE	7.8	0.11	0.1	0.1	2001
800183	A	PARAMOUNT PETR CORP (EIS USE)	PARAMOUNT	9.6	ND	0.0	0.0	2002
800184	A	GOLDEN WEST REF CO	SANTA FE SPRINGS	8.8	ND	0.2	0.1	1997
800189	A	DISNEYLAND RESORT	ANAHEIM	3.3	0.03	0.1	0.1	2009
800193	A	LA CITY, DWP VALLEY GENERATING STATION	SUN VALLEY	0.2	ND	0.3	0.0	1999
800196	A	AMERICAN AIRLINES INC (EIS USE)	LOS ANGELES	5.4	ND	0.9	0.1	2002
800198	A	ULTRAMAR INC (NSR USE ONLY)	WILMINGTON	5.9	ND	0.0	0.1	1999

Appendix A-2. Continued

Facility ID	Facility Status (a)	Facility Name	City	Cancer Risk (per million)	Cancer Burden	Non-Cancer Acute Hazard Index	Non-Cancer Chronic Hazard Index	HRA Approval Year (e)
800202	A	UNIVERSAL STUDIOS INC (EIS USE)	UNIVERSAL CITY	2.4	ND	0.0	0.0	1996
800204	OB	SIMPSON PAPER CO	POMONA	3.4	ND	0.0	0.0	1996
800209	A	BKK CORPORATION, LANDFILL DIVISION GNRL	WEST COVINA	6.9	ND	0.0	0.1	2000
800214	A	LA CITY, SANITATION BUREAU (c)	PLAYA DEL REY	7.6	ND	0.1	0.0	1999
800236	A	LA CO. SANITATION DIST	CARSON	7.2	ND	0.2	0.1	2007
800264	A	EDGINGTON OIL COMPANY	LONG BEACH	4.8	0.001	0.0	0.0	2002
800267	A	TRIUMPH PROCESSING, INC.	LYNWOOD	0.5	0	0.1	0.4	2012
800273	OB	CHEMOIL REF CORP (NSR USE ONLY)	SIGNAL HILL	0.0	ND	0.0	0.0	2000
800279	A	SFP, L.P.	ORANGE	5.9	ND	0.0	0.2	1999
800288	A	UNIV CAL IRVINE (NSR USE ONLY)	IRVINE	5.6	ND	0.0	0.1	1996
800318	A	GRISWOLD INDUSTRIES	COSTA MESA	9.5	0.01	0.1	0.0	2001
800320	A	AMVAC CHEMICAL CORP	LOS ANGELES	0.0	ND	0.1	0.3	2004
800325	A	TIDELANDS OIL PRODUCTION CO	LONG BEACH	1.9	ND	0.1	0.6	1999
800327	A	GLENDALE CITY, GLENDALE WATER & POWER	GLENDALE	0.6	ND	0.0	0.0	1999
800337	OB	CHEVRON U.S.A., INC (NSR USE)	LA HABRA	0.0	ND	0.0	0.0	1996
800343	A	BOEING SATELLITE SYSTEMS, INC	EL SEGUNDO	0.3	ND	0.0	0.2	1996
800372	A	EQUILON ENTER. LLC, SHELL OIL PROD. US	CARSON	6.9	ND	0.4	0.1	2001
800373	I	CENCO REFINING COMPANY	SANTA FE SPRINGS	9.7	ND	0.3	0.1	2000
800387	A	CAL INST OF TECH	PASADENA	2.4	ND	0.1	0.0	2007
800408	A	NORTHROP GRUMMAN SPACE & MISSION SYSTEMS	MANHATTAN BEACH	1.4	ND	0.9	0.1	1998
800409	A	NORTHROP GRUMMAN SPACE & MISSION SYSTEMS	REDONDO BEACH	5.5	ND	0.5	0.2	1998
800436	A	TESORO REFINING AND MARKETING CO	WILMINGTON	10.7	0.37	0.3	0.4	2013

Notes:

- a) A = Active; I = Inactive; OB = Out of Business (with the year in which the facility went out of business)
- b) The specific risk driver listed in this HRA is no longer in use & the resulting risk has been eliminated or minimized.
- c) SCAQMD staff has requested these facilities to update their HRAs.
- d) This includes risk attributable to the emergency DICE. The total facility risks excluding the emergency DICE are less than 10 in a million.
- e) All HRAs with HRA Approval Year dated 2015 and later have used the revised OEHHA Guidelines for preparation of their HRA.

Appendix A-3. Status of Risk Reduction Plans

Fac. ID	Facility Name	Submitted	Approved	Implemented	Residual Risk
7427	Owens-Brockway Glass	Yes	Yes	Yes	Cancer: 3.60
					Acute HI: 0.01
					Chronic HI: 0.06
					Can. Burden: 0.000
7730	E.R. Carpenter	Yes	Yes	Yes	Cancer: 0.96
					Acute HI: 0.03
					Chronic HI: 1.34
					Can. Burden: 0.000
8015	Anadite Inc.	Yes	Yes	Yes	Cancer: 3.5
					Acute HI: 0.63
					Chronic HI: 0.78
					Can. Burden: n/a
8547	Quemetco A previous RRP was approved and implemented in 2008, but a new RRP is required based on a 2016 HRA.	No			Cancer:
					Acute HI:
					Chronic HI:
					Can. Burden:
8570	Embee Inc.	Yes	Yes	Yes	Cancer: 6.6
					Acute HI: 0.21
					Chronic HI: 0.58
					Can. Burden: n/a
11818	Hixson Metal Finishing	Yes	Yes	In Progress	Cancer:
					Acute HI:
					Chronic HI:
					Can. Burden:
14191	Nicklor Chemical Co.	Yes	Yes	Yes	Cancer: 0.00
					Acute HI: 0 (a)
					Chronic HI: 0 (a)
					Can. Burden: 0.000
15504	Schlosser Forge Co.	Yes	Yes	Yes	Cancer: 9.5
					Acute HI: 1.59
					Chronic HI: 1.11
					Can. Burden: 0.067
18294	Northrop-Grumman	Yes	Yes	Yes	Cancer: 7.6
					Acute HI: 0.13
					Chronic HI: 0.05
					Can. Burden: n/a
18931	Gerdau	Yes	Under Review		Cancer:
					Acute HI:
					Chronic HI:
					Can. Burden:
18989	Bowman Plating Co. Inc. A draft RRP was submitted in June 2016.	No			Cancer:
					Acute HI:
					Chronic HI:
					Can. Burden:

Appendix A-3. Continued

Fac. ID	Facility Name	Submitted	Approved	Implemented	Residual Risk
22410	Palace Plating	Yes	Yes	Yes	Cancer: 5.6 (b)
					Acute HI: 0.73
					Chronic HI: 0.38
					Acute HI: 0.73
25012	Amanda Manufacturing America, Inc.	Yes	Yes	Yes	Cancer: <0.1
					Acute HI: 0.00
					Chronic HI: 0.00
					Can. Burden: 0.000
41229	Lubeco, Inc.	Yes	Yes	Yes	Cancer: 14.0
					Acute HI: 0.00
					Chronic HI: 0.12
					Can. Burden: n/a
45938	E.M.E. Inc.	Yes	Yes	Yes	Cancer: <0.1
					Acute HI: 0.00
					Chronic HI: < 0.01
					Can. Burden: 0.000
48323	Sigma Plating Co.	Yes	Yes	Yes	Cancer: 13.8
					Acute HI: 0.01
					Chronic HI: 0.74
					Can. Burden: 0.017
61160	GE Engine Services	Yes	Yes	Yes	Cancer: 0.50
					Acute HI: 0.7
					Chronic HI: 0.01
					Can. Burden: 0.000
116459	GE Engine Services	Yes	Yes	Yes	Cancer: 9.3
					Acute HI: 0.19
					Chronic HI: 0.25
					Can. Burden: n/a
119127	PRC DeSoto International	Yes	Yes	Yes	Cancer: 0 (a)
					Acute HI: < 0.01
					Chronic HI: < 0.01
					Can. Burden: 0.000
124838	Exide Technologies	Yes	Yes	(See Note)	Cancer: 0 (d)
					Acute HI:
					Chronic HI:
					Can. Burden:
126501	Vought Aircraft Industries, Inc.	Yes	Yes	Yes	Cancer: 19.7 (c)
					Acute HI: 0.64
					Chronic HI: 0.24
					Can. Burden: n/a
134931	Alcoa Global Fasteners, Inc.	Yes	Yes	Yes	Cancer: 0.6
					Acute HI: 1.90
					Chronic HI: 0.02
					Can. Burden: 0.000
800037	DeMenno/Kerdoon	Yes	Yes	Yes	Cancer: 4.9
					Acute HI: < 0.01
					Chronic HI: 0.02
					Can. Burden: 0.01

Appendix A-3. Concluded

Fac. ID	Facility Name	Submitted	Approved	Implemented	Residual Risk
800063	Grover Products Co.	Yes	Yes	Yes	Cancer: 3.3
					Acute HI: 0.88
					Chronic HI: 0.07
					Can. Burden: 0.039
800196	American Airlines, Inc.	Yes	Yes	Yes	Cancer: 5.4
					Acute HI: 0.86
					Acute HI: 0.86
					Chronic HI: 0.08
					Can. Burden: 0.190

- (a) Facility left the South Coast Air Basin so their risks are zero.
- (b) Facility is shutdown so their risks are zero.
- (c) The specific risk driver listed in this HRA is no longer in use & the resulting risk has been eliminated.
- (d) Facility undergoing closure.

Appendix B

Trends in Ambient Air Toxics in the South Coast Air Basin and Vicinity

In addition to SCAQMD's periodic MATES studies, CARB has maintained a long-term continuous toxics monitoring network since the late 1980's.^{XVII} In this appendix, trends in cancer risks are illustrated for sites in the South Coast Air Basin (Basin) and vicinity. Health risk levels for the most recent three-year period (i.e., 2012 to 2014) are also shown for the air toxics which are monitored. The CARB monitoring network does not include diesel particulate matter, which contributes significantly to cancer risks in the Basin. Since this is ambient air quality data, both mobile and stationary emission sources are captured in the health risk levels provided here. Looking at this historical data set illustrates the benefits of past regulatory control efforts.

Three of the approximately 16 current active sites in CARB's statewide toxics monitoring network are in or near the Basin as shown in Figure B-1. The CARB long-term sites are located in Azusa & Riverside-Rubidoux. Simi Valley is included in this analysis since it is just outside the western edge of the Basin and represents conditions at the western end of the San Fernando Valley. The measurements consist of 24-hour integrated samples collected once every 12 days. Table B-1 lists the toxic air contaminants that are monitored. The carcinogens in the table are identified with an asterisk.

^{XVII} Information about and data from ARB's toxic monitoring data are available at:
<http://www.arb.ca.gov/adam/toxics/toxics.html>

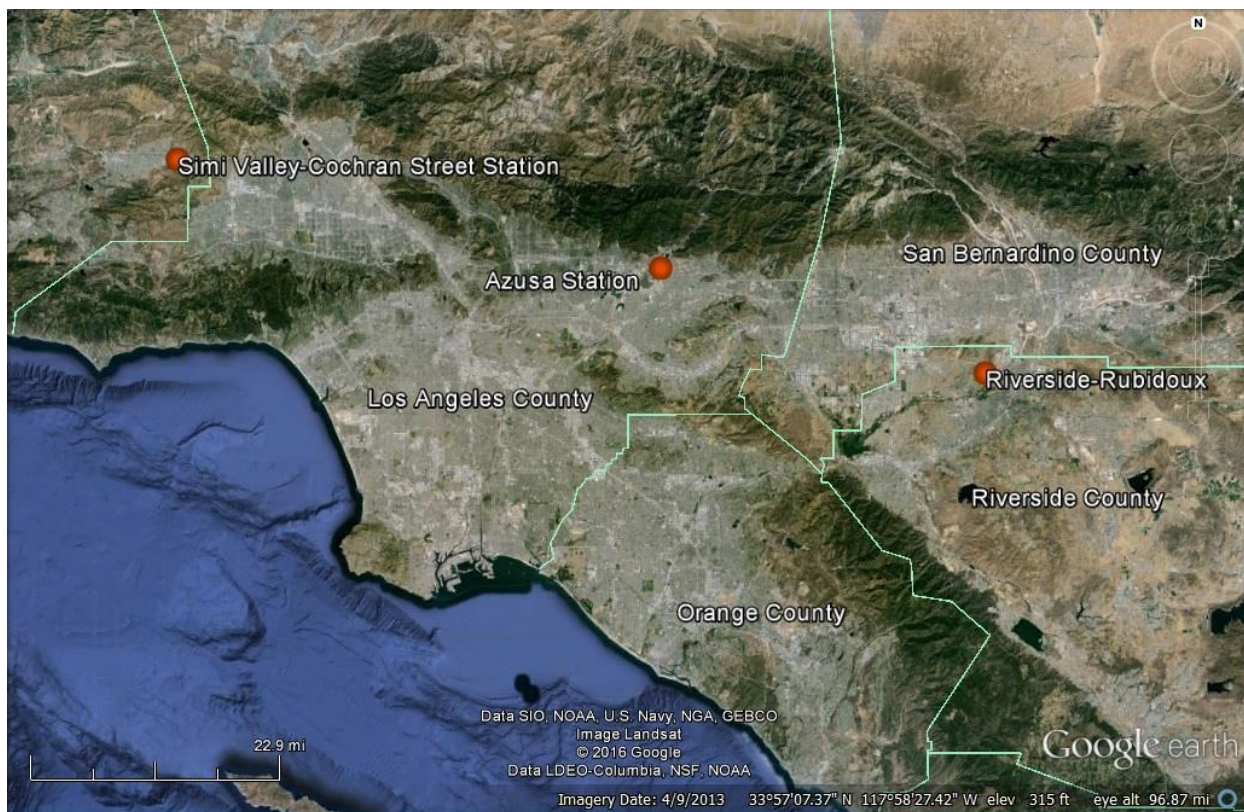


Figure B-1. ARB toxic monitoring sites in the South Coast Air Basin and Vicinity

Table B-1. Toxic Air Contaminants Considered

Toxic VOC		Toxic PM
Acetaldehyde*	Methyl Bromide	Hexavalent Chromium*
Acrolein	Methyl Chloroform	Lead*
Benzene*	Methyl Ethyl Ketone	Manganese
1,3-Butadiene*	Methylene Chloride*	Nickel*
Carbon Tetrachloride*	Perchloroethylene*	Selenium
Chloroform*	Styrene	
Ethyl Benzene*	Toluene	
Formaldehyde*	Trichloroethylene*	

* carcinogen

OEHHA adopted new health risk guidance in March of 2015.^{xviii} The revised OEHHA Guidance Manual incorporates age sensitivity and exposure factors which increase cancer health risk estimates to residential and sensitive receptors by approximately three times, and more than three times in some cases depending on whether the toxic air contaminant

^{xviii} OEHHA, Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, February 2015, adopted March 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html.

has multiple pathways of exposure in addition to inhalation. Under the revised OEHHA Guidance Manual, even though the toxic pollutant concentrations may not have increased, the estimated cancer risk to a residential receptor will increase.

Figure B-2 presents health risk trends using the 2003 OEHHA Guidance Manual for comparison. Figure B-3 presents health risk trends using the more recent 2015 OEHHA Guidance Manual. The same concentrations were used to estimate health risk, so the differences in cancer health risk is based solely on health risk methodology. Cancer health risks estimated using the 2015 OEHHA Guidance are about 2.5 times higher than those estimated using the 2003 OEHHA Guidance. Since the age sensitivity and exposure factors remain the same between TACs and between years, the trends over time are solely based on TAC concentrations. Therefore, cancer health risk trends are the same despite the methodology used.

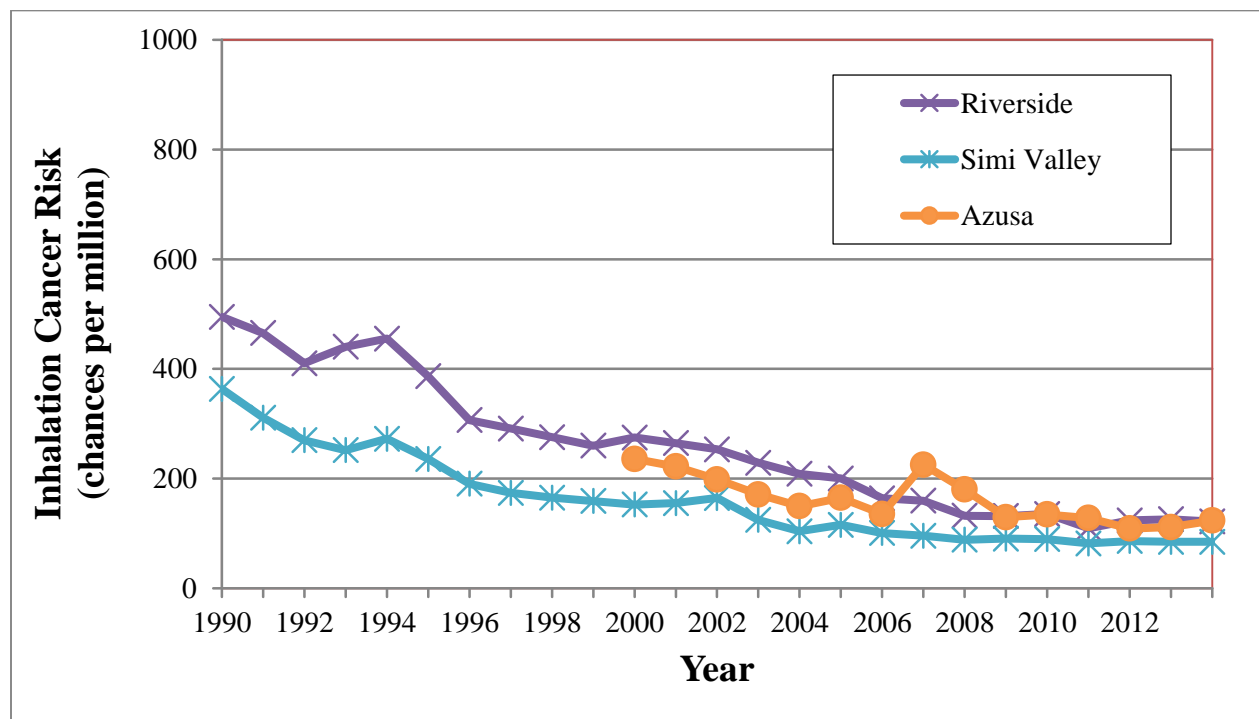


Figure B-2. Trends in Inhalation Cancer Health Risks (2003 OEHHA Methodology) in the South Coast Air Basin and Vicinity (excluding cancer risks from diesel particulate matter)

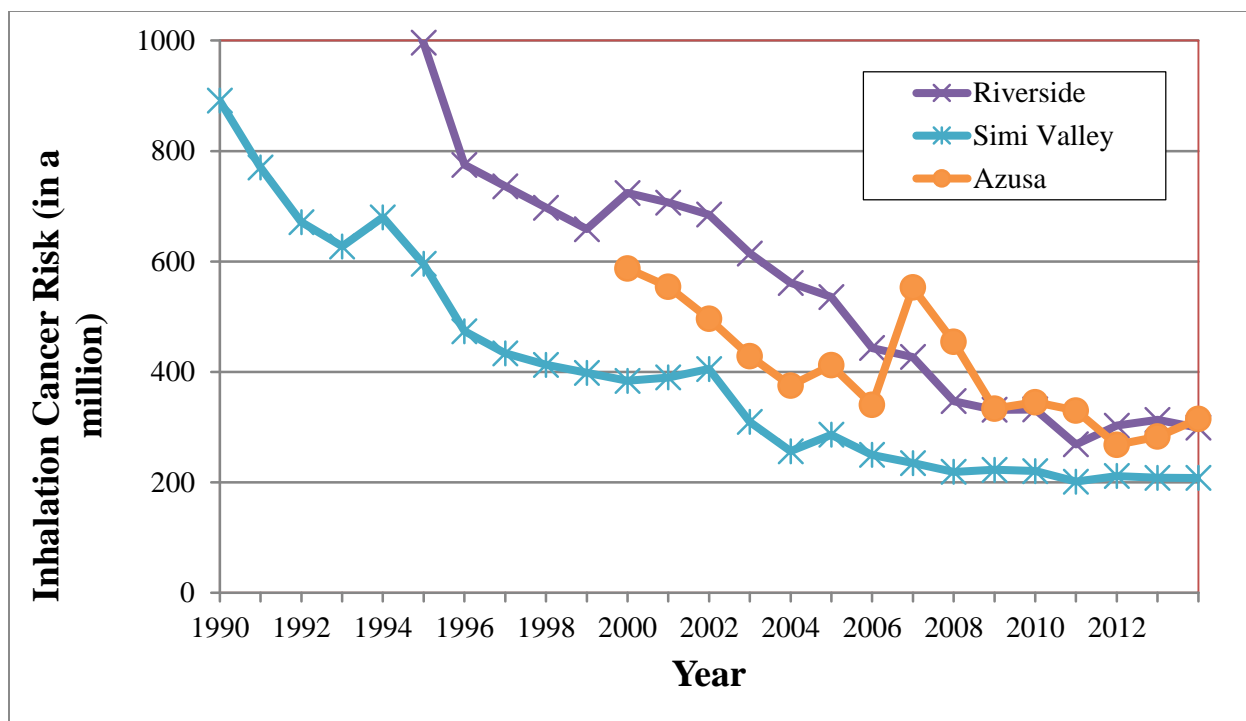


Figure B-3. Trends in Inhalation Cancer Health Risks (2015 OEHHA Methodology) in the South Coast Air Basin and Vicinity (excluding cancer risks from diesel particulate matter)

Inhalation cancer health risks have decreased significantly at all stations since 1990 as shown in Figure B-3. Risks have decreased by 76, and 77 percent at Riverside, and Simi Valley, respectively.

The Azusa stations started in 1995 as one of the Photochemical Assessment Monitoring Stations (PAMS) network aimed in determining speciated hydrocarbon O₃ precursor compounds in ambient air. On October 17, 2006, the EPA issued final amendments to PAMS monitoring requirements in 40 CFR § 58. In 2009, to address these amendments, and site-specific observations from the PAMS network assessment project, Azusa station was reclassified from Type 3 (maximum O₃ concentration site) to Type 2 (maximum O₃ precursor emissions impact site or above 8 hour ozone). This proposed change addressed the National PAMS Network Assessment observation that Azusa has high Volatile Organic Compounds (VOC) and Oxides of Nitrogen (NO_x) concentrations, with lower O₃ concentrations. The site now more closely resembles a Type 2 O₃ precursor site.

The Azusa station shows health risks have decreased 46 percent since 2000. The improvement is primarily from reductions in ambient concentrations of benzene (82 to 72 percent) and perchloroethylene (95 to 77 percent) and secondarily from decreases in 1,3-butadiene (87 to 71 percent) and lead (85 to 58 percent).

The risk reductions shown in Figure B-3 occurred in spite of significant increases in population and vehicle activity. As shown in Table B-2, population increased by 34.2

percent since 1990 and daily vehicle miles traveled (VMT), vehicle population, and daily fuel consumption increased by 39.2, 48.1, and 27.3 percent, respectively.

Table B-2. Change in Population and Vehicle Activity in the South Coast Air Basin Since 1990

Activity Variable	1990	2013	% Increase
Population	13,083,594	17,558,884	34.2
Daily Vehicle Miles Traveled (thousands of miles per day)	282,561	393,459	39.2
Vehicle Population	7,547,354	11,179,470	48.1
Daily Fuel Consumption (thousands of gallons per day)	18,338	23,350	25.8

Source: http://www.arb.ca.gov/app/emsinv/trends/ems_trends.php.

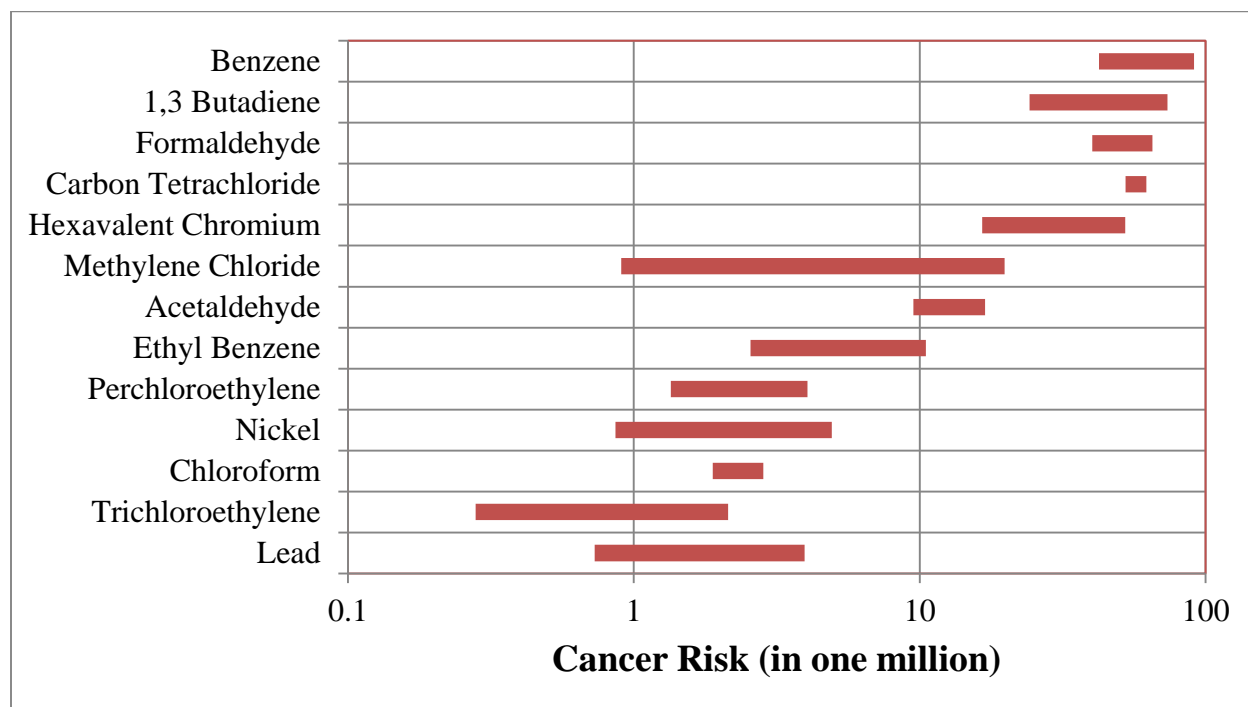


Figure B-4. Inhalation Cancer Risks in the Basin and Vicinity over the Period, 2012 to 2014 (excluding diesel particulate matter)

The relative importance of each of the toxics at the three monitored stations is illustrated in the Figure B-4 above. These ranges do not represent all potential exposures, and some areas near facilities with toxic emissions may have higher risks. The range of cancer risks for the four sites analyzed here are shown for the most recently available three-year period (2012 to 2014). Benzene, 1,3-butadiene, formaldehyde, carbon tetrachloride, hexavalent chromium, methylene chloride and acetaldehyde are the largest contributors to the inhalation cancer risks, contributing individually from 0.9 to around 91 in a million. The

ambient carbon tetrachloride concentrations observed in the Basin are not from a local source of emissions but represent background conditions. Note that there is little variability in cancer risks attributable to carbon tetrachloride as indicated by its short bar in Figure B-4. In fact, there is little variability statewide in carbon tetrachloride concentrations, with concentrations varying by less than ten percent. Ethyl benzene, perchloroethylene, chloroform, and nickel each contribute between 1.2 and 10.5 in a million and trichloroethylene and lead contribute on average less than two in a million to the inhalation cancer risks.

As demonstrated in the series of Multiple Air Toxics Exposure Studies (MATES) conducted by the SCAQMD, diesel particulate matter (DPM) is by far the largest contributor to inhalation cancer risks observed in the Basin. MATES IV attributed about 68 percent of the inhalation cancer risks to DPM based on emissions from 2012,^{XIX} compared to 84 percent in MATES III based on emissions in 2005.^{XX} The total cancer risks shown in Figures B-3 and B-4 therefore represent only about 35 percent of the population weighted inhalation cancer risks found in the MATES IV study.

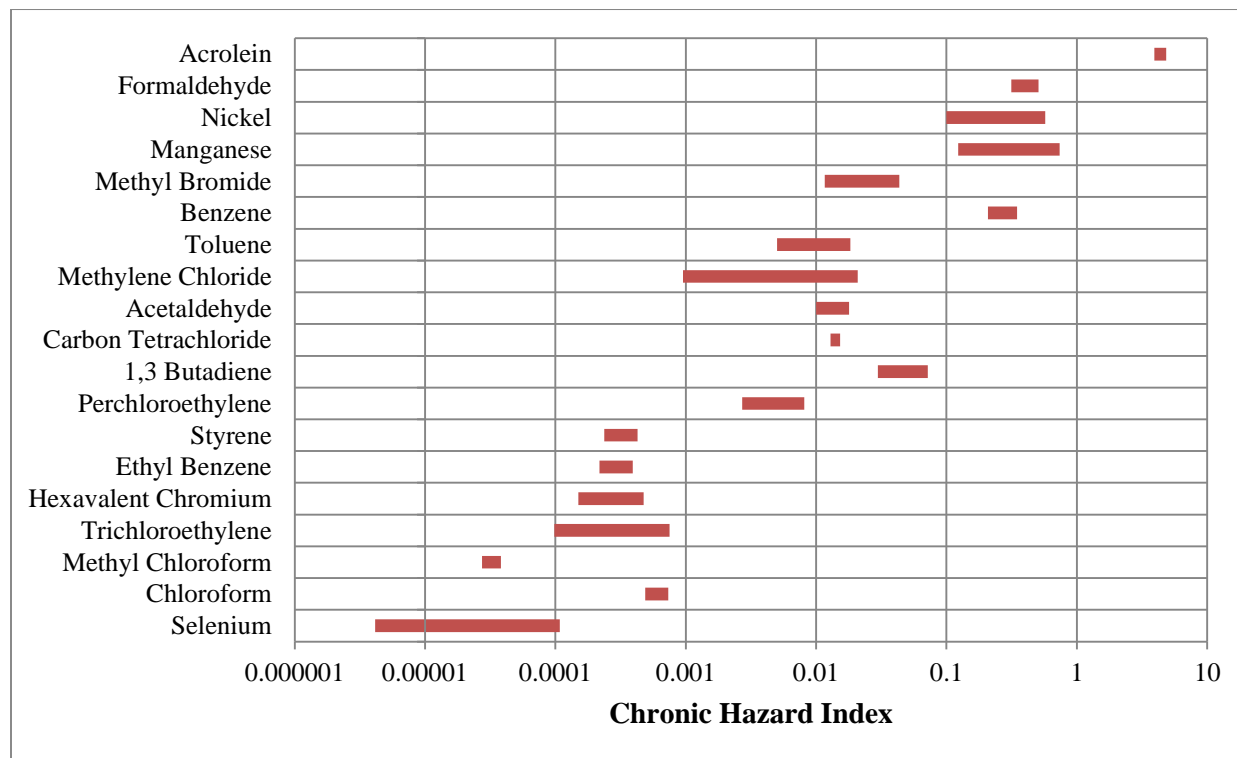


Figure B-5. Non-cancer Chronic Risks in the Basin and Vicinity over the Period 2012 to 2014

^{XIX} See page ES-2 of the Executive Summary which is available at:
<http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15>.

^{XX} See page ES-3 of the Executive Summary which is available at:
<http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iii/mates-iii-final-report>.

The range of chronic non-cancer risks for the three sites analyzed here are shown above in Figure B-5 for the most recently available three-year period (2012 to 2014). For each toxic, the ratio of the observed concentration to the pollutant's chronic reference exposure level (REL)^{XXI} is shown. Ratios greater than one indicate the potential for adverse health effects. Note that acrolein, a respiratory irritant, is the only toxic in which ambient concentrations are above its REL throughout the state and thus may partially reflect general background conditions. However, it should be noted that acrolein is well known to be difficult to measure with current techniques, and therefore, there is considerable uncertainty and data quality issues associated with these measurements.^{XXII} At best, acrolein monitoring data should be considered as a rough indicator, not accurate enough to be compared to health benchmarks. Acrolein emissions can better be estimated using computer modeling methods.

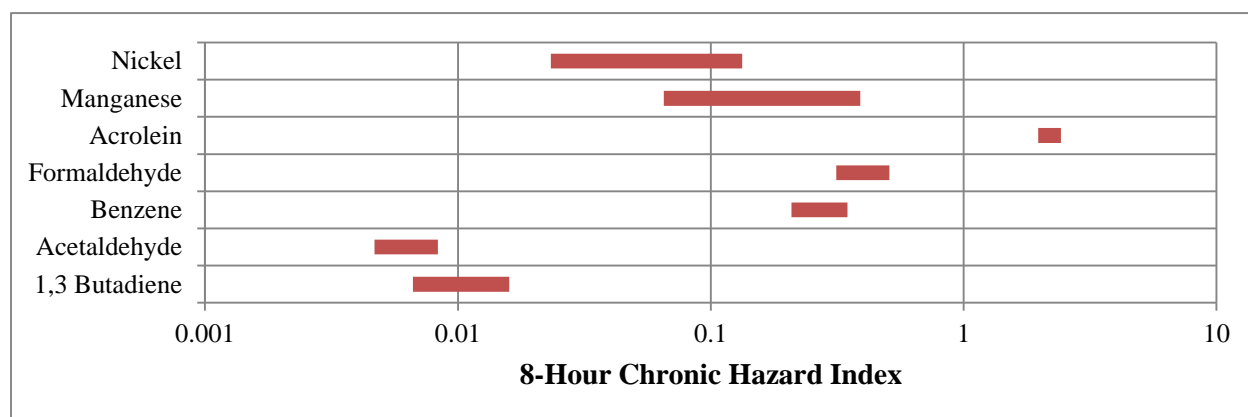


Figure B-6. Non-cancer 8-Hour Chronic Risks in the Basin and Vicinity over the Period 2012 to 2014

The new OEHHA health risk methodology includes methodology for estimating an 8-hour chronic HI using 8-hour REL developed for this purpose. The 8-hour RELs were developed only for repeated, chronic daily 8-hour exposures (e.g. a typical worker or resident exposed to a facility that operates equal to or more than 8 hours per day and 5 days per week). The 8-hour HI is based upon the daily average 8-hour exposure only for those

^{XXI} The REL is an exposure level at or below which no non-cancer adverse health impacts are anticipated to occur in a human population for a specific duration. This definition is taken directly from: OEHHA, 2003 - *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*.

^{XXII} R. Schulte-Ladbeck, et al. "Characterization of chemical interferences in the determination of unsaturated aldehydes using aromatic hydrazine reagents and liquid chromatography." *J. Environ. Monit.*, 2001, 3, 306–310.
 Ho, S.S.H., et al. "Unsuitability of using the DNPH-coated solid sorbent cartridge for determination of airborne unsaturated carbonyls." *Atmospheric Environment*. 2011 45, 261-265.
 Herrington, J.S., et al. "Concerns regarding 24-h sampling for formaldehyde, acetaldehyde, and acrolein using 2,4-dinitrophenylhydrazine (DNPH)-coated solid sorbents." *Atmospheric Environment* 2012, 55, 179-184.
 Grosjean, D., "Ambient Levels of Formaldehyde, Acetaldehyde, and Formic Acid in Southern California: Results of a One-Year Base-Line Study," *Environmental Science & Technology*, Vol 25, 1991, pp. 710–715.

chemicals with 8-hour RELs. The range of 8-hour chronic non-cancer health risks for the three sites analyzed here are shown above in Figure B-6 for the most recently available three-year period (2012 to 2014). For each toxic, the ratio of the observed concentration to the pollutant's chronic reference exposure level (REL)^{xxiii} is shown. Ratios greater than one indicate the potential for adverse health effects. Note that acrolein, a respiratory irritant, is the only toxic in which ambient concentrations are above its REL. It should be noted that the ambient concentrations of acrolein are above its REL throughout the state and thus may partially reflect general background conditions.

^{xxiii} The REL is an exposure level at or below which no non-cancer adverse health impacts are anticipated to occur in a human population for a specific duration. This definition is taken directly from: OEHHA, 2003 - *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*.