November 13, 2014

Susan Nakamura
Director of Strategic Initiatives
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Notice of Health Risk Assessment (HRA) Preparation
Hixson Metal Finishing (SCAQMD ID No: 011818)

Dear Ms. Nakamura:

Hixson Metal Finishing (Hixson) retained ENVIRON International Corporation (ENVIRON) to prepare its Air Toxics "Hot Spots" Information and Assessment (AB2588) Health Risk Assessment (HRA) for its metal finishing facility located in Newport Beach, California (Facility). Enclosed please find two hard copies of the Health Risk Assessment for Hixson, along with CDs with the modeling and risk analysis files. This HRA report has been prepared in response to your letter requiring that Hixson submit an HRA.

In accordance with the State of California's AB 2588, the HRA has been prepared based on 2013 emissions (2013 HRA). As required by the South Coast Air Quality Management District (SCAQMD), the HRA report is submitted using the "Hot Spots" Analysis and Reporting Program (HARP) software. The HRA report also includes a Supplemental HRA based on Hixson's current operations, as was agreed to at the meeting between the SCAQMD and Hixson on October 22, 2014.

Hixson has voluntarily implemented significant and sustainable measures which have reduced potential emissions from its plant, including:

- Installed covers on all heated tanks that contain Cr(VI);
- Sealed the concrete floors of the High-efficiency particulate air (HEPA) chambers of both spray booths with an epoxy coating;
- Had both spray booths and HEPA chambers and filters professionally inspected by the manufacturers and corrected any issues found (replaced door seals, sealed small access holes);
- Had all gauges inspected and calibrated;
- Interviewed and re-trained all employees to report any fugitive emissions that may be witnessed;
- Retrained all employees in fugitive dust control and cleanup;
- Installed a high efficiency sanding and scuffing booth equipped with HEPA filtration in order to eliminate any fugitive emissions from those operations;
- Replaced the exhaust stack serving the number 2 spray booth;
- Increased wash down and mop up activities in all areas that may create chrome containing dust;
- Voluntarily replaced all HEPA filters in the spray booths and in the process upgrading them to ULPA (99.999%) filters;
- Installed a complete enclosure around spray booth number 2 in order to eliminate any possible fugitive emissions;

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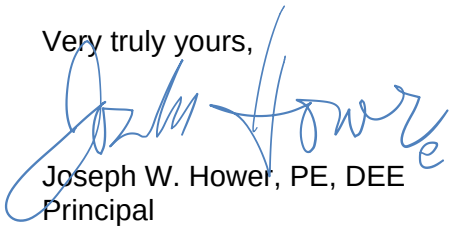
- Over the past several years, replaced and/or upgraded equipment in order to reduce chrome emissions and remain compliant with all SCAQMD rules and regulations. This includes the modification/replacement of both of the spray booths as well as the installation of a new scrubber system on the chromic anodizing tank (all have been upgraded to ULPA filters running at 99.999%);
- More recently, the Facility has voluntarily shut down anodizing operations and has worked with the District to test for chromium compounds within the solutions of every tank located within the anodizing line;
- Installed poly balls (turtles) in a number of processing tanks that contain Cr(VI) as part of their initial makeup;
- Conducted air monitoring tests above all tanks that contain Cr(VI) as part of their makeup and have provided all data to the District as it becomes available;
- Conducted recent source testing of the chromic anodizing tank (tank 70) that shows that emission levels are well within Rule 1469 parameters;
- Conducted recent ambient air monitoring in and around the chromic anodizing tank (tank 70) that indicates employee exposure to be minimal and within published guidelines and regulations;
- Conducted employee exposure monitoring in various locations of the facility to ascertain that employee exposure levels to numerous metal compounds (in addition to chromium levels) are below occupational health levels;
- Encapsulated and shut down roof Fan No. 4 on Building 2; and
- Modified the Tank 70 scrubber hood, on the chromic acid anodize line, to include an enclosure around the work area.

As a result of the actions listed above, as of August, 2014, potential fugitive Cr(VI) emissions from the Facility have been reduced by 86% compared with 2013. Therefore, results of the 2013 HRA, which is based on past activities and emissions, are not indicative of current operations as set forth in the Supplemental HRA.

Hixson is also reviewing other options to reduce health impacts of the Facility, and will be incorporating those measures into its Risk Reduction Plan.

If you have any questions regarding this HRA submittal, please call the undersigned at 213.943.6319.

Very truly yours,



Joseph W. Hower, PE, DEE
Principal

JWH:sb
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Enclosures: AB2588 Air Toxics Document Certification & Application Form
CD containing the HRA report, including figures, tables, and appendices (appendices include meteorological data files, AERMOD/HARP On-Ramp dispersion modeling files, HARP emissions files, and HARP risk analysis files)

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

AB2588 AIR TOXICS DOCUMENT CERTIFICATION & APPLICATION FORM

Please check the appropriate boxes for purpose of submittal:

AIR TOXICS INVENTORY REPORT (ATIR) — INVENTORY YEAR 2013

- [ ] FIRST YEAR'S ATIR
- [X] UPDATE ATIR

HEALTH RISK ASSESSMENT (HRA) — INVENTORY YEAR 2013

- [ ] INITIAL HRA
- [X] REVISED HRA

Facility name Hixson Metal Finishing	**Company name** Hixson Metal Finishing
Facility address 829 Production Place Newport Beach, California	**Mailing address** Same as Facility Address
SCAQMD Facility ID# 011818	**Facility SIC #** 3471
Contact Person (Company Official) DJ Young	**Telephone (Contact Person)** (949) 645-4800
Preparer (if different from above) Name: Joseph Hower, PE, DEE Company: ENVIRON International Corporation	Title: Principal and Southwest Air Quality Practice Leader Telephone: (213) 943-6319

I SWEAR UNDER PENALTY OF PERJURY THAT THE DATA SUBMITTED WITH THIS DOCUMENT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, AND CONFORM WITH THE INFORMATION REQUESTED BY THE SCAQMD. I FURTHER ACKNOWLEDGE THAT FAILURE TO SUBMIT THE REQUIRED INFORMATION OR KNOWINGLY SUPPLY FALSE INFORMATION IS SUBJECT TO CIVIL PENALTIES PURSUANT TO THE CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 44381(a) AND 44381(b).

Signature Of Responsible Company Official	**Date** 10/28/2014
Name Of Responsible Company Official (please print) Dale Young, Jr	**Title** CEO



Air Toxics Hot Spots (AB2588)
Health Risk Assessment Report
For Hixson Metal Finishing

Prepared for:
Hixson Metal Finishing
Newport Beach, California

Prepared by:
ENVIRON International Corporation
San Francisco, Los Angeles, and Irvine California

Date:
November 2014

Project Number:
05-35505A

ENVIRON

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Appendix G: HARP Risk Analysis Files *[Provided Electronically]*

Definitions

Acute Health Impacts: non-cancer health impacts for short-term, one-hour peak exposures to potential Facility emissions. Acute Reference Exposure Levels (RELs), which are used to calculate acute non-cancer hazards, are developed so as to represent "an exposure that is not likely to cause adverse health effects in a human population, included sensitive subgroups, exposed to that concentration … for the specified exposure duration on an intermittent basis" (OEHHA 2003).

Chronic Health Impacts: non-cancer health impacts from long-term exposure to potential Facility emissions. Chronic RELs, which are used to calculate chronic non-cancer hazards, are developed so as to represent the level "at or below which no adverse health effects are anticipated following long-term exposure. Long-term exposure for these purposes has been defined as 12% of a lifetime, or about eight years for humans." (OEHHA 2003)

Cancer Health Impacts: carcinogenic risks estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to carcinogens potentially present in Facility emissions (USEPA 1989). Cancer inhalation and oral potency factors, which are used to calculate cancer risk, are "expressed as the upper bound of probability of developing cancer assuming continuous lifetime exposure to a substance at a dose of one milligram per kilogram of body weight …. It is assumed in cancer risk assessments that risk is directly proportional to dose and that there is no threshold for carcinogenesis. The derivation of carcinogenic inhalation and oral cancer potency factors takes into account the available information on pharmacokinetics and on the mechanism of carcinogenic action. These values are generally the 95% upper confidence limit (UCL) on the dose-response slope." (OEHHA 2003)

Acronyms, and Abbreviations

AB:	Assembly Bill
ARB:	(California) Air Resources Board
AER:	Annual Emissions Report
AERMOD:	American Meteorological Society/Environmental Protection Agency regulatory air dispersion model
BLL:	Blood Lead Levels
Cal/EPA:	California Environmental Protection Agency
Cr(VI):	Hexavalent chromium
CPF:	Cancer Potency Factor
EDR:	Environmental Data Resources Inc
GLC:	Ground-Level Concentration
HARP:	Hotspots Analysis and Reporting Program
HEPA:	High-efficiency particulate air
HI:	Hazard Index
HQ:	Hazard Quotient
HRA:	Health Risk Assessment
ISCST3:	Industrial Source Complex Short-Term 3
MEIR:	Maximally Exposed Individual Resident
MEIW:	Maximally Exposed Individual Worker
MEISR:	Maximally Exposed Individual Sensitive Receptor
MSDS:	Material Safety Data Sheet
NED:	National Elevation Dataset
NWS:	National Weather Service
OEHHA:	Office of Environmental Health Hazard Assessment
PMI:	Point of Maximum Impact
REL:	Reference Exposure Levels
RRP:	Risk Reduction Plan
SCAQMD:	South Coast Air Quality Management District
TAC:	Toxic Air Contaminant
ULPA:	Ultra-low Particulate Air

USEPA:	United States Environmental Protection Agency
USGS:	United States Geological Survey
UTM:	Universal Transverse Mercator
VCAPCD:	Ventura County Air Pollution Control District
WBAN:	Weather Bureau Army Navy

List of Units

µg:	microgram
dl:	deciliter
g:	gram
hr:	hour
L:	liter
Kg:	kilogram
km:	kilometer
m:	meter
m^3:	cubic meter
mg:	milligram
s:	second
yr:	year

Executive Summary [Section II]

At the direction of Ms. Susan Nakamura, Director of Strategic Initiatives at the South Coast Air Quality Management District (SCAQMD or "the District"), Hixson Metal Finishing submits this Health Risk Assessment (HRA) Report under the Air Toxics Hot Spots program (AB2588). The portion of this HRA report using exclusively 2013 data ("2013 HRA") for the Hixson Metal Finishing facility at 829 Production Place in Newport Beach, California, ("the Facility", SCAQMD Facility ID 011818), follows the guidance of the SCAQMD and addresses the direction to "reconcile the facility's Cr(VI) [hexavalent chromium] emissions and subsequent dispersion model results with the observed ambient Cr(VI) concentrations measured in 2013" of Ms. Nakamura's April 3, 2014, letter. In addition, this report incorporates modeling and results based on current conditions at the Facility ("Supplemental HRA"), which accounts for the significant changes that have been implemented at the Facility over the last year to further reduce potential emissions of hexavalent chromium (Cr(VI)) and other chemicals.

Objectives

Consistent with AB2588 requirements, the objective of this HRA report is to estimate potential risks to human populations in the vicinity of the Facility that may be exposed to potential operational emissions. For purposes of the 2013 HRA, at the direction of SCAQMD staff, potential operational emissions were modeled based on 2013 Facility operations, except where changes have been made since then that are permanent and enforceable (as interpreted by the SCAQMD). However, because of significant and measurable changes made to Facility operations in 2014, the 2013 data is not representative of current conditions at and around the Facility. Therefore, ENVIRON has also included modeling and results based on current conditions at the Facility (referred to as the Supplemental HRA). The methodologies used to complete the 2013 and Supplemental HRAs are based on the District-approved Office of Environmental Health Hazard Assessment (OEHHA) of Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments ("OEHHA Guidance", OEHHA 2003) as well as the SCAQMD Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588) ("SCAQMD Supplemental Guidelines", SCAQMD 2011).

Potential operational emissions included in the 2013 and Supplemental HRAs include both the emissions reported under the Facility's 2013 Annual Emissions Report (AER) and the potential fugitive Cr(VI) emissions from the Facility, as determined by reconciling the monitoring data with the current air dispersion modeling effort. The 2013 and Supplemental HRAs then use OEHHA and SCAQMD Guidance to perform air dispersion modeling of the potential emissions and to apply the most recent OEHHA health effects values to estimate potential cancer risks[2] and potential acute and chronic non-cancer health effects at neighboring locations. Each component of the evaluation is discussed briefly below.

[2] Cancer risks evaluated in the 2013 and Supplemental HRAs refer to the calculated excess cancer risk due to potential emissions at the Facility, as required by OEHHA and SCAQMD guidance documents.

Site Description and Facility Operations

The Facility, which has SCAQMD Facility ID 011818, is located at Universal Transverse Mercator (UTM) coordinates 413,427.6 meters (m) East and 3,721,617.5 m North, in Newport Beach, as shown in Figure ES-1. The Facility is located in a predominantly industrial area. The Facility is bordered primarily by industrial properties to the north and west, and mixed commercial and residential properties to the south and east.[3]

The Facility was founded in 1958 in Newport Beach and is a metal finishing facility that conducts anodizing, testing, plating, coating, and painting operations for the aerospace and defense industries.

Potential onsite sources of emissions include the chrome anodizing line, nickel and cadmium plating, curing and drying ovens, paint spray booths, and miscellaneous natural gas combustion sources, such as water heaters. Facility equipment such as tanks, racks, and drums and operations such as packaging, product transfer, and maintenance and cleaning activities may have the potential to contribute to fugitive Cr(VI) emissions, which have been estimated and included in the 2013 and Supplemental HRAs. A plant layout is included as Figure ES-2, showing the location of potential onsite sources and nearby buildings. Tables ES-1 through ES-4 provide annual average and maximum hourly emissions for 2013 Facility operations. Tables ES-14 through ES-17 provide annual average and maximum hourly emissions for current Facility operations, as modeled in the Supplemental HRA.[4]

Facility Cr(VI) Monitoring

Since January 2011, the SCAQMD has operated two Cr(VI) monitors located adjacent to the Facility[5]. In 2013, two monitors were running, one at the Millet location and one at the Apartments location, as shown in Figure ES-3. As mentioned in Section 5.2 below and as discussed in detail in Appendix A, as part of the 2013 HRA, SCAQMD required the Facility to "reconcile the facility's Cr(VI) emissions and subsequent dispersion model results with the observed ambient Cr(VI) concentrations measured in 2013". Details of this reconciliation process are included in Appendix A.

While the potential fugitive Cr(VI) emissions are reconciled to 2013 monitored concentrations in the 2013 HRA, since 2013, the Facility has undergone significant and sustainable operational and procedural changes to reduce both point source and potential fugitive Cr(VI) emissions and corresponding concentrations. This trend can be seen in the figure below, which shows the monthly average sampling results at the Millet and Apartments monitors, beginning in January, 2014. As can be seen from this figure, Cr(VI) concentrations measured in August, 2014 at the Millet and Apartments monitors have dropped by 96% on average since January, 2014.

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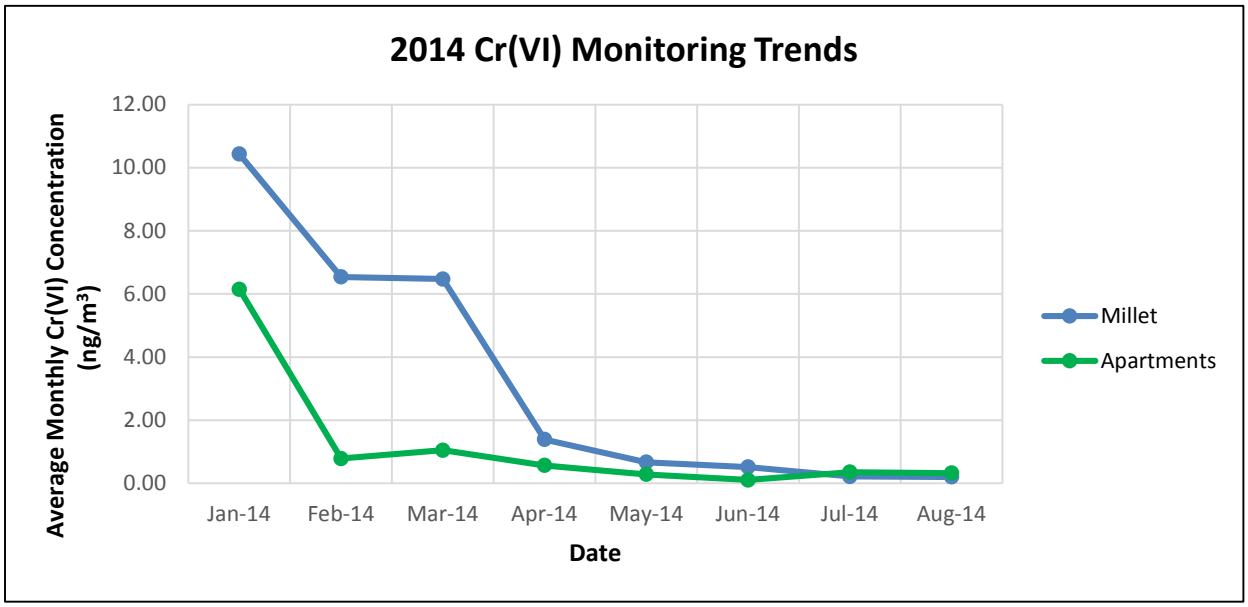
[3] Nearby land uses were identified based on Costa Mesa and Newport Beach zoning maps (City of Costa Mesa, 2007, City of Newport Beach, 2014)..

[4] Emissions modeled in the Supplemental HRA are explained in further detail in Section 5.

[5] The Millet monitor was first installed in 2003. A second monitor at Millet was added in January 2011, but has since been removed, therefore only monitoring results from the monitor originally installed at the Millet location were used for purposes of reconciling potential fugitive Cr(VI) emissions from the Facility.

Monitored concentrations have been considerably lower than 2013 levels since April of this year.

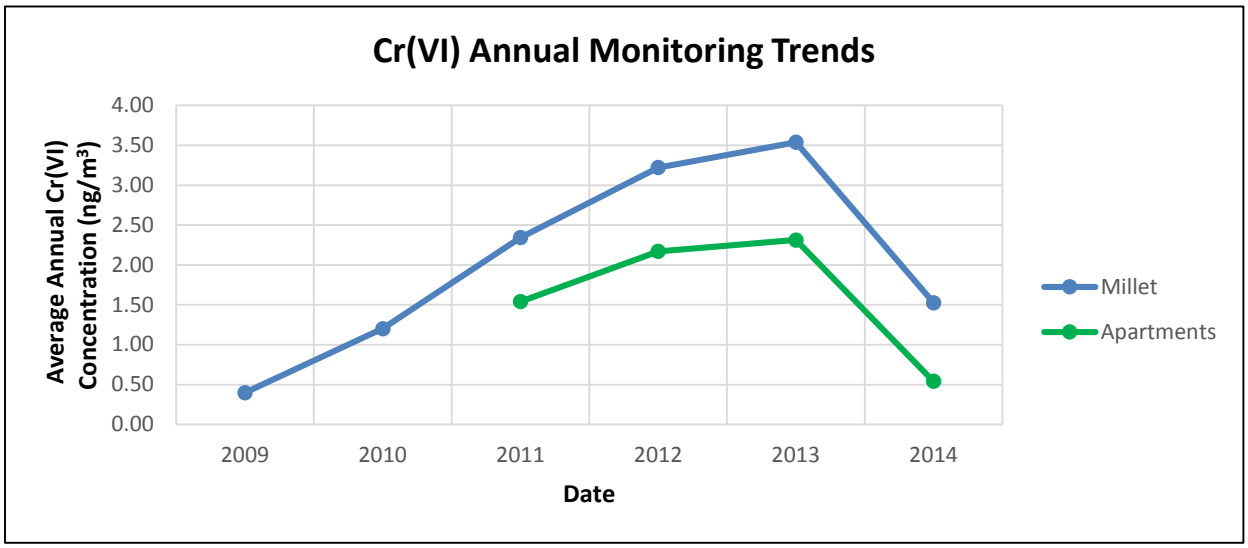


The results presented in the 2013 HRA incorporate information from 2013 operations[6], plus the permanent and enforceable changes (as interpreted by the SCAQMD) made since that time; however, these results are not indicative of the operations and procedures currently in place at the Facility. To demonstrate the reduction in nearby Cr(VI) concentrations, and the corresponding reduction in risk, that has occurred since 2013 operations, a Supplemental HRA was completed that reflects the most current operations at the Facility. As shown in this Supplemental HRA, modeled potential cancer risks dropped by an average of 86% compared to 2013 operations, due to measures undertaken at the Facility to reduce both point source and potential fugitive Cr(VI) emissions.

Further, the 2013 HRA results are not indicative of past long term operations at the Facility. As shown in the figure below, 2013 is the peak year for Cr(VI) monitoring results at the Millet and Apartments monitors, when looking at the period from 2009-2014[7]. Since excess cancer risk is evaluated with 9-year, 30-year, 40-year, and 70-year exposure periods, using monitoring results only from 2013 does not provide an accurate estimate of actual risk due to Facility operations.

[6] While 2013 monitored Cr(VI) concentrations were used to reconcile Facility Cr(VI) emissions, resulting potential fugitive Cr(VI) emissions estimated here are subject to uncertainty, as discussed in Appendix A, and may therefore not represent actual 2013 Facility operations. This footnote shall apply in all cases where "2013 operations" are cited.

[7] 2014 average annual concentrations incorporate sampling data through September 28, 2014.



Air Dispersion Modeling

ENVIRON used the most recent version of the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD v 14134) to estimate ambient air concentrations of toxic air contaminants from the Facility at receptors within a 5 kilometer (km) radius. Model results were then integrated into the latest version of Hotspots Analysis Reporting Program (HARP) (v 1.4f) using the HARP On-Ramp tool (version 1) developed by the California Air Resources Board (ARB). The air dispersion analysis was performed in accordance with OEHHA Guidance, SCAQMD Supplemental Guidelines, and SCAQMD Modeling Guidance for AERMOD (SCAQMD, 2014b). The results of the air dispersion analysis were used in conjunction with the chemical-specific emission rates discussed above to estimate potential ambient air concentrations of each compound.

Risk Assessment Procedures

Health risks and effects were estimated for the Facility based on methods and tools outlined in the OEHHA Guidance. Using the HARP On-Ramp tool, air dispersion modeling results were combined with facility emissions in the HARP program, Version 1.4f (ARB 2012a), the tool developed for completing an AB2588 HRA.[8] Potentially exposed populations were identified and conservative assumptions of potential exposure to Facility operations were estimated.

A dose-response assessment (also referred to as the toxicity assessment), which examines the potential for a chemical to cause adverse health effects in exposed individuals (as modeled), was completed using OEHHA toxicity values. Both potential cancer risks and potential non-cancer health effects were considered. Non-cancer health effects were evaluated over both short times (*i.e.*, acute effects) and long times (*i.e.*, chronic effects). Cancer risks are reported in chances in one million of developing cancer after exposure to Facility operations, based on the

[8] HARP was developed in consultation with OEHHA, ARB, and Air Pollution Control or Air Quality Management District representatives.

modeling performed. Non-cancer health effects are reported in terms of a Hazard Index (HI), which describes the relative magnitude of exposure relative to a reference exposure level. The potential health impacts of inhalation and also of dermal exposure and ingestion were considered for all chemicals. Chemicals with exposure routes other than inhalation are called multipathway substances. Table ES-5 shows the multipathway substances and their corresponding pathways. Table ES-6 shows the target organs for acute and chronic health effects for the chemicals evaluated in the 2013 and Supplemental HRAs.

Risk Characterization Results[9]

2013 Operations (2013 HRA)

Risk characterization results for the 2013 HRA are summarized in the attached Health Risk Assessment Summary Form, under Inventory Reporting Year "2013".

Table ES-7 shows the results of the 2013 HRA at the modeled point of maximum impact (PMI)[10], the modeled maximally exposed individual resident (MEIR), and the modeled maximally exposed individual worker (MEIW). In addition to the 70-yr exposure scenario for the MEIR, the 30-year and 9-year adult resident exposure scenarios, as well as the 9-year child resident scenario, are shown in Table ES-7. Modeled sensitive receptors above a cancer risk of ten in one million or above a noncancer health hazard index of one are listed in Table ES-8. Sensitive receptors were conservatively evaluated assuming a continuous 70-year exposure period associated with a resident. This is very conservative given that the sensitive receptors evaluated include hospitals, schools, child care facilities, and age-care facilities, where the exposure duration is not continuous and is much lower than 70 years. Therefore, alternative, and likely more representative exposure periods (30-year and 9-year) are also shown in Table ES-8, although these time periods also are very conservative for the same reasons mentioned above for the 70-year period. Since the Facility is located on the southern side of a large industrial zone, when evaluating the MEIR, receptors within the industrial zone were excluded. The industrial zone was identified based on general plan and zoning maps (City of Costa Mesa 2004, City of Costa Mesa 2007, City of Newport Beach 2014), as shown in Figure ES-4. Figures ES-5 through ES-8 show the locations of PMI, MEIR, MEIW, and the maximally exposed individual sensitive receptor (MEISR), as modeled.[11]

Figure ES-9 shows the 70-year lifetime cancer risk modeled zone of impact, which represents potential receptor locations where the multipathway lifetime cancer risk is estimated to be greater than one in one million for a residential receptor. Figure ES-10 presents the modeled 1 in one million cancer risk contour assuming all receptors are residential (which is not the case), along with the modeled 10, 25, and 100 in one million cancer risk contours. Figure ES-11

[9] When evaluating risk results, total multipathway potential cancer risks and maximum potential non-cancer hazard indices as reported in HARP were used. Additionally, rounding procedures specified in Section 3.5 of the SCAQMD Supplemental Guidelines were followed.

[10] The modeled PMI was only evaluated for acute non-cancer hazards. The cancer risk and chronic HI PMI would otherwise be co-located with the MEIW.

[11] Sensitive receptors above a cancer risk of ten in one million or above a noncancer health hazard index of one are also included in Figure ES-8.

presents the modeled 1 in one million cancer risk contour, along with the modeled 10, 25, and 100 in one million cancer risk contours, adjusted for worker cancer risk in the industrial zone immediately north of the Facility (shown in Figure ES-4). Since the maximum chronic and acute HIs are less than 0.5, contours for chronic and acute HI at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

The modeled acute HI PMI from the Facility is located on the southern boundary of the Facility (Fenceline Receptor #14). The modeled acute HI at this location is 0.15, which is well below the SCAQMD Notification Level of 1. This indicates that the acute HI at all other receptor locations evaluated is less than 0.15. Any acute health effects at this location likely result from potential nickel emissions from nickel plating operations.

The modeled cancer risk MEIR from the Facility is located at a residential unit just south of the Facility (Grid Receptor #748), on the same block as the Facility, located in between Monrovia Avenue and Placentia Avenue. Modeled cancer risk for a 70-year exposure at this location is shown in Table ES-7. The modeled cancer risk at this location is likely driven by potential Facility Cr(VI) emissions. Table ES-9 shows the cancer risk breakdown at the MEIR by chemical. As discussed in Section 7.2.5.1, a continuous 70-year exposure period is considered a very conservative assumption. Therefore cancer risks are also presented for 30-year, 9-year adult, and 9-year child exposure scenarios in Table ES-7 (which are still very conservative, but less so than the 70-year period). Further, concentrations were evaluated at ground-level, per SCAQMD guidance, not at a typical breathing height.

The modeled chronic HI MEIR is located just east of the modeled cancer risk MEIR (Grid Receptor #750). The chronic HI at this location is 0.03, which is well below the SCAQMD Notification Level of 1. Any chronic health effects at this location likely would result from potential cadmium plating operations and potential fugitive Cr(VI) emissions from the Facility.

The modeled acute HI MEIR from the Facility is located in between the modeled cancer risk MEIR and the modeled chronic HI MEIR (Grid Receptor #749). The modeled acute HI at this location is 0.09, which is well below the SCAQMD Notification Level of 1. Any acute health effects at this location likely result from potential nickel emissions from nickel plating operations.

The modeled cancer risk MEIW from the Facility is located at a workplace north of the Facility on Production Place (Grid Receptor #924). Modeled cancer risk for a 40-year workplace exposure at this location is shown in Table ES-7. Any cancer risk at this location is likely driven by potential Facility Cr(VI) emissions. Table ES-10 shows the modeled cancer risk breakdown at the MEIW by chemical.

The modeled chronic HI MEIW is located just east of the modeled cancer risk MEIW, on Production Place (Grid Receptor #925). The chronic HI at this location is 0.07, which is well below the SCAQMD Notification Level of 1. Any chronic health effects at this location likely would result from potential cadmium plating operations and potential fugitive Cr(VI) emissions from the Facility.

The modeled acute HI MEIW from the Facility is co-located with the modeled cancer risk MEIW (Grid Receptor #924). The modeled acute HI at this location is 0.05, which is well below the SCAQMD Notification Level of 1. Any acute health effects at this location likely would result from potential nickel emissions from nickel plating operations.

The modeled cancer risk MEISR is located at 1527 Monrovia Avenue, Newport Beach, California (Sensitive Receptor #10942). Exposure at this receptor was conservatively estimated assuming a continuous 70-year lifetime exposure, to provide an upper bound estimate of modeled risk and health effects. This is very conservative given that this sensitive receptor is categorized as a medical facility where the exposure would not be continuous and the duration would be much lower than 70 years. Modeled cancer risk for a 70-year exposure at this location is shown in Table ES-8, along with modeled cancer risks for 30-year, 9-year adult, and 9-year child exposure scenarios. Any cancer risk at this location would likely be driven by potential Facility Cr(VI) emissions. Table ES-11 shows the cancer risk breakdown at the MEISR by chemical.

The modeled chronic HI MEISR is located at 1501 Superior Avenue, Newport Beach, California (Sensitive Receptor #10970). The chronic HI at this location is 0.001, which is far below the SCAQMD Notification Level of 1. Any chronic health effects at this location would likely result from potential cadmium plating operations and potential fugitive Cr(VI) emissions from the Facility.

The modeled acute HI MEISR from the Facility is co-located with the modeled cancer risk MEISR (Sensitive Receptor #10942). The modeled acute HI at this location is 0.01, which is far below the SCAQMD Notification Level of 1. Any acute health effects at this location would result from potential nickel emissions from nickel plating operations.

Along with the modeled cancer risk and non-cancer hazards, potential population exposure was analyzed and potential cancer burden was calculated within the modeled zone of impact. Census block receptors were extracted from HARP v 1.4f within a 5-kilometer radius from the Facility and were modeled in AERMOD. Using census data provided in HARP v 1.4f together with the modeled cancer risk or non-cancer hazard index at each census block receptor, persons potentially exposed to a total cancer risk greater than 1 in one million, 10 in one million, 25 in one million, and 100 in one million or a total HI of greater than 0.5, 1.0, 3.0, and 5.0 are presented in Table ES-12.[12] Cancer burden was also calculated using the census data provided in HARP v 1.4f together with the cancer risk at each census block receptor. Table ES-13 summarizes the cancer burden results within the modeled zone of impact, which is 0.21 and is below the District Risk Reduction Level of 0.5 excess cancer cases.

As discussed above, the results presented in the 2013 HRA incorporate information from 2013 operations, plus the permanent and enforceable changes (as interpreted by the SCAQMD)

[12] Maximum Chronic and Acute HIs do not exceed 0.5, therefore corresponding population exposures cannot be assessed.

made since that time; however, these results are not indicative of the operations and procedures currently in place at the Facility. To demonstrate the reduction in nearby Cr(VI) concentrations, and the corresponding reduction in risk, that has occurred since 2013 operations, a Supplemental HRA was completed that reflects the most current operations at the Facility. As shown in this Supplemental HRA, modeled potential cancer risks dropped by an average of 86% compared to 2013 operations, due to measures undertaken at the Facility to reduce both point source and potential fugitive Cr(VI) emissions. Specifically, as shown in this Supplemental HRA,

- The modeled potential cancer risk at the MEIR (Receptor #748[13]) dropped by 85%;
- The modeled potential cancer risk at the MEIW (Receptor #924[14]) dropped by 85% to 13.4 in one million, which is below the District Risk Reduction Level of 25 in one million;
- The modeled potential cancer risk at the MEISR (Receptor #10942), assuming a continuous 70-year exposure, dropped by 88% to 2.0 in one million, which is now below the District Notification Level of 10 in one million;
- Adverse non-cancer health effects at all receptor locations have remained below the District Notification Levels; and
- Cancer burden within the modeled zone of impact has dropped from 0.21 to 0.02, which is still below the District Risk Reduction Level of 0.5 excess cancer cases.

A detailed discussion of risk characterization results for current Facility operations follows.

Current Operations (Supplemental HRA)
Risk characterization results for the Supplemental HRA are summarized in the attached Health Risk Assessment Summary Form, under Inventory Reporting Year “Current Operations”.

Table ES-18 shows the results of the Supplemental HRA, which reflects current Facility operations, at the modeled PMI[15], the MEIR, and the MEIW. In addition to the 70-yr exposure scenario for the MEIR, the 30-year and 9-year adult resident exposure scenarios, as well as the 9-year child resident scenario, are shown in Table ES-18. As shown in Table ES-19, there are no modeled sensitive receptors above a cancer risk of ten in one million or above a noncancer health hazard index of one in this Supplemental HRA. Sensitive receptors were conservatively evaluated assuming a continuous 70-year exposure period associated with a resident. This is very conservative given that the sensitive receptors evaluated include hospitals, schools, child care facilities, and age-care facilities, where the exposure is not continuous and the duration of potential exposure is much lower than 70 years. Since the Facility is located on the southern side of a large industrial zone, when evaluating the MEIR, receptors within the industrial zone were excluded. The industrial zone was identified based on general plan and zoning maps (City

[13] The modeled cancer risk MEIR moved to Receptor #750 in the Supplemental HRA.

[14] The modeled cancer risk MEIW moved to Receptor #925 in the Supplemental HRA.

[15] The modeled PMI was only evaluated for acute non-cancer hazards. The cancer risk and chronic HI PMI would otherwise be co-located with the MEIW.

of Costa Mesa 2004, City of Costa Mesa 2007, City of Newport Beach 2014), as shown in Figure ES-4. Figures ES-12 through ES-15 show the locations of PMI, MEIR, MEIW, and the MEISR, as modeled. The modeled cancer risk results at the MEIR and MEIW results demonstrate an 85% reduction in cancer risk compared with the 2013 HRA, due to measures undertaken at the Facility to reduce both point source and potential fugitive Cr(VI) emissions.

Figure ES-16 shows the 70-year lifetime cancer risk modeled zone of impact, which represents potential receptor locations where the multipathway lifetime cancer risk is greater than one in one million. To demonstrate the magnitude of risk reduction achieved through measures undertaken at the Facility to further reduce both point source and potential fugitive Cr(VI) emissions, Figure ES-17 shows the modeled zone of impact for both the 2013 HRA as well as this Supplemental HRA, which represents current Facility operations. Figure ES-18 presents the modeled 1 in one million cancer risk contour assuming all receptors are residential (which is not the case), along with the modeled 10, 25, and 100 in one million cancer risk contours. Figure ES-19 presents the modeled 1 in one million cancer risk contour, along with the modeled 10 and 25[16] in one million cancer risk contours, adjusted for worker cancer risk in the industrial zone immediately north of the Facility (shown in Figure ES-4). Since the maximum chronic and acute HIs are less than 0.5, contours for chronic and acute HI at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

The modeled acute HI PMI from the Facility is located on the southern boundary of the Facility (Fenceline Receptor #14). The modeled acute HI at this location is 0.25, which is well below the SCAQMD Notification Level of 1. This indicates that the acute HI at all other receptor locations evaluated is less than 0.25. Any acute health effects at this location would likely result from potential nickel emissions from nickel plating operations.

The modeled cancer risk MEIR from the Facility is located at a residential unit just south of the Facility (Grid Receptor #750), on the same block as the Facility, located in between Monrovia Avenue and Placentia Avenue. Modeled cancer risk for a 70-year exposure at this location is shown in Table ES-18. The modeled cancer risk at this location would likely be driven by potential Facility Cr(VI) emissions. Table ES-20 shows the cancer risk breakdown at the MEIR by chemical. As discussed in Section 7.2.5.1, a continuous 70-year exposure period is considered a very conservative assumption. Therefore cancer risks are also presented for 30-year, 9-year adult, and 9-year child exposure scenarios in Table ES-18 (which are also very conservative, given that any potential exposures are not likely to be continuous or to exist for the duration periods modeled). Further, concentrations were evaluated at ground-level, per SCAQMD guidance, not at a typical breathing height. The modeled potential cancer risk at the MEIR dropped by 85% compared with the 2013 HRA.

The modeled chronic HI MEIR is co-located with the modeled cancer risk MEIR (Grid Receptor #750). The chronic HI at this location is 0.04, which is well below the SCAQMD Notification

[16] The 100 in one million risk contour has been eliminated here due to the reduction in Facility Cr(VI) emissions.

Level of 1. Any chronic health effects at this location would likely result from potential cadmium emissions from cadmium plating operations.

The modeled acute HI MEIR from the Facility is located just west of the modeled cancer risk and chronic HI MEIR (Grid Receptor #749). The modeled acute HI at this location is 0.12, which is well below the SCAQMD Notification Level of 1. Any acute health effects at this location would likely result from potential nickel emissions from nickel plating operations.

The modeled cancer risk MEIW from the Facility is located at a workplace north of the Facility on Production Place (Grid Receptor #925). Modeled cancer risk for a 40-year workplace exposure at this location is shown in Table ES-18. Any cancer risk at this location would likely driven by potential Facility Cr(VI) emissions. Table ES-21 shows the cancer risk breakdown at the MEIW by chemical. The modeled potential cancer risk at the MEIW dropped by 85% compared with the 2013 HRA.

The modeled chronic HI MEIW is co-located with the modeled cancer risk MEIW, on Production Place (Grid Receptor #925). The chronic HI at this location is 0.06, which is well below the SCAQMD Notification Level of 1. Any chronic health effects at this location would likely result from potential cadmium emissions from cadmium plating operations.

The modeled acute HI MEIW from the Facility is located just west of the modeled cancer risk and chronic HI MEIW (Grid Receptor #924). The modeled acute HI at this location is 0.06, which is well below the SCAQMD Notification Level of 1. Any acute health effects at this location would likely result from potential nickel emissions from nickel plating operations.

The modeled cancer risk MEISR is located at 1527 Monrovia Avenue, Newport Beach, California (Sensitive Receptor #10942). Exposure at this receptor was conservatively estimated assuming a continuous 70-year lifetime exposure, to provide an upper bound estimate of risk and health effects. This is very conservative given that this sensitive receptor is categorized as a medical facility where the exposure duration is not continuous and is much lower than 70 years. Cancer risk for a 70-year exposure at this location is 2.0 in one million, which is below the SCAQMD Notification Level of 10 in one million. Any cancer risk at this location would likely be driven by potential Facility Cr(VI) emissions. Table ES-22 shows the cancer risk breakdown at the MEISR by chemical. The modeled potential cancer risk at the MEISR dropped by 88% compared with the 2013 HRA.

The modeled chronic HI MEISR is located at 1501 Superior Avenue, Newport Beach, California (Sensitive Receptor #10970). The chronic HI at this location is 0.002, which is below the SCAQMD Notification Level of 1. Any chronic health effects at this location would likely result from potential cadmium emissions from cadmium plating operations.

The modeled acute HI MEISR from the Facility is co-located with the modeled cancer risk MEISR (Sensitive Receptor #10942). The modeled acute HI at this location is 0.01, which is far below the SCAQMD Notification Level of 1. Any acute health effects at this location would likely result from potential nickel emissions from nickel plating operations.

Along with potential cancer risk and non-cancer hazards, potential population exposure was analyzed and potential cancer burden was calculated within the modeled zone of impact. Census block receptors were extracted from HARP v 1.4f within a 5-kilometer radius from the Facility and were modeled in AERMOD. Using census data provided in HARP v 1.4f together with the cancer risk or non-cancer hazard index at each census block receptor, persons exposed to a total potential cancer risk greater than 1 in one million, 10 in one million, 25 in one million, and 100 in one million or a total potential HI of greater than 0.5, 1.0, 3.0, and 5.0 are presented in Table ES-23.[17] Cancer burden was also calculated using the census data provided in HARP v 1.4f together with the cancer risk at each census block receptor. Table ES-24 summarizes the cancer burden results within the modeled zone of impact, which is 0.02 and is well below the District Risk Reduction Level of 0.5 excess cancer cases. The modeled potential cancer burden dropped by 90% compared with the 2013 HRA.

[17] Maximum Chronic and Acute HIs do not exceed 0.5, therefore corresponding population exposures cannot be assessed.

Health Risk Assessment Summary Forms

SCAQMD HEALTH RISK ASSESSMENT SUMMARY FORM

Facility Name : Hixson Metal Finishing

Facility Address: 829 Production Place

Newport Beach, California

Type of Business: Metal Finishing

SCAQMD ID No.: 011818

A. Cancer Risk

(One in a million means one chance in a million of getting cancer from being constantly exposed to a certain level of a chemical over 70 years)

1. Inventory Reporting Year : 2013

2. Maximum Cancer Risk to Receptors :

   a. Residence 407 in a million Location: Receptor #748 (413,375 m east; 3,721,575 m north)

   b. Worker 89.5 in a million Location: Receptor #924 (413,425 m east; 3,721,675 m north)

3. Substances Accounting for 90% of Cancer Risk: Hexavalent Chromium

   Processes Accounting for 90% of Cancer Risk: Potential Fugitive Sources

4. Estimated Population Exposed to Specific Risk Levels

   a. 1 to <10 in a million 45,020

   b. 10 to <100 in a million 759

   c. 100 to <1000 in a million 344

   d. >=1000 in a million 0

   e. Total >= 1 in a million 46,123

5. Cancer Burden: 0.21

   Cancer Burden = (cancer risk) x (no. of people exposed to specific cancer risk within the modeled zone of impact)

6. Maximum Distance to Edge of 1 x 10^{-6} Cancer Risk Isopleth (meters) 3,250

B. Hazard Indices

[Long Term Effects(chronic) and Short Term Effects (acute)]

(non-carcinogenic impacts are estimated by comparing calculated concentration to identified reference exposure levels, and expressing this comparison in terms of a "Hazard Index")

1. Maximum Chronic Hazard Indices:

   a. Residence HI: 0.03 Location: Receptor #750 toxicological endpoint: Respiratory System

   b. Worker HI : 0.07 Location: Receptor #925 toxicological endpoint: Respiratory System

2. Substances Accounting for 90% of Chronic Hazard Index: Cadmium, Hexavalent Chromium

3. Maximum Acute Hazard Index:

   PMI: 0.15 Location: Receptor #14 (Fenceline) toxicological endpoint: Immune System

4. Substances Accounting for 90% of Acute Hazard Index: Nickel

SCAQMD HEALTH RISK ASSESSMENT SUMMARY FORM

Facility Name : Hixson Metal Finishing

Facility Address: 829 Production Place

Newport Beach, California

Type of Business: Metal Finishing

SCAQMD ID No.: 011818

A. Cancer Risk

(One in a million means one chance in a million of getting cancer from being constantly exposed to a certain level of a chemical over 70 years)

1. Inventory Reporting Year : Current Operations

2. Maximum Cancer Risk to Receptors :

   a. Residence 59.2 in a million Location: Receptor #750 (413,425 m east; 3,721,575 m north)

   b. Worker 13.4 in a million Location: Receptor #925 (413,450 m east; 3,721,675 m north)

3. Substances Accounting for 90% of Cancer Risk: Hexavalent Chromium

   Processes Accounting for 90% of Cancer Risk: Potential Fugitive Sources

4. Estimated Population Exposed to Specific Risk Levels

   a. 1 to <10 in a million 2,218

   b. 10 to <100 in a million 344

   c. 100 to <1000 in a million 0

   d. >=1000 in a million 0

   e. Total >= 1 in a million 2,562

5. Cancer Burden: 0.02

   Cancer Burden = (cancer risk) x (no. of people exposed to specific cancer risk within the modeled zone of impact)

6. Maximum Distance to Edge of 1 x 10^{-6} Cancer Risk Isopleth (meters) 990

B. Hazard Indices

[Long Term Effects(chronic) and Short Term Effects (acute)]

(non-carcinogenic impacts are estimated by comparing calculated concentration to identified reference exposure levels, and expressing this comparison in terms of a "Hazard Index")

1. Maximum Chronic Hazard Indices:

   a. Residence HI: 0.04 Location: Receptor #750 toxicological endpoint: Kidney

   b. Worker HI : 0.06 Location: Receptor #925 toxicological endpoint: Kidney

2. Substances Accounting for 90% of Chronic Hazard Index: Cadmium

3. Maximum Acute Hazard Index:

   PMI: 0.25 Location: Receptor #14 (Fenceline) toxicological endpoint: Immune System

4. Substances Accounting for 90% of Acute Hazard Index: Nickel

Executive Summary Tables

Table ES-1
2013 Modeled Annual Emissions by Source and Substance, in Pounds per Year
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	3.29E-01	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.28E-01	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	3.60E-02	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	4.45E-02	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	1.41E-01	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.17E-01	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	5.31E-02	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	2.52E-01	-	-	-	-	-	-	-	-	-	-	8.20E-03	-	-	-	-	-
9	PS1	SB #1	-	-	4.14E-01	-	-	1.34E-05	4.53E+00	4.48E-02	4.20E+01	-	9.81E-04	5.51E-07	2.50E-01	1.36E+02	6.72E+01	5.06E-07	-	-	1.68E-02	1.79E+01	2.55E+01
10	PS2	SB #2	-	-	3.22E-02	-	-	-	4.65E+00	6.60E-04	1.12E+01	-	9.08E-04	2.25E-06	1.29E+01	1.74E+02	4.36E+01	7.88E-09	-	-	8.56E-01	4.40E+01	2.15E+01
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	4.00E-04	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	4.30E-03	2.70E-03	1.80E+01	8.00E-03	-	-	9.50E-03	1.70E-02	-	6.30E-03	-	-	-	-	-	-	1.00E-04	3.00E-04	-	3.66E-02	2.72E-02
13	PS5	Oven #6	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
14	PS6	Oven #7	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
Total Facility Emissions			**1.61E-02**	**1.01E-02**	**6.79E+01**	**3.00E-02**	**2.52E-01**	**1.34E-05**	**9.22E+00**	**1.09E-01**	**5.32E+01**	**2.36E-02**	**8.51E-01**	**2.80E-06**	**1.31E+01**	**3.10E+02**	**1.11E+02**	**8.20E-03**	**3.75E-04**	**1.13E-03**	**8.73E-01**	**6.20E+01**	**4.70E+01**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-2
2013 Modeled Annual Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	4.74E-06	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.84E-06	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	5.17E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	6.41E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.02E-06	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.68E-06	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	7.64E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	2.48E-07	-	-	-	-	-
9	PS1	SB #1	-	-	7.36E-06	-	-	2.37E-10	8.05E-05	7.96E-07	7.46E-04	-	1.74E-08	9.79E-12	4.44E-06	2.42E-03	1.19E-03	8.99E-12	-	-	2.98E-07	3.18E-04	4.52E-04
10	PS2	SB #2	-	-	6.48E-07	-	-	-	9.36E-05	1.33E-08	2.26E-04	-	1.83E-08	4.54E-11	2.59E-04	3.51E-03	8.77E-04	1.59E-13	-	-	1.72E-05	8.85E-04	4.32E-04
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	6.18E-08	3.88E-08	2.59E-04	1.15E-07	-	-	1.37E-07	2.45E-07	-	9.06E-08	-	-	-	-	-	-	1.44E-09	4.31E-09	-	5.26E-07	3.91E-07
13	PS5	Oven #6	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
14	PS6	Oven #7	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
		Total Facility Emissions	**2.72E-07**	**1.71E-07**	**1.15E-03**	**5.06E-07**	**7.61E-06**	**2.37E-10**	**1.75E-04**	**1.88E-06**	**9.72E-04**	**3.98E-07**	**1.22E-05**	**5.51E-11**	**2.63E-04**	**5.92E-03**	**2.07E-03**	**2.48E-07**	**6.32E-09**	**1.90E-08**	**1.75E-05**	**1.21E-03**	**8.87E-04**

Notes:
1. To convert to g/s, the annual emissions (lb/yr) were divided over the source operating schedule hours.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-3
2013 Modeled Maximum Hourly Emissions by Source and Substance, in Pounds per Hour
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	3.76E-05	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.46E-05	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	4.11E-06	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	5.08E-06	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	1.61E-05	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.33E-05	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	6.07E-06	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	6.04E-05	-	-	-	-	-	-	-	-	-	-	2.55E-05	-	-	-	-	-
9	PS1	SB #1	-	-	1.99E-04	-	-	6.42E-09	2.18E-03	2.15E-05	2.02E-02	-	4.72E-07	2.65E-10	1.20E-04	6.54E-02	3.23E-02	2.43E-10	-	-	8.08E-06	8.61E-03	1.22E-02
10	PS2	SB #2	-	-	1.55E-05	-	-	-	2.23E-03	3.17E-07	5.39E-03	-	4.37E-07	1.08E-09	6.18E-03	8.37E-02	2.09E-02	3.79E-12	-	-	4.12E-04	2.11E-02	1.03E-02
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	9.59E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	8.19E-06	5.14E-06	3.43E-02	1.52E-05	-	-	1.81E-05	3.24E-05	-	1.20E-05	-	-	-	-	-	-	1.90E-07	5.71E-07	-	6.97E-05	5.18E-05
13	PS5	Oven #6	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
14	PS6	Oven #7	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
Total Facility Emissions			**1.15E-05**	**7.20E-06**	**4.82E-02**	**2.13E-05**	**6.04E-05**	**6.42E-09**	**4.44E-03**	**6.72E-05**	**2.56E-02**	**1.68E-05**	**9.78E-05**	**1.35E-09**	**6.30E-03**	**1.49E-01**	**5.33E-02**	**2.55E-05**	**2.67E-07**	**8.00E-07**	**4.20E-04**	**2.98E-02**	**2.26E-02**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-4
2013 Modeled Maximum Hourly Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-58-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	4.74E-06	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.84E-06	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	5.17E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	6.41E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.02E-06	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.68E-06	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	7.64E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	3.21E-06	-	-	-	-	-
9	PS1	SB #1	-	-	2.51E-05	-	-	8.09E-10	2.75E-04	2.71E-06	2.54E-03	-	5.94E-08	3.34E-11	1.51E-05	8.23E-03	4.07E-03	3.07E-11	-	-	1.02E-06	1.08E-03	1.54E-03
10	PS2	SB #2	-	-	1.95E-06	-	-	-	2.81E-04	4.00E-08	6.80E-04	-	5.50E-08	1.36E-10	7.79E-04	1.06E-02	2.64E-03	4.77E-13	-	-	5.19E-05	2.66E-03	1.30E-03
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	1.03E-06	6.48E-07	4.32E-03	1.92E-06	-	-	2.28E-06	4.08E-06	-	1.51E-06	-	-	-	-	-	-	2.40E-08	7.20E-08	-	8.78E-06	6.53E-06
13	PS5	Oven #6	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
14	PS6	Oven #7	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
Total Facility Emissions			**1.44E-06**	**9.07E-07**	**6.07E-03**	**2.69E-06**	**7.61E-06**	**8.09E-10**	**5.59E-04**	**8.46E-06**	**3.22E-03**	**2.12E-06**	**1.23E-05**	**1.70E-10**	**7.94E-04**	**1.88E-02**	**6.71E-03**	**3.21E-06**	**3.36E-08**	**1.01E-07**	**5.29E-05**	**3.76E-03**	**2.85E-03**

Notes:
1. Hourly emissions were converted assuming operation over the full hour.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-5
Multipathway Substances and Pathways
Hixson Metal Finishing
Newport Beach, CA

Compound	CAS Number	Pathways
Cadmium	75-07-0	Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Fish Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Protected Vegetable Ingestion; Root Vegetable Ingestion; Water Ingestion
Hexavalent Chromium	18540-29-9	Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Fish Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Protected Vegetable Ingestion; Root Vegetable Ingestion; Water Ingestion
Lead	7439-92-1	Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Fish Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Protected Vegetable Ingestion; Root Vegetable Ingestion; Water Ingestion
Nickel	7440-02-0	Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Protected Vegetable Ingestion; Root Vegetable Ingestion; Water Ingestion
Polynuclear Aromatic Hydrocarbons (PAHs)	1151	Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Fish Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Water Ingestion

References:

Office of Environmental Health Hazard Assessment (OEHHA) Guidance. 2003 Table 5.1. Available online at: http://oehha.ca.gov/air/hot_spots/pdf/HRAfinalnoapp.pdf

Table ES-6
Target Organ Systems for Noncancer Health Effects
Hixson Metal Finishing
Newport Beach, CA

Compound	CAS Number	Chronic Hazard Target Organs	Acute Hazard Target Organs
Acetaldehyde	75-07-0	Respiratory system	Eyes; respiratory system (sensory irritation)
Acrolein	107-02-8	Respiratory system	Eyes; respiratory system (sensory irritation)
Ammonia	7664-41-7	Respiratory system	Respiratory system; eyes
Benzene	71-43-2	Hematologic system	Developmental; Immune system; Hematologic system
Cadmium	7440-43-9	*Inhalation:* Kidney; respiratory system *Oral* : Kidney	-
Crystalline Silica[1]	7631-86-9	Respiratory system	-
Ethyl benzene	100-41-4	Alimentary system (liver); kidney; endocrine system; development	-
Formaldehyde	50-00-0	Respiratory system	Eyes (Sensory irritation)
Glycol Ethers and Acetates[2,3]	1115	Reproductive system; hematologic system; development; alimentary system (liver)	Respiratory system; eyes; reproductive system; development; nervous system
Hexane	110-54-3	Nervous system	-
Hexavalent Chromium	18540-29-9	*Inhalation:* Respiratory system *Oral:* Hematologic system	-
Lead	7439-92-1	Developmental	-
Methanol	67-58-1	Developmental	Nervous system
Methyl Ethyl Ketone	78-93-3	-	Respiratory system; eyes
Methyl Isobutyl Ketone	108-10-1	-	-
Nickel	7440-02-0	*Inhalation:* Respiratory system; hematologic system *Oral:* Developmental	Immune System
PAHs	1151	-	-
Naphthalene	91-20-3	Respiratory system	-
Phosphorus Compounds	7664-38-2	Respiratory system	-
Toluene	108-88-3	Nervous system; respiratory system; developmental	Respiratory, nervous systems; eyes; reproductive/developmental
Xylenes	1330-20-7	Nervous & respiratory systems; eyes	Nervous & respiratory systems; eyes

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. Category includes target organs for substances in the glycol ethers and acetates category.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).

Abbreviations:
HARP = Hotspots Analysis Reporting Program

References:
Office of Environmental Health Hazard Assessment (OEHHA). OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL)s. Available online at: http://www.oehha.ca.gov/air/allrels.html.
OEHHA. Toxicity Criteria Database. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp

Table ES-7
2013 Health Effects Results for Modeled PMI, MEIR, and MEIW
Hixson Metal Finishing
Newport Beach, CA

Receptor	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million[1]	Excess Cancer Risk in One Million (30-year)[2]	Excess Cancer Risk in One Million (9-year, Adult)[2]	Excess Cancer Risk in One Million (9-year, Child)[3]	Chronic HI[4]	Acute HI[4]
Acute HI PMI[5]	413,425	3,721,596	-	-	-	-	-	0.15
Cancer Risk MEIR	413,375	3,721,575	407.0	227.0	68.0	102.0	-	-
Chronic HI MEIR	413,425	3,721,575	-	-	-	-	0.03	-
Acute HI MEIR	413,400	3,721,575	-	-	-	-	-	0.09
Cancer Risk MEIW	413,425	3,721,675	89.5	-	-	-	-	-
Chronic HI MEIW	413,450	3,721,675	-	-	-	-	0.07	-
Acute HI MEIW	413,425	3,721,675	-	-	-	-	-	0.05
AB2588 Thresholds[6]	**-**	**-**	**10.0**	**-**	**-**	**-**	**1.0**	**1.0**

Notes:

1. Excess cancer risks for PMI and MEIR assume a 70-year exposure period; excess cancer risk for MEIW assumes a 40-year exposure period.
2. Assumes exposure for an adult resident, calculated using the Derived (OEHHA) Method.
3. Assumes exposure for a child resident, calculated using the Derived (OEHHA) Method.
4. The chronic HI and acute HI reflect the maximum risk to a given target organ.
5. The location of the Acute HI PMI is on the facility boundary.
6. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:

ARB = (California) Air Resources Board
HI = Hazard Index
MEIR = Maximally Exposed Individual Resident
MEIW = Maximally Exposed Individual Worker
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

References:

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf.

Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table ES-8
2013 Health Effects Results for Modeled Sensitive Receptors, Excess Cancer Risk ≥10 in one million or HI≥1
Hixson Metal Finishing
Newport Beach, CA

Receptor[1]	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million (70-year)[2]	Excess Cancer Risk in One Million (30-year)[3]	Excess Cancer Risk in One Million (9-year, Adult)[3]	Excess Cancer Risk in One Million (9-year, Child)[4]	Chronic HI[5]	Acute HI[5]
10942	413,172	3,721,497	17.1	9.5	2.9	4.3	0.001	0.007
10970	413,974	3,721,750	12.5	7.0	2.1	3.1	0.001	0.003
10971	414,024	3,721,803	11.7	6.5	2.0	2.9	0.001	0.002
10943	413,807	3,721,552	11.3	6.3	1.9	2.8	0.001	0.004
AB2588 Thresholds[6]	**-**	**-**	**10.0**	**-**	**-**	**-**	**1.0**	**1.0**

Notes:

1. The maximally exposed sensitive receptors are at:
   Receptor 10942 - Allergy Immuno Technologies, 1527 Monrovia Ave, Newport Beach
   Receptor 10970 - Multiple medical offices, 1501 Superior Ave, Newport Beach
   Receptor 10971 - Share Ourselves Free Medical Clinic, 1550 Superior Ave, Costa Mesa
   Receptor 10943 - Multiple medical offices and nursing home, 1555 Superior Ave, Newport Beach
   Receptor 10942 represents the Cancer Risk and Acute HI MEISR. Receptor 10970 represents the Chronic HI MEISR.
2. Excess cancer risks for sensitive receptors conservatively assume a continuous 70-year exposure period associated with a resident. This is very conservative given that the sensitive receptors evaluated include hospitals, schools, child care facilities, and age-care facilities, where the exposure duration is not continuous and is much lower than 70 years. Therefore, alternative, and likely more representative (though still conservative) exposure periods are shown here.
3. Assumes exposure for an adult resident, calculated using the Derived (OEHHA) Method.
4. Assumes exposure for a child resident, calculated using the Derived (OEHHA) Method.
5. The chronic HI and acute HI reflect the maximum risk to a given target organ.
6. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:

ARB = (California) Air Resources Board
HI = Hazard Index
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

References:

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf.

Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table ES-9
2013 Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIR: Receptor #748							
UTM East (m): 413,375, UTM North (m): 3,721,575; Residential Unit South of Facility							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	1.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	3.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	1.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	4.0E-04	1.1E-07	3.7E-06	0.0E+00	6.1E-07	407.0	100%
Lead	5.6E-15	3.6E-16	1.2E-14	0.0E+00	8.4E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	8.2E-11	1.1E-09	1.6E-10	0.0E+00	1.4E-09	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	9.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.9	0%
Naphthalene	8.4E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**4.0E-04**	**1.1E-07**	**3.7E-06**	**0.0E+00**	**6.1E-07**	**407.0**	**100%**

Abbreviations:
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table ES-10
2013 Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIW: Receptor #924					
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place					
Chemical Name	**Excess Cancer Risk by Exposure Pathway**			**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**		
Acetaldehyde	7.5E-12	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.4E-10	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	2.7E-09	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	7.2E-11	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	8.7E-05	7.8E-07	1.3E-06	88.8	99%
Lead	5.8E-15	1.1E-14	1.8E-14	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.3E-09	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	6.8E-11	1.6E-09	2.0E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	6.4E-07	0.0E+00	0.0E+00	0.6	1%
Naphthalene	6.3E-12	0.0E+00	0.0E+00	0.0	0%
Total	**8.7E-05**	**7.8E-07**	**1.3E-06**	**89.5**	**100%**

Abbreviations:
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table ES-11
2013 Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEISR: Receptor #10942							
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	1.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	3.3E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	9.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	2.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	1.7E-05	4.7E-09	1.5E-07	0.0E+00	2.6E-08	17.1	100%
Lead	1.4E-15	9.0E-17	3.0E-15	0.0E+00	2.1E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	1.4E-11	1.9E-10	2.8E-11	0.0E+00	2.4E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	5.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.1	0%
Naphthalene	1.5E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**1.7E-05**	**4.9E-09**	**1.5E-07**	**0.0E+00**	**2.6E-08**	**17.1**	**100%**

Abbreviations:
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table ES-12
2013 Population Exposure within Modeled Zone of Impact[1,2]
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk (number in one million)	Population
≥1 to <10	45,020
≥10 to <25	344
≥25 to <100	415
≥100 to <1000	344
≥1000	0
Total	**46,123**

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater (≥ 1.0×10^{-6}) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. Maximum Chronic and Acute HIs do not exceed 0.5, therefore corresponding population exposures are not applicable.

Abbreviations:

HI = Hazard Index

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Table ES-13
2013 Cancer Burden within Modeled Zone of Impact[1]
Hixson Metal Finishing
Newport Beach, CA

Total Cancer Burden[2]
0.21

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater ($\geq 1.0 \times 10^{-6}$) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. As defined by ARB, cancer burden is the estimated potential increase in the occurrence of cancer cases in a population subject to an incremental cancer risk of greater than one in one million resulting from exposure to toxic air contaminants.

Abbreviations:

ARB = (California) Air Resources Board

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Table ES-14
Current Operations, Modeled Annual Emissions by Source and Substance, in Pounds per Year
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	9.88E-03	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	2.10E-02	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.23E-02	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.19E-02	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.03E-02	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	2.77E-02	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.21E-02	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	2.52E-01	-	-	-	-	-	-	-	-	-	-	8.20E-03	-	-	-	-	-
9	PS1	SB #1	-	-	4.14E-01	-	-	4.45E-06	4.53E+00	4.48E-02	4.20E+01	-	3.27E-04	1.84E-07	2.50E-01	1.36E+02	6.72E+01	1.69E-07	-	-	1.68E-02	1.79E+01	2.55E+01
10	PS2	SB #2	-	-	3.22E-02	-	-	-	4.65E+00	6.60E-04	1.12E+01	-	3.03E-04	7.51E-07	1.29E+01	1.74E+02	4.36E+01	2.62E-09	-	-	8.56E-01	4.40E+01	2.15E+01
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	4.00E-04	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	4.30E-03	2.70E-03	1.80E+01	8.00E-03	-	-	9.50E-03	1.70E-02	-	6.30E-03	-	-	-	-	-	-	1.00E-04	3.00E-04	-	3.66E-02	2.72E-02
13	PS5	Oven #6	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
14	PS6	Oven #7	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
		Total Facility Emissions	**1.61E-02**	**1.01E-02**	**6.79E+01**	**3.00E-02**	**2.52E-01**	**4.45E-06**	**9.22E+00**	**1.09E-01**	**5.32E+01**	**2.36E-02**	**1.16E-01**	**9.34E-07**	**1.31E+01**	**3.10E+02**	**1.11E+02**	**8.20E-03**	**3.75E-04**	**1.13E-03**	**8.73E-01**	**6.20E+01**	**4.70E+01**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-15
Current Operations, Modeled Annual Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	1.42E-07	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	3.02E-07	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.76E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.71E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.92E-07	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	3.98E-07	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.75E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	2.48E-07	-	-	-	-	-
9	PS1	SB #1	-	-	7.36E-06	-	-	7.91E-11	8.05E-05	7.96E-07	7.46E-04	-	5.81E-09	3.26E-12	4.44E-06	2.42E-03	1.19E-03	3.00E-12	-	-	2.98E-07	3.18E-04	4.52E-04
10	PS2	SB #2	-	-	6.48E-07	-	-	-	9.36E-05	1.33E-08	2.26E-04	-	6.10E-09	1.51E-11	2.59E-04	3.51E-03	8.77E-04	5.29E-14	-	-	1.72E-05	8.85E-04	4.32E-04
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	6.18E-08	3.88E-08	2.59E-04	1.15E-07	-	-	1.37E-07	2.45E-07	-	9.06E-08	-	-	-	-	-	-	1.44E-09	4.31E-09	-	5.26E-07	3.91E-07
13	PS5	Oven #6	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
14	PS6	Oven #7	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
		Total Facility Emissions	**2.72E-07**	**1.71E-07**	**1.15E-03**	**5.06E-07**	**7.61E-06**	**7.91E-11**	**1.75E-04**	**1.88E-06**	**9.72E-04**	**3.98E-07**	**1.68E-06**	**1.84E-11**	**2.63E-04**	**5.92E-03**	**2.07E-03**	**2.48E-07**	**6.32E-09**	**1.90E-08**	**1.75E-05**	**1.21E-03**	**8.87E-04**

Notes:
1. To convert to g/s, the annual emissions (lb/yr) were divided over the source operating schedule hours.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-16
Current Operations, Modeled Maximum Hourly Emissions by Source and Substance, in Pounds per Hour
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	1.13E-06	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	2.40E-06	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.40E-06	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.36E-06	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.31E-06	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	3.16E-06	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.39E-06	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	6.04E-05	-	-	-	-	-	-	-	-	-	-	2.55E-05	-	-	-	-	-
9	PS1	SB #1	-	-	1.99E-04	-	-	2.14E-09	2.18E-03	2.15E-05	2.02E-02	-	1.57E-07	8.83E-11	1.20E-04	6.54E-02	3.23E-02	8.11E-11	-	-	8.08E-06	8.61E-03	1.22E-02
10	PS2	SB #2	-	-	1.55E-05	-	-	-	2.23E-03	3.17E-07	5.39E-03	-	1.46E-07	3.61E-10	6.18E-03	8.37E-02	2.09E-02	1.26E-12	-	-	4.12E-04	2.11E-02	1.03E-02
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	9.59E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	8.19E-06	5.14E-06	3.43E-02	1.52E-05	-	-	1.81E-05	3.24E-05	-	1.20E-05	-	-	-	-	-	-	1.90E-07	5.71E-07	-	6.97E-05	5.18E-05
13	PS5	Oven #6	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
14	PS6	Oven #7	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
Total Facility Emissions			**1.15E-05**	**7.20E-06**	**4.82E-02**	**2.13E-05**	**6.04E-05**	**2.14E-09**	**4.44E-03**	**6.72E-05**	**2.56E-02**	**1.68E-05**	**1.35E-05**	**4.49E-10**	**6.30E-03**	**1.49E-01**	**5.33E-02**	**2.55E-05**	**2.67E-07**	**8.00E-07**	**4.20E-04**	**2.98E-02**	**2.26E-02**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-17
Current Operations, Modeled Maximum Hourly Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-58-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	1.42E-07	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	3.02E-07	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.76E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.71E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.92E-07	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	3.98E-07	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.75E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	3.21E-06	-	-	-	-	-
9	PS1	SB #1	-	-	2.51E-05	-	-	2.70E-10	2.75E-04	2.71E-06	2.54E-03	-	1.98E-08	1.11E-11	1.51E-05	8.23E-03	4.07E-03	1.02E-11	-	-	1.02E-06	1.08E-03	1.54E-03
10	PS2	SB #2	-	-	1.95E-06	-	-	-	2.81E-04	4.00E-08	6.80E-04	-	1.83E-08	4.55E-11	7.79E-04	1.06E-02	2.64E-03	1.59E-13	-	-	5.19E-05	2.66E-03	1.30E-03
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	1.03E-06	6.48E-07	4.32E-03	1.92E-06	-	-	2.28E-06	4.08E-06	-	1.51E-06	-	-	-	-	-	-	2.40E-08	7.20E-08	-	8.78E-06	6.53E-06
13	PS5	Oven #6	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
14	PS6	Oven #7	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
Total Facility Emissions			**1.44E-06**	**9.07E-07**	**6.07E-03**	**2.69E-06**	**7.61E-06**	**2.70E-10**	**5.59E-04**	**8.46E-06**	**3.22E-03**	**2.12E-06**	**1.71E-06**	**5.66E-11**	**7.94E-04**	**1.88E-02**	**6.71E-03**	**3.21E-06**	**3.36E-08**	**1.01E-07**	**5.29E-05**	**3.76E-03**	**2.85E-03**

Notes:
1. Hourly emissions were converted assuming operation over the full hour.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table ES-18
Current Operations, Health Effects Results for Modeled PMI, MEIR, and MEIW
Hixson Metal Finishing
Newport Beach, CA

Receptor	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million[1]	Excess Cancer Risk in One Million (30-year)[2]	Excess Cancer Risk in One Million (9-year, Adult)[2]	Excess Cancer Risk in One Million (9-year, Child)[3]	Chronic HI[4]	Acute HI[4]
Acute HI PMI[5]	413,425	3,721,596	-	-	-	-		0.25
Cancer Risk and Chronic HI MEIR	413,425	3,721,575	59.2	32.9	9.9	14.8	0.04	-
Acute HI MEIR	413,400	3,721,575	-	-	-	-	-	0.12
Cancer Risk and Chronic HI MEIW	413,450	3,721,675	13.4	-	-	-	0.06	-
Acute HI MEIW	413,425	3,721,675	-	-	-	-	-	0.06
AB2588 Thresholds[6]	**-**	**-**	**10.0**	**-**	**-**	**-**	**1.0**	**1.0**

Notes:
1. Excess cancer risks for PMI and MEIR assume a 70-year exposure period; excess cancer risk for MEIW assumes a 40-year exposure period.
2. Assumes exposure for an adult resident, calculated using the Derived (OEHHA) Method.
3. Assumes exposure for a child resident, calculated using the Derived (OEHHA) Method.
4. The chronic HI and acute HI reflect the maximum risk to a given target organ.
5. The location of the Acute HI PMI is on the facility boundary.
6. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:
ARB = (California) Air Resources Board
HI = Hazard Index
MEIR = Maximally Exposed Individual Resident
MEIW = Maximally Exposed Individual Worker
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

References:
Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available
Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed

Table ES-19
Current Operations, Health Effects Results for Modeled Sensitive Receptors, Cancer Risk ≥10 in one million or HI ≥1
Hixson Metal Finishing
Newport Beach, CA

Receptor[1]	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million (70-year)[1]	Chronic HI[2]	Acute HI[2]
There are no sensitive receptors with a cancer risk ≥ 10 or HI ≥ 1.					
AB2588 Thresholds[3]	**-**	**-**	**10.0**	**1.0**	**1.0**

Notes:

1. Excess cancer risks for sensitive receptors conservatively assume a continuous 70-year exposure period associated with a resident. This is very conservative given that the sensitive receptors evaluated include hospitals, schools, child care facilities, and age-care facilities, where the exposure duration is not continuous and is much lower than 70 years. Therefore, alternative, and likely more representative (though still conservative) exposure periods are shown here.
2. The chronic HI and acute HI reflect the maximum risk to a given target organ.
3. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:

ARB = (California) Air Resources Board
HI = Hazard Index
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

References:

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf.

Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table ES-20
Current Operations, Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIR: Receptor #750							
UTM East (m): 413,425, UTM North (m): 3,721,575; Residential Unit South of Facility							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	7.5E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	8.9E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	5.6E-05	1.6E-08	5.2E-07	0.0E+00	8.6E-08	57.0	96%
Lead	1.2E-15	7.4E-17	2.4E-15	0.0E+00	1.7E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	4.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	6.1E-11	8.1E-10	1.2E-10	0.0E+00	1.0E-09	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	2.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2	4%
Naphthalene	6.2E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**5.9E-05**	**1.6E-08**	**5.2E-07**	**0.0E+00**	**8.7E-08**	**59.2**	**100%**

Abbreviations:
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table ES-21
Current Operations, Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIW: Receptor #925					
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place					
Chemical Name	**Excess Cancer Risk by Exposure Pathway**			**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**		
Acetaldehyde	8.7E-12	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.6E-10	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	2.8E-09	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	9.9E-11	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	1.2E-05	1.1E-07	1.8E-07	12.4	93%
Lead	1.6E-15	2.9E-15	4.9E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.9E-09	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	7.9E-11	1.8E-09	2.4E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	9.7E-07	0.0E+00	0.0E+00	1.0	7%
Naphthalene	7.3E-12	0.0E+00	0.0E+00	0.0	0%
Total	**1.3E-05**	**1.1E-07**	**1.9E-07**	**13.4**	**100%**

Abbreviations:
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table ES-22
Current Operations, Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEISR: Receptor #10942							
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	1.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	3.3E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	9.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	2.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	1.9E-06	5.4E-10	1.8E-08	0.0E+00	3.0E-09	2.0	97%
Lead	4.7E-16	3.0E-17	9.9E-16	0.0E+00	7.0E-16	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	1.4E-11	1.9E-10	2.8E-11	0.0E+00	2.4E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	5.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.1	3%
Naphthalene	1.5E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**2.0E-06**	**7.3E-10**	**1.8E-08**	**0.0E+00**	**3.2E-09**	**2.0**	**100%**

Abbreviations:
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table ES-23
Current Operations, Population Exposure within Modeled Zone of Impact[1,2]
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk (number in one million)	Population
≥1 to <10	2,218
≥10 to <25	3
≥25 to <100	341
≥100	0
Total	**2,562**

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater (≥ 1.0×10^{-6}) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. Maximum Chronic and Acute HIs do not exceed 0.5, therefore corresponding population exposures are not applicable.

Abbreviations:

HI = Hazard Index

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Table ES-24
Current Operations, Cancer Burden within Modeled Zone of Impact[1]
Hixson Metal Finishing
Newport Beach, CA

Total Cancer Burden[2]
0.02

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater ($\geq 1.0 \times 10^{-6}$) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. As defined by ARB, cancer burden is the estimated potential increase in the occurrence of cancer cases in a population subject to an incremental cancer risk of greater than one in one million resulting from exposure to toxic air contaminants.

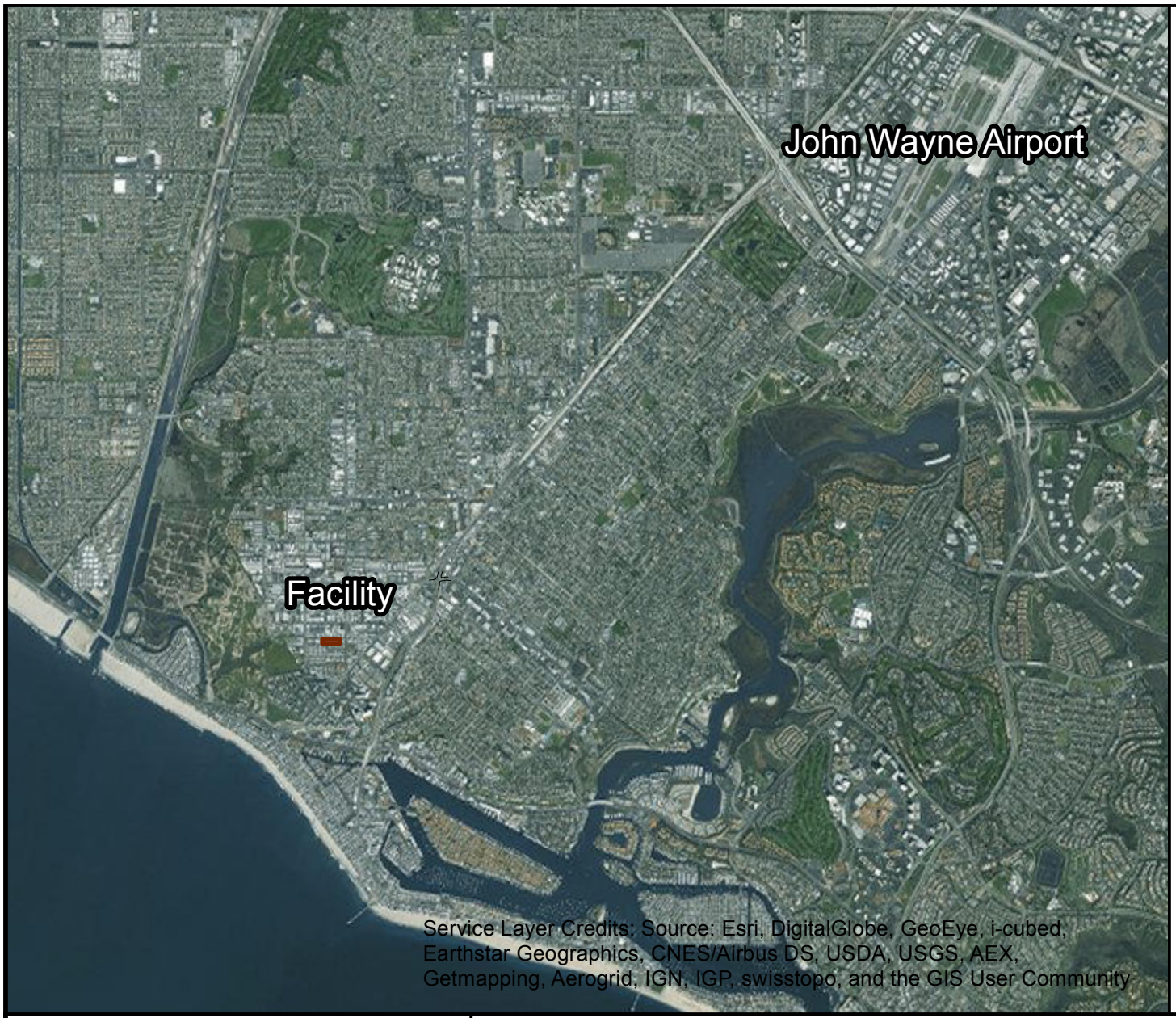
Abbreviations:

ARB = (California) Air Resources Board

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Executive Summary Figures



Legend

Facility

0 0.5 1 Miles

0 1 2 Kilometers

ENVIRON

General Facility Location
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-1

Legend

- Facility Boundary
- Onsite Sources
- Potential Fugitive Sources
- Buildings

SB = Spray Booth

0 50 100 Feet

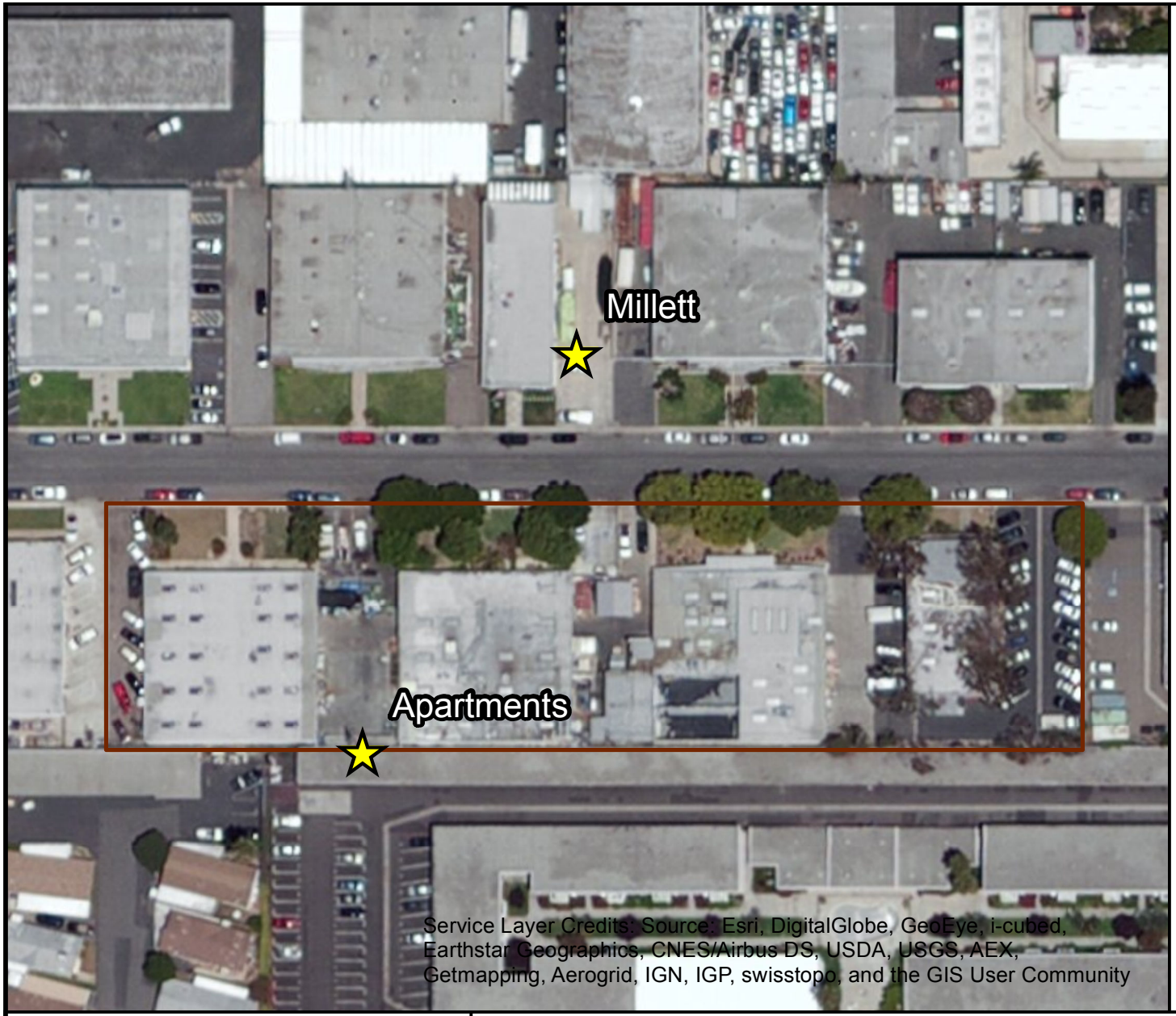
0 20 40 Meters

ENVIRON

Property Layout and Source Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-2



Legend

Monitors

Facility Boundary

0 50 100 Feet

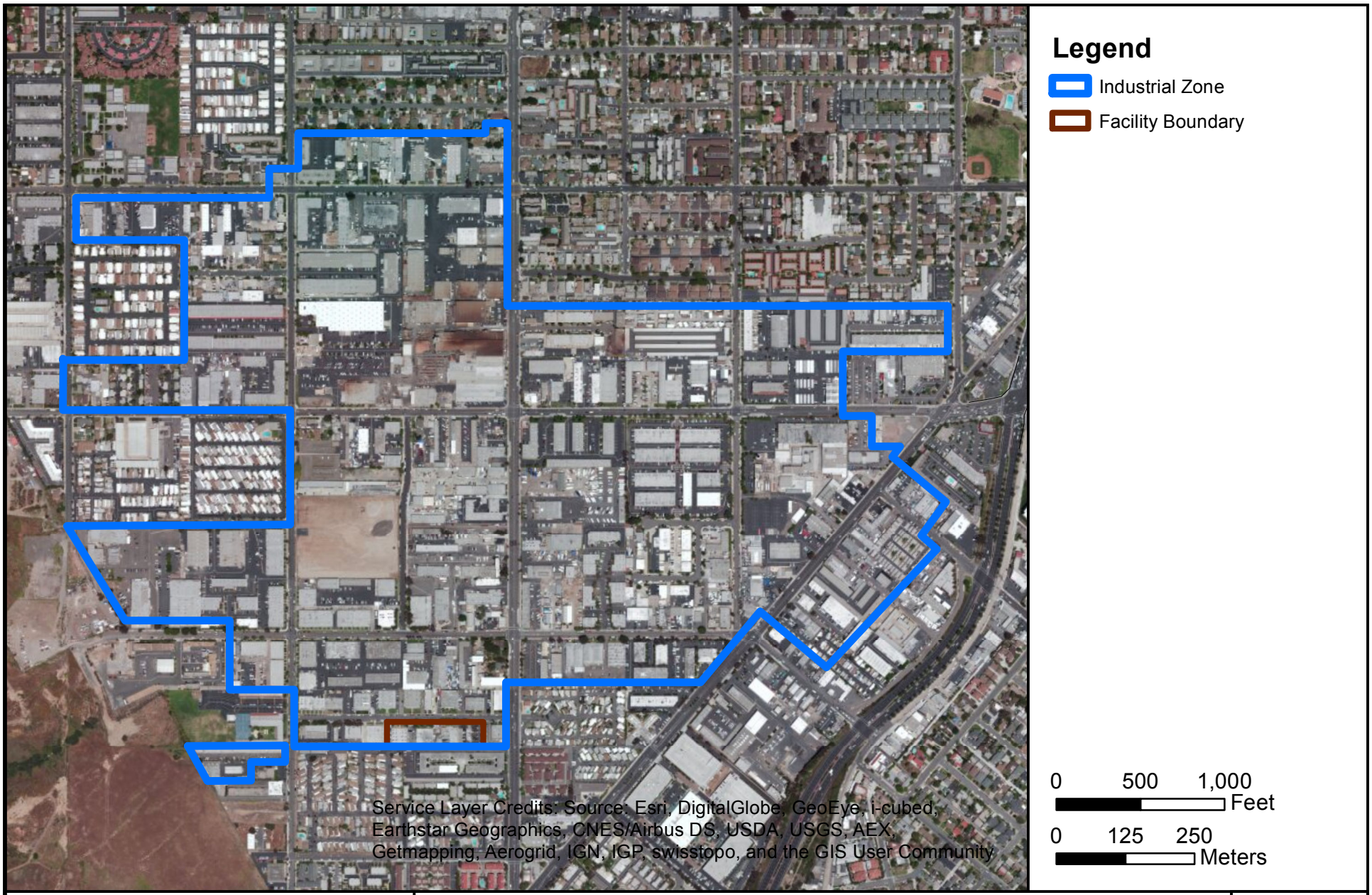
0 10 20 Meters

ENVIRON

Locations of Offsite Monitors
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-3



ENVIRON

Nearby Industrial Zoning
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-4

Legend

- PMI Location
- Facility Boundary

0 100 200 Feet

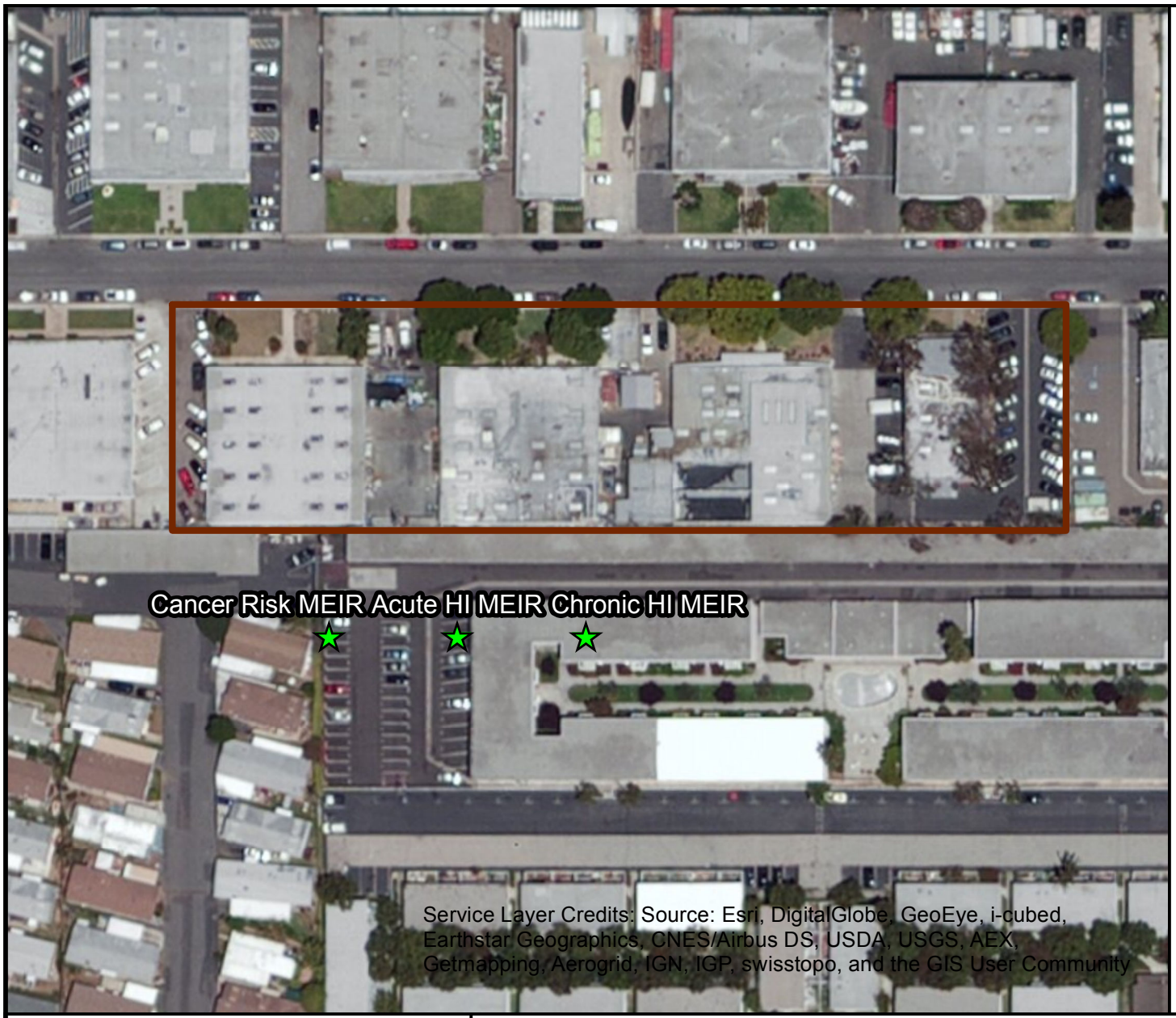
0 25 50 Meters

ENVIRON

2013 Modeled PMI Location
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-5



Legend

- MEIR Locations
- Facility Boundary

0 50 100 Feet

0 25 50 Meters

ENVIRON

2013 Modeled MEIR Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-6

Legend

- MEIW Locations
- Facility Boundary

0 50 100 Feet

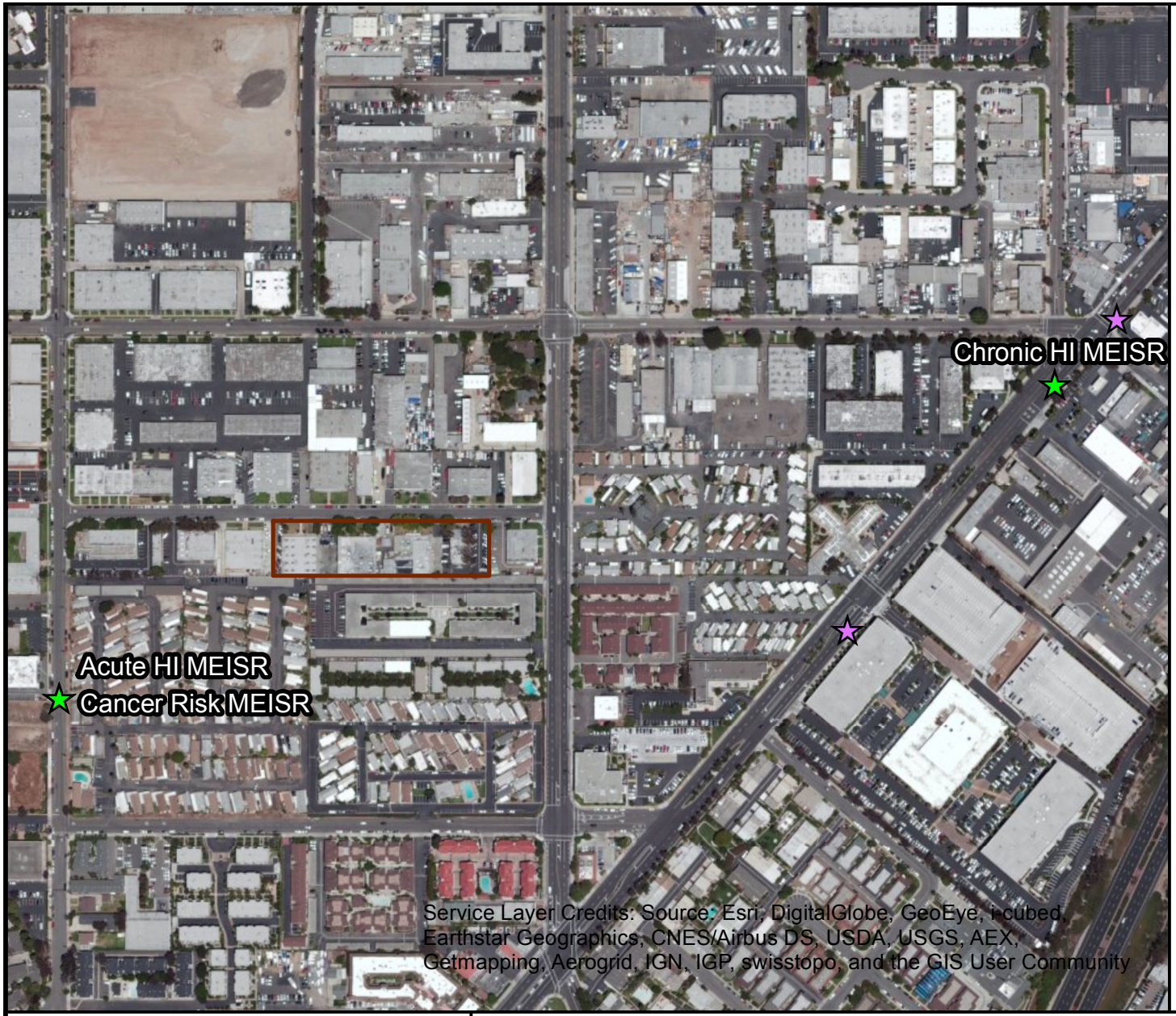
0 25 50 Meters

ENVIRON

2013 Modeled MEIW Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-7



Legend

- MEISR Locations
- Sensitive Receptors, ≥10 in one million cancer risk
- Facility Boundary

0 250 500 Feet

0 100 200 Meters

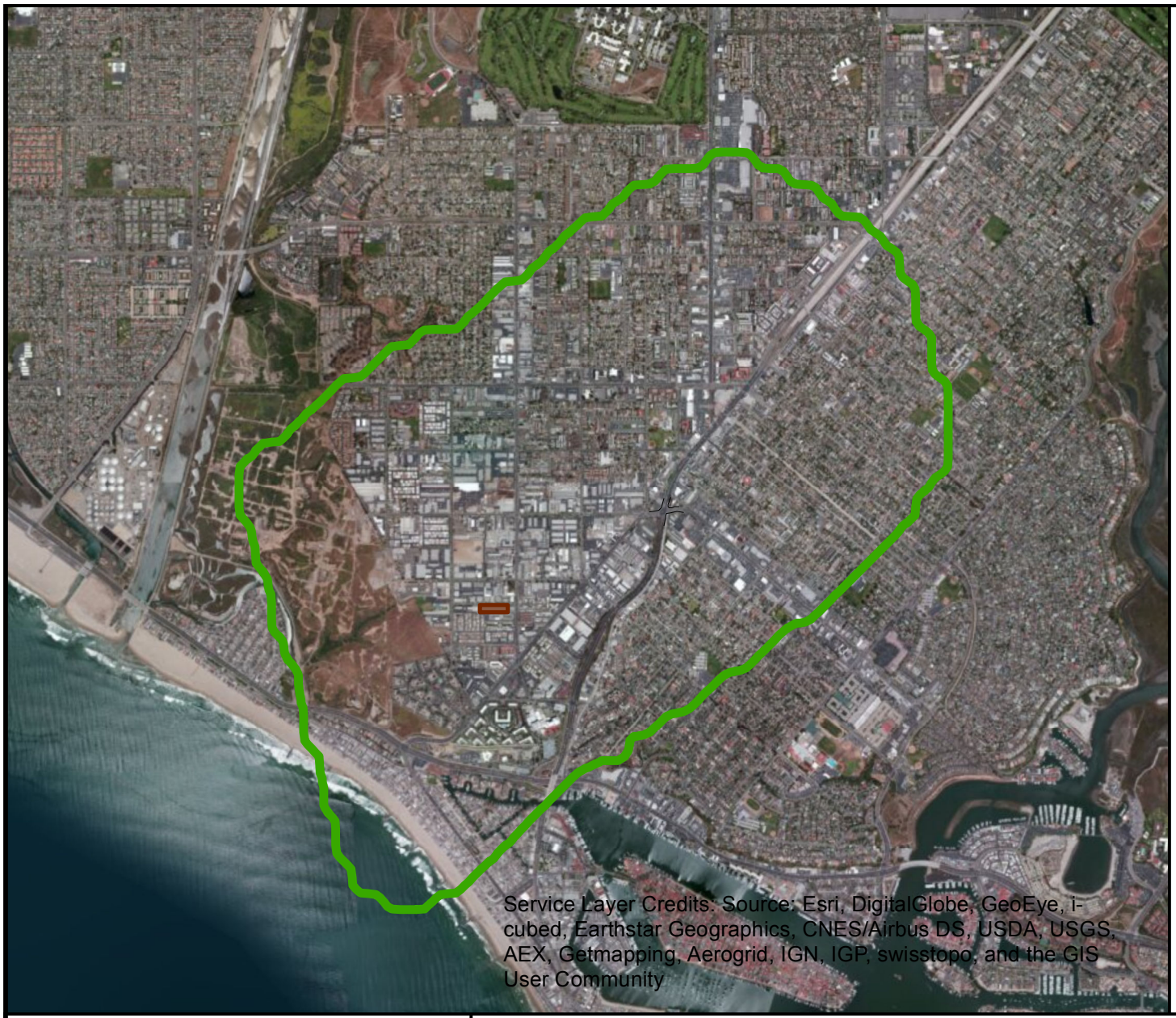
ENVIRON

2013 Modeled Sensitive Receptor Locations (including MEISR)
Sensitive Receptors with Cancer Risk ≥ 10 in one million
Hixson Metal Finishing
Newport Beach, California

N

Figure

ES-8



Legend

Facility Boundary

Zone of Impact = Cancer Risk ≥ 1 in a million or HI ≥ 0.5

The maximum chronic and acute HIs are <0.5, therefore the Zone of Impact is determined by Cancer Risks only.

The Zone of Impact is determined based on residential exposure assumptions.

0 0.5 1 Miles

0 0.5 1 Kilometers

ENVIRON

2013 Modeled Zone of Impact
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-9

Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- 100.0 in one million
- Facility Boundary

Note: Since the maximum chronic and acute HIs are <0.5, contours for chronic and acute HIs at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

0 0.5 1 Miles

0 0.5 1 Kilometers

ENVIRON

2013 Modeled 1, 10, 25, and 100 in One Million Risk Contours
Assuming all Receptors are Residential
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-10

Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- 100.0 in one million
- Facility Boundary

Worker exposure assumptions are only used in the industrial zone identified in Figure ES-4. All other areas assume residential exposure. Therefore, if workers are present in areas outside of the industrial zone identified in Figure ES-4, risks shown in this Figure are not applicable.

0 0.5 1 Miles

0 0.5 1 Kilometers

ENVIRON

2013 Modeled 1, 10, 25, and 100 in One Million Risk Contours Using Worker Exposure for Industrial Areas
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-11

Legend

- PMI Location
- Facility Boundary

0 100 200 Feet

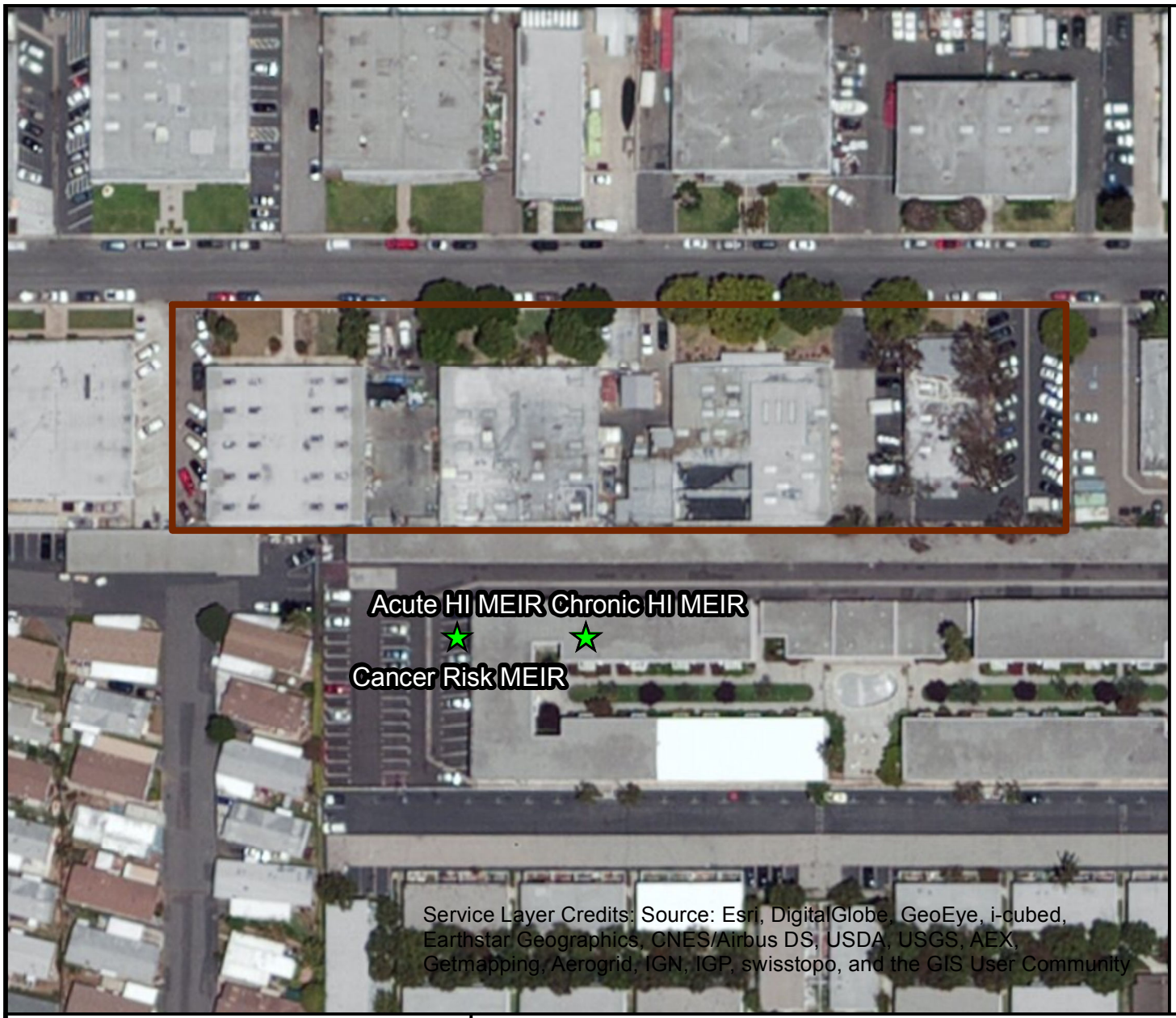
0 25 50 Meters

ENVIRON

Current Operations, Modeled PMI Location
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-12



Legend

- MEIR Locations
- Facility Boundary

0 50 100 Feet

0 25 50 Meters

ENVIRON

Current Operations, Modeled MEIR Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-13

Legend

- MEIW Locations
- Facility Boundary

0 50 100 Feet

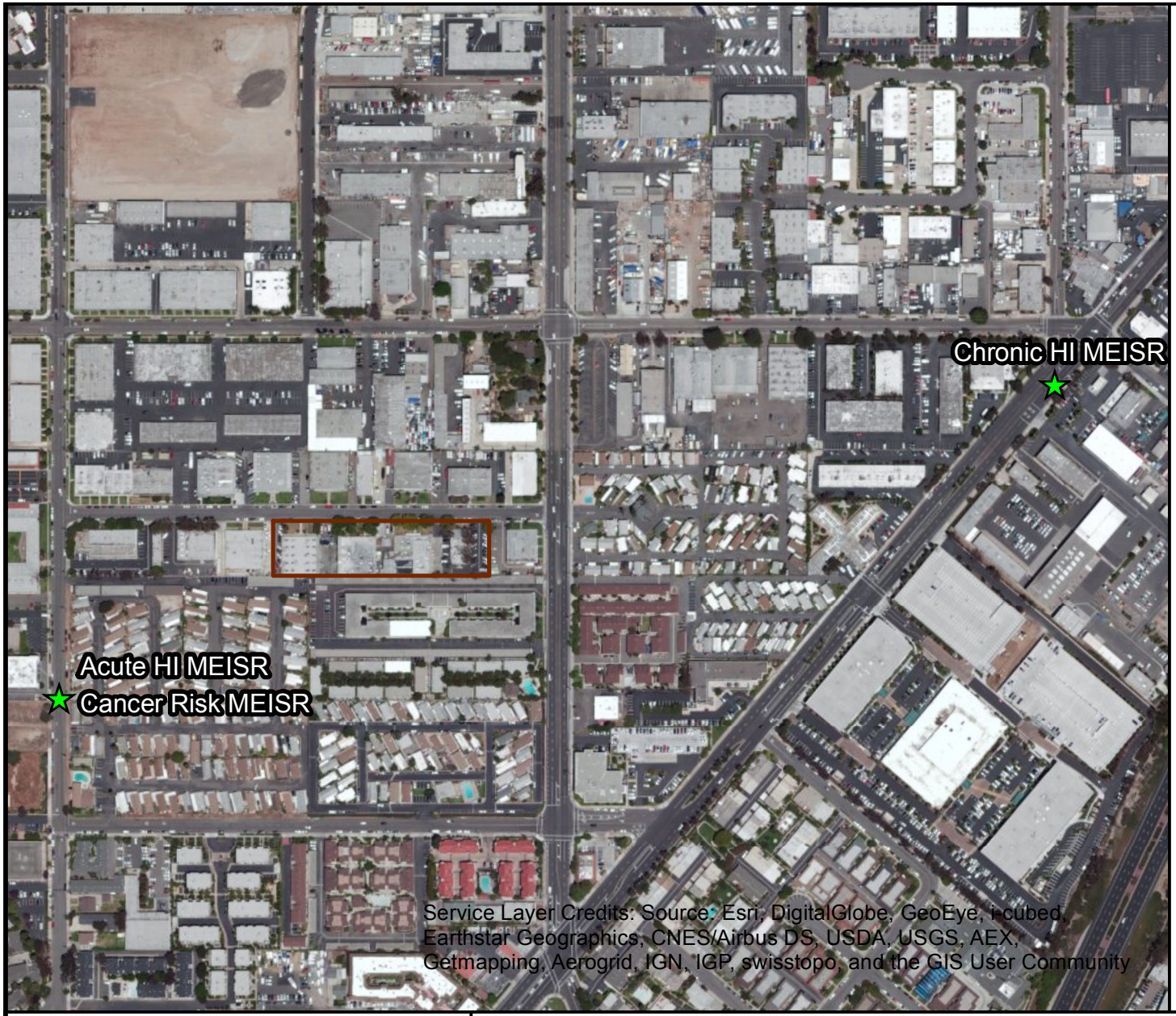
0 25 50 Meters

ENVIRON

Current Operations, Modeled MEIW Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-14



Legend

- MEISR Locations
- Facility Boundary

Note: No sensitive receptors have a cancer risk ≥10 in one million.

0 250 500 Feet

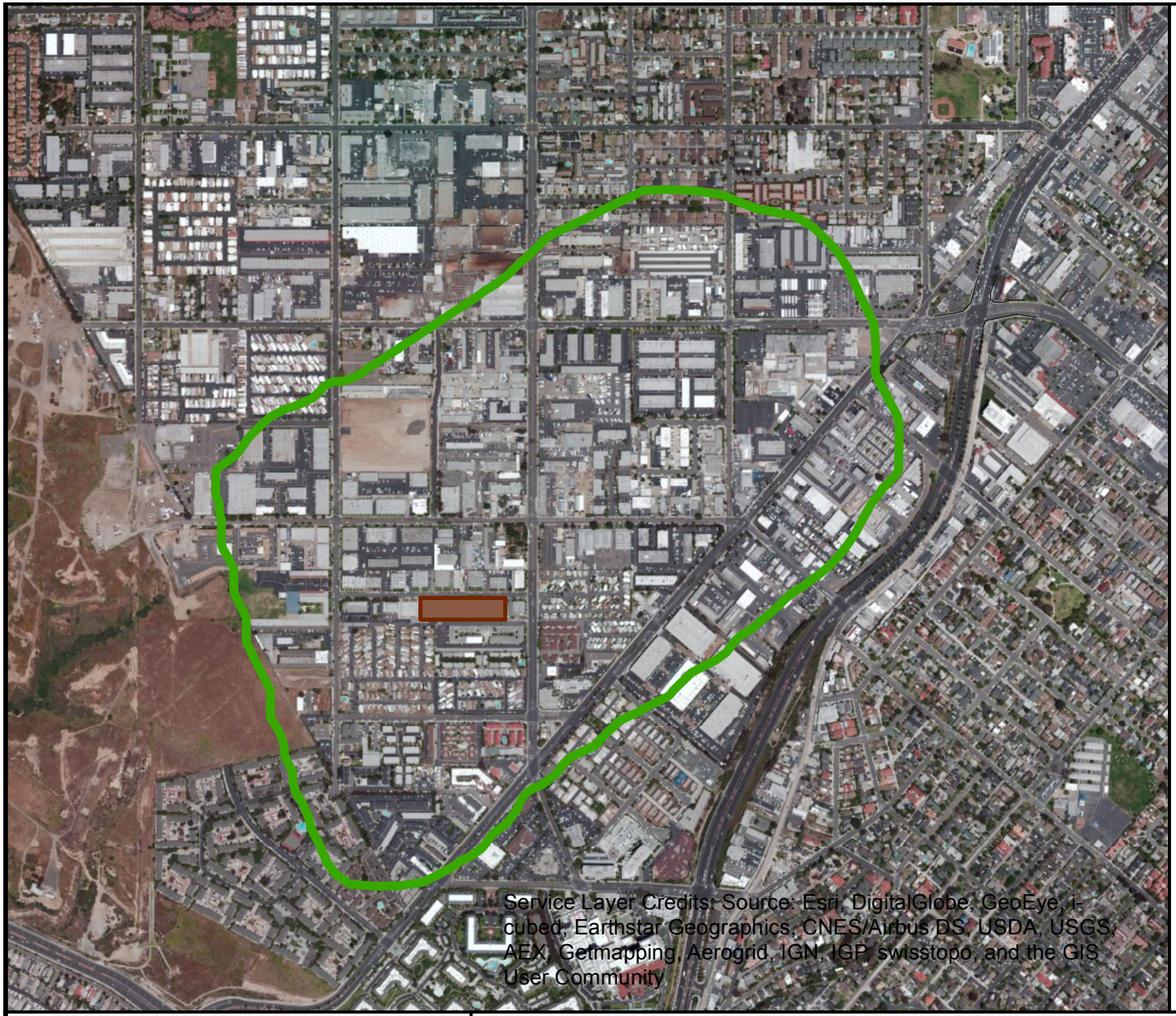
0 100 200 Meters

ENVIRON

Current Operations, Modeled MEISR Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-15



Legend

Facility Boundary

Zone of Impact = Cancer Risk ≥ 1 in a million or HI ≥ 0.5

The maximum chronic and acute HIs are <0.5, therefore the Zone of Impact is determined by Cancer Risks only.

The Zone of Impact is determined based on residential exposure assumptions.

0 500 1,000 Feet

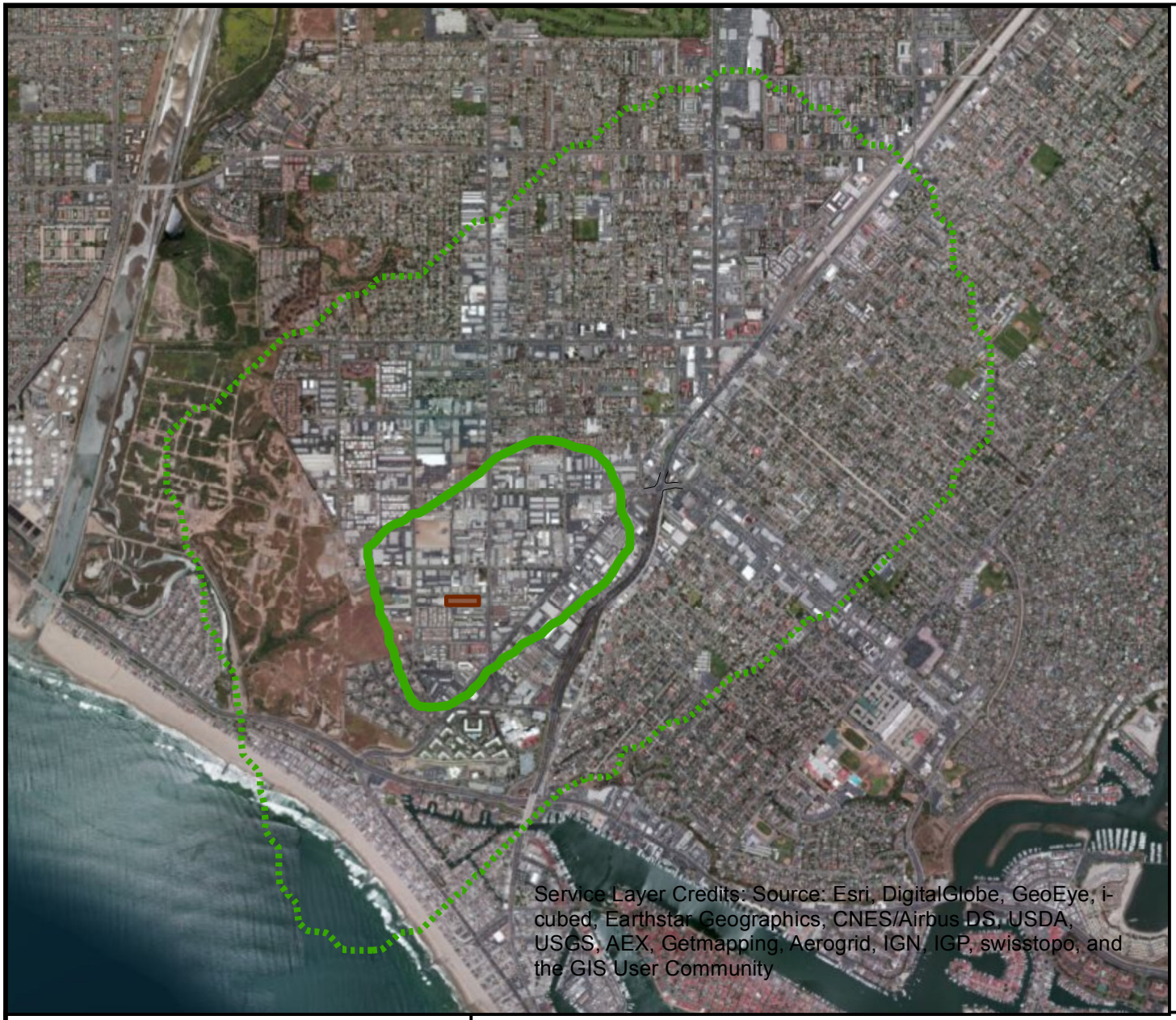
0 250 500 Meters

ENVIRON

Current Operations, Modeled Zone of Impact
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-16



Legend

- Current Operations
- 2013 Operations
- Facility Boundary

Zone of Impact = Cancer Risk ≥ 1 in a million or HI ≥ 0.5

The Zone of Impact is determined based on residential exposure assumptions.

0 0.5 1 Miles

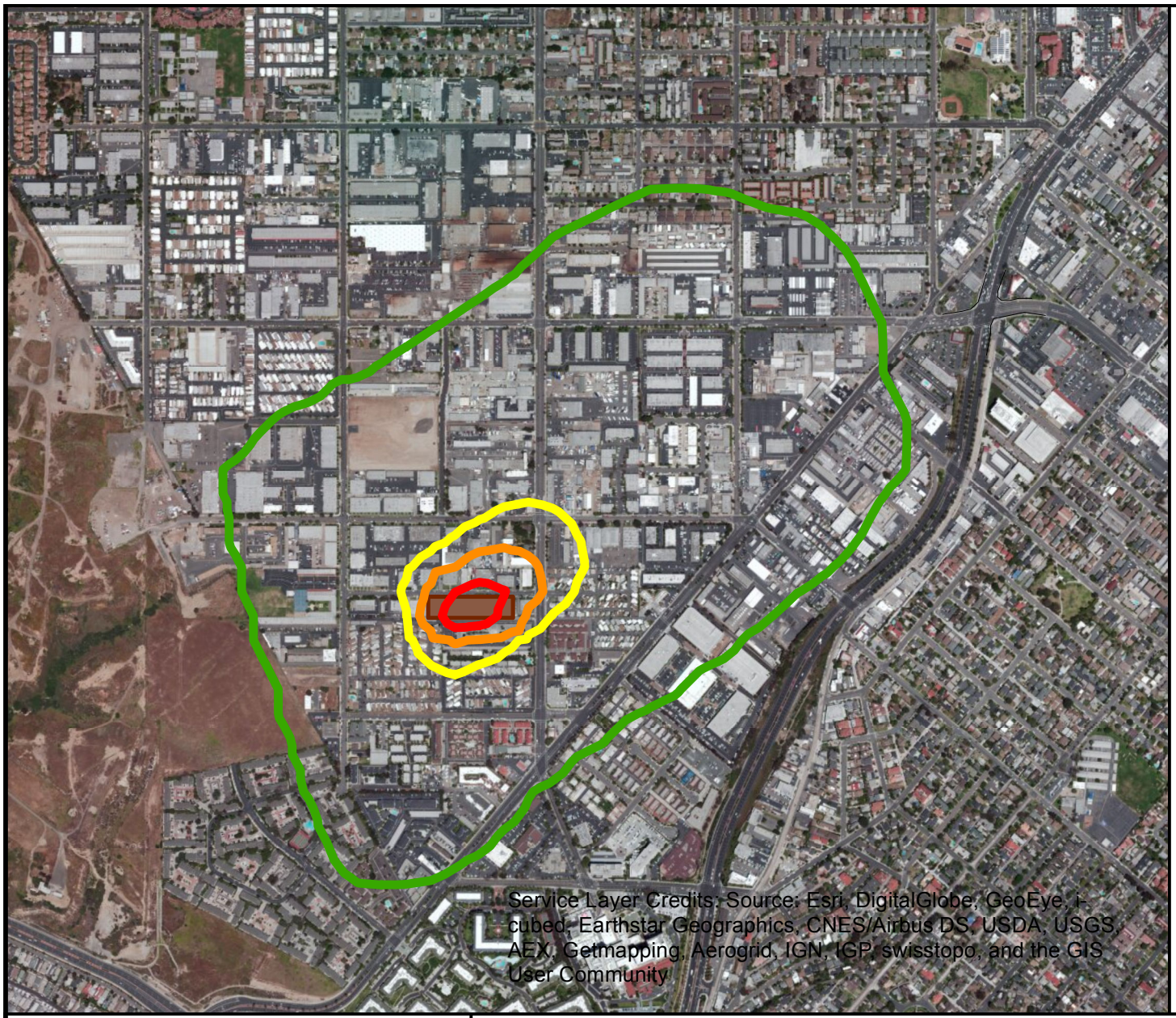
0 0.5 1 Kilometers

ENVIRON

Modeled Zone of Impact
Current Operations v 2013 Operations
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-17



Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- 100.0 in one million
- Facility Boundary

Note: Since the maximum chronic and acute HIs are <0.5, contours for chronic and acute HI at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

0 500 1,000 Feet

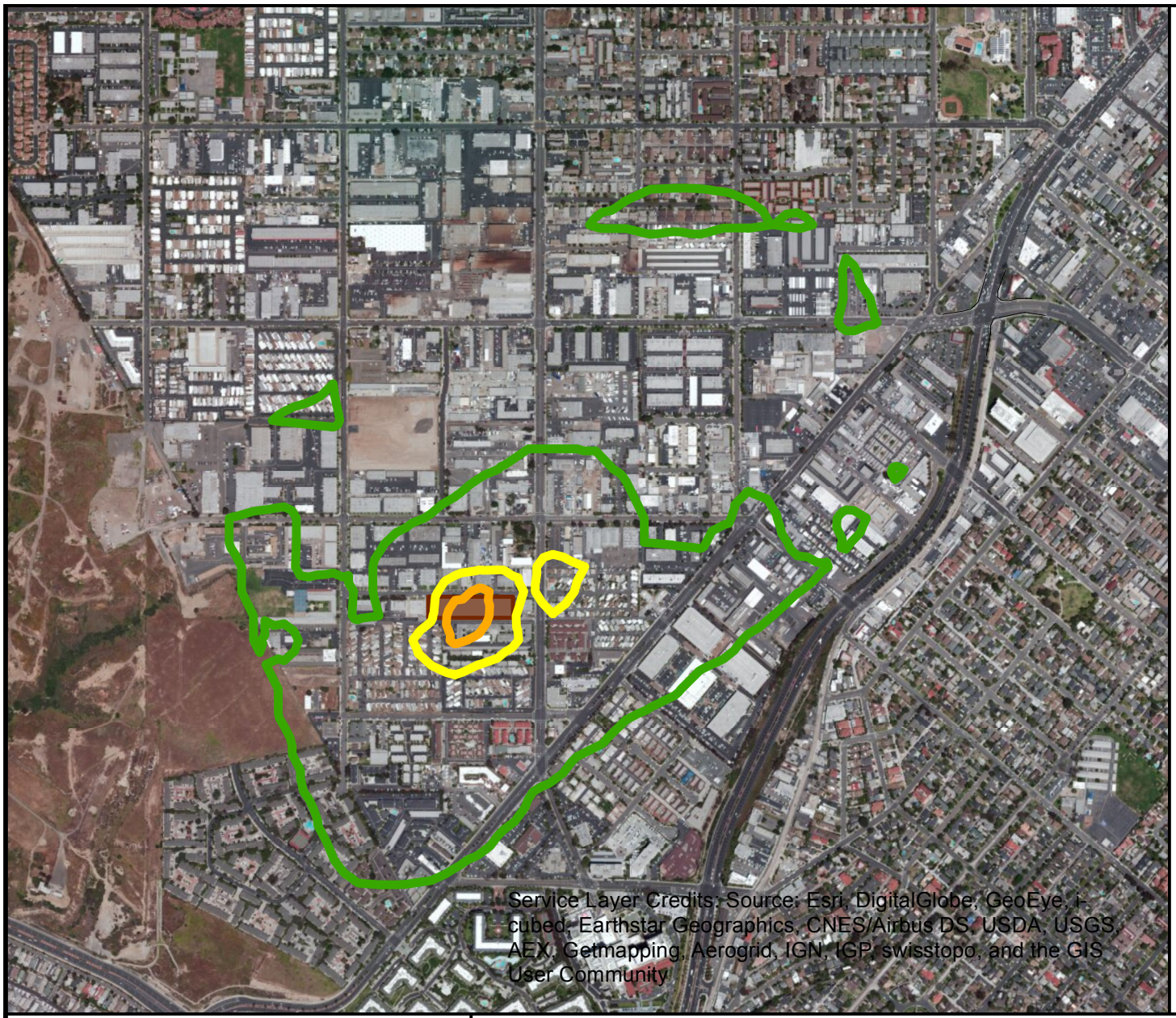
0 250 500 Meters

ENVIRON

Current Operations, Modeled 1, 10, 25, and 100 in One Million Risk Contours
Assuming all Receptors are Residential
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-18



Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- Facility Boundary

Worker exposure assumptions are only used in the industrial zone identified in Figure ES-4. All other areas assume residential exposure. Therefore, if workers are present in areas outside of the industrial zone identified in Figure ES-4, risks shown in this Figure are not applicable.

0 500 1,000 Feet

0 250 500 Meters

ENVIRON

Current Operations, Modeled 1, 10, and 25 in One Million Risk Contours Using Worker Exposure for Industrial Areas
Hixson Metal Finishing
Newport Beach, California

N

Figure
ES-19

1 Introduction

At the direction of Ms. Susan Nakamura, Director of Strategic Initiatives at the South Coast Air Quality Management District (SCAQMD or "the District"), this Air Toxics Hot Spots (AB2588) Health Risk Assessment (HRA) Report for the Hixson Metal Finishing Facility ("the Facility", SCAQMD Facility ID 011818) is being submitted on behalf of Hixson Metal Finishing, located at 829 Production Place in Newport Beach, California. The portion of this HRA Report using exclusively 2013 data ("2013 HRA") follows the guidance of the SCAQMD and addresses the direction to "reconcile the facility's Cr(VI) [hexavalent chromium] emissions and subsequent dispersion model results with the observed ambient Cr(VI) concentrations measured in 2013" of Ms. Nakamura's April 3, 2014, letter. In addition, this report incorporates modeling and results based on current conditions at the Facility ("Supplemental HRA"), which accounts for the significant changes that have been implemented at the Facility over the last year to further reduce potential emissions of hexavalent chromium (Cr(VI)) and other chemicals.

2 Objectives

Consistent with AB2588 requirements, the objective of this HRA report is to estimate potential risks to human populations in the vicinity of the Facility that may be exposed to potential operational emissions. For purposes of the 2013 HRA, at the direction of SCAQMD staff, potential operational emissions were modeled based on 2013 Facility operations, except where changes have been made since then that are permanent and enforceable (as interpreted by the SCAQMD). However, because of significant and measurable changes made to Facility operations in 2014, the 2013 data is not representative of current conditions at and around the Facility. Therefore, ENVIRON has also included modeling and results based on current conditions at the Facility (referred to as the Supplemental HRA). The methodologies used to complete the 2013 and Supplemental HRAs are based on the District-approved Office of Environmental Health Hazard Assessment (OEHHA) of Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments ("OEHHA Guidance," OEHHA 2003) as well as the SCAQMD Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588) ("SCAQMD Supplemental Guidelines," SCAQMD 2011).

As prescribed in the OEHHA Guidance, the most recent Hotspots Analysis Reporting Program (HARP) model, version 1.4f, was used to estimate the potential impacts to human health in the vicinity of the Facility. Dispersion of potential emissions attributable to the Facility was modeled using the most recent version of the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD v 14134). The results from AERMOD were imported into the Risk Analysis module of HARP via the HARP On-Ramp tool (version 1), developed by the California Air Resources Board (ARB), to calculate the potential cancer risk[18], potential chronic non-cancer hazard index (HI), and potential acute HI at an array of receptors.

[18] Cancer risks evaluated in the 2013 and Supplemental HRAs refer to the calculated excess cancer risk due to potential emissions at the Facility, as required by OEHHA and SCAQMD guidance documents.

3 Hazard Identification [Section III.A]

The list of potentially emitted substances considered in preparation of the 2013 and Supplemental HRAs is from Appendix A-I of the California Air Resources Board (CARB) AB2588 requirements and the OEHHA Guidance. The AB2588 toxic air contaminants (TACs) potentially emitted from the Facility are shown in Table 1, consistent with the Facility's 2013 Annual Emissions Report (AER) submitted on March 4, 2014. Within the AER, emissions for 21 TACs were reported from six source groups. Table 1 also includes an identification of which compounds are evaluated for cancer risk, non-cancer chronic, or non-cancer acute impacts, as well as which compounds have non-inhalation routes of exposure.[19] For carcinogens, cancer potency factors (CPF) were used for computing cancer risk. For non-cancer health effects, reference exposure levels (REL) were used. The non-carcinogenic hazard indices were computed for chronic and acute exposures with their respective toxicological endpoints shown. For multipathway pollutants, oral doses, oral CPFs, and/or non-inhalation RELs were used as appropriate. Details of the risk assessment procedures used are included in Section 7.

[19] All potential non-inhalation pathways are listed in Table 1.

4 Site Description and Facility Operations [Section III.B.1]

The Facility was founded in 1958 in Newport Beach and is a metal finishing facility that conducts anodizing, testing, plating, coating, and painting operations for the aerospace and defense industries.

The Facility, which is SCAQMD Facility ID 011818, is located at Universal Transverse Mercator (UTM) coordinates 413,427.6 meters (m) East and 3,721,617.5 m North, in Newport Beach, as shown in Figure 1. The Facility is located about one mile from the coast and lays about 20 miles to the west of the Santa Ana Mountains. Some smaller hills lie about five miles southeast of the Facility in Crystal Cove State Park. The Facility is located in a predominantly industrial area. The Facility is bordered by industrial properties to the north and west, and mixed commercial and residential properties to the south and east.[20] As recommended in the SCAQMD Supplemental Guidelines and the SCAQMD Modeling Guidance for AERMOD (SCAQMD, 2014b), the urban dispersion option was used with a population of 3,010,759, based on the population of Orange County.

Due to its location in an urbanized area with no drinking water reservoirs within the zone of influence, exposure to TACs from the Facility was estimated for the inhalation, dermal, soil ingestion, home-grown produce, and mother's milk pathways enabled. [21] The input parameters for each pathway are further discussed in Section 7.2.5.

Potential onsite sources of emissions include the chrome anodizing line, nickel and cadmium plating, curing and drying ovens, paint spray booths, and miscellaneous natural gas sources such as water heaters. Facility equipment such as tanks, racks, and drums and operations such as packaging, product transfer, and maintenance and cleaning activities may have the potential to contribute to fugitive Cr(VI) emissions, which have been estimated and included in the 2013 and Supplemental HRAs. A plant layout showing the location of potential onsite sources and nearby buildings is included as Figure 2.

4.1 Facility Cr(VI) Monitoring

Since January 2011, the SCAQMD has operated two Cr(VI) monitors located adjacent to the Facility[22]. In 2013, two monitors were running, one at the Millet location and one at the Apartments location, as shown in Figure 3. In 2013, samples at the Millet station were taken every three days, while samples at the Apartments station were taken every six days. As mentioned in Section 5.2 below and as discussed in detail in Appendix A, as part of the 2013 HRA, SCAQMD required the Facility "reconcile the facility's Cr(VI) emissions and subsequent

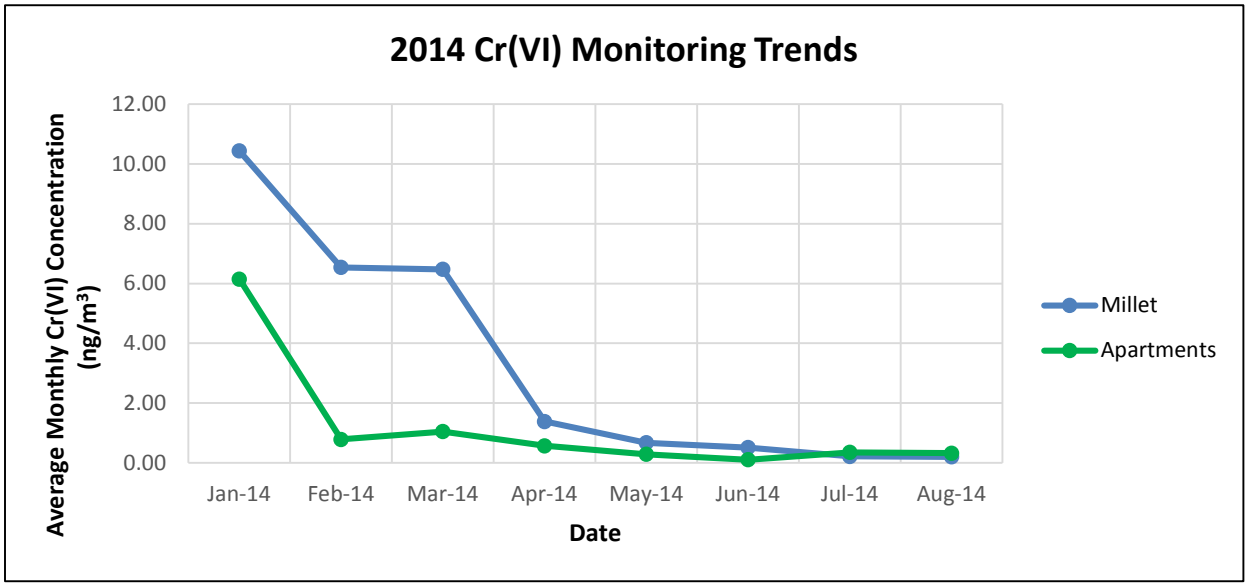
[20] Nearby land uses were identified based on Costa Mesa and Newport Beach zoning maps (City of Costa Mesa, 2007, City of Newport Beach, 2014).

[21] Home-grown produce and mother's milk pathways are only applicable to potential residential exposures.

[22] The Millet monitor was first installed in 2003. A second monitor at Millet was added in January 2011, but has since been removed, therefore only monitoring results from the monitor originally installed at the Millet location were used for purposes of reconciling potential fugitive Cr(VI) emissions from the Facility.

dispersion model results with the observed ambient Cr(VI) concentrations measured in 2013". Details of this reconciliation process are included in Appendix A.

While the potential fugitive Cr(VI) emissions in the 2013 HRA are reconciled to 2013 monitored concentrations, since 2013, the Facility has undergone significant and sustainable operational and procedural changes to reduce both point source and potential fugitive Cr(VI) emissions and corresponding concentrations. This trend can be seen in the figure below, which shows the monthly average sampling results at the Millet and Apartments monitors, beginning in January, 2014. As can be seen from this figure, Cr(VI) concentrations measured in August, 2014 at the Millet and Apartments monitors have dropped by 96% on average since January, 2014. Monitored concentrations have been considerably lower than 2013 levels since April of this year.



Further, beginning in 2014, to better allow the Facility to evaluate potential Cr(VI) emissions, onsite Cr(VI) monitors were installed for Buildings 2, 3, 4, and in between Buildings 2&3 and 3&4 and samples were changed to daily frequency. Since 2013, a number of changes in equipment, operations, and procedures have taken place in an effort to further reduce potential Cr(VI) emissions. These changes include the following:

- Installed covers on all heated tanks that contain Cr(VI);
- Sealed the concrete floors of the High-efficiency particulate air (HEPA) chambers of both spray booths with an epoxy coating;
- Had both spray booths and HEPA chambers and filters professionally inspected by the manufacturers and corrected any issues found (replaced door seals, sealed small access holes);

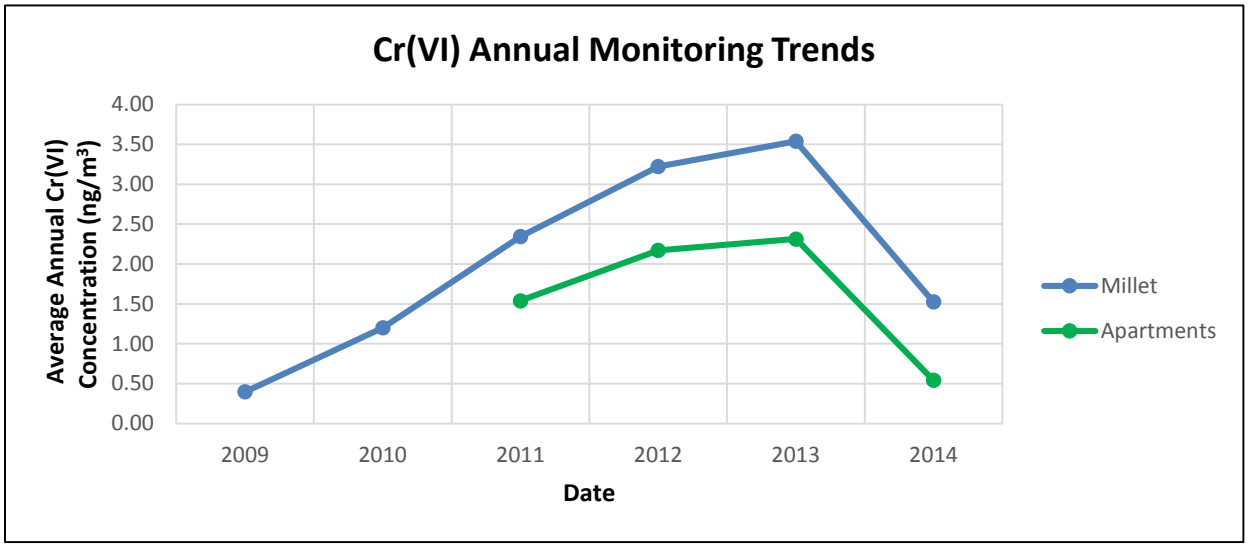
- Had all gauges inspected and calibrated;
- Interviewed and re-trained all employees to report any fugitive emissions that may be witnessed;
- Retrained all employees in fugitive dust control and cleanup;
- Installed a high efficiency sanding and scuffing booth equipped with HEPA filtration in order to eliminate any fugitive emissions from those operations;
- Replaced the exhaust stack serving the number 2 spray booth;
- Increased wash down and mop up activities in all areas that may create chrome containing dust;
- Voluntarily replaced all HEPA filters in the spray booths and in the process upgrading them to Ultra-low Particulate Air (ULPA) (99.999%) filters;
- Installed a complete enclosure around spray booth number 2 in order to eliminate any possible fugitive emissions;
- Over the past several years, replaced and/or upgraded equipment in order to reduce chrome emissions and remain compliant with all SCAQMD rules and regulations. This includes the modification/replacement of both of the spray booths as well as the installation of a new scrubber system on the chromic anodizing tank (all have been upgraded to ULPA filters running at 99.999%);
- More recently, the Facility has voluntarily shut down anodizing operations and has worked with the District to test for chromium compounds within the solutions of every tank located within the anodizing line;
- Installed polly balls (turtles) in a number of processing tanks that contain Cr(VI) as part of their initial makeup;
- Conducted air monitoring tests above all tanks that contain Cr(VI) as part of their makeup and have provided all data to the District as it becomes available;
- Conducted recent source testing of the chromic anodizing tank (tank 70) that shows that emission levels are well within Rule 1469 parameters;
- Conducted recent ambient air monitoring in and around the chromic anodizing tank (tank 70) that indicates employee exposure to be minimal and within published guidelines and regulations;
- Conducted employee exposure monitoring in various locations of the Facility to ascertain that employee exposure levels to numerous metal compounds (in addition to chromium levels) are below occupational health levels;
- Worked with SCAQMD and modified production schedules in order to accommodate SCAQMD inspections and monitoring efforts so SCAQMD personnel could witness/test anodizing operations, spraying operations, and clean up and filter change operations;
- Encapsulated and shut down roof Fan No. 4 on Building 2;

- Modified the Tank 70 scrubber hood, on the chromic acid anodize line, to include an enclosure around the work area.

Further, the Facility has conducted preliminary observations of operations and activities at the surrounding businesses and has found several instances of open air paint spraying operations throughout the nearby neighborhoods. In one case, for example, representatives of Hixson observed the spraying of military grade paint just feet from the location of the SCAQMD monitoring stations which have detected hexavalent chromium emissions.

The results presented in the 2013 HRA incorporate information from 2013 operations plus any permanent and enforceable changes (as interpreted by the SCAQMD) made since that time; however, these results are not indicative of the operations and procedures currently in place at the Facility. To demonstrate the reduction in nearby Cr(VI) concentrations, and the corresponding reduction in risk that has occurred since 2013 operations, a Supplemental HRA was completed that reflects the most current operations at the Facility. As shown in this Supplemental HRA, modeled potential cancer risks dropped by an average of 86% compared with 2013 operations, due to measures undertaken at the Facility to reduce both point source and potential fugitive Cr(VI) emissions.

Further, the 2013 HRA results are not indicative of past long term operations at the Facility. As shown in the figure below, 2013 is the peak year for Cr(VI) monitoring results at the Millet and Apartments monitors, when looking at the period from 2009-2014[23]. Since excess cancer risk is



evaluated with 9-year, 30-year, 40-year, and 70-year periods, using monitoring results only from 2013 does not provide an accurate estimate of actual risk due to Facility operations.

[23] 2014 average annual concentrations incorporate sampling data through September 28, 2014.

5 Quantification of Emissions [Section III.B.2]

5.1 AER Emissions

Emissions included in the 2013 HRA are consistent with the Facility's 2013 AER, which was prepared and submitted by the Facility on March 4, 2014. Within the AER, emissions for 21 TACs were reported from six source groups (see Form TAC of the AER). The compounds identified for evaluation in the 2013 HRA are in Table 1, including an identification of which compounds are evaluated for cancer risk, non-cancer chronic, or non-cancer acute impacts as well as which compounds have non-inhalation routes of exposure. The source groups included in the AER include: (1) curing ovens, (2) drying ovens/miscellaneous, (3) nickel plating, (4) cadmium plating, (5) chromic anodize, and (6) paint. The methods used to calculate the TAC emissions from each of these categories are described in the 2013 AER, along with the corresponding control efficiencies applied, when applicable.

Maximum hourly emissions were quantified either by using maximum equipment ratings together with emission factors as presented in the 2013 AER, or in cases where a maximum equipment rating was not available, hourly emissions were calculated from annual emissions conservatively assuming only one shift of operation (8 hours per day, 5 days per week). For sources that do not emit a TAC with an acute REL, hourly emissions were quantified using annual emissions and annual hours of operation.

Annual and maximum hourly TAC emissions are summarized in Tables 2-5.

5.1.1 Corrections to the 2013 AER

The following corrections were made to the 2013 AER:

- Particulate emissions from the paint spray booths were corrected to account for control efficiencies reflective of the filters installed during 2013. The HEPA filters used in 2013 were rated at 99.997 percent control efficiency. Therefore controlled nickel, Cr(VI), crystalline silica, and lead emissions were calculated assuming a spray gun transfer efficiency of 65% and a HEPA filter control efficiency of 99.997%.
- Any non-particulate TAC emissions from the paint spray booths were corrected to remove the assumed 65% spray gun transfer efficiency since that is only applicable to particulate emissions. Therefore, there was no control efficiency applied to the following TACs: ammonia, formaldehyde, ethylbenzene, glycol ethers and acetates, methanol, methyl ethyl ketone, methyl isobutyl ketone, phosphoric acid, toluene, and xylenes.

5.2 Potential Fugitive Cr(VI) emissions

In addition to the source emissions included in the 2013 AER, the 2013 HRA also includes potential fugitive Cr(VI) emissions. At the direction of SCAQMD, potential fugitive Cr(VI) emissions from the Facility were determined per modeling-monitoring reconciliation relying only

on 2013 data.[24] Appendix A presents a detailed description of how potential fugitive Cr(VI) emissions were determined.

5.3 Current Operations, Supplemental HRA Emissions

Emissions included in the Supplemental HRA are consistent with the emissions used for the 2013 HRA[25], with the following updates to point source and potential fugitive Cr(VI) emissions.

5.3.1 Point Source Emissions

To account for the recent installation of the ULPA filtration system on both spray booths, a 99.999% control efficiency was applied for nickel, Cr(VI), crystalline silica, and lead emissions[26] instead of the 99.997% control efficiency of the prior filters used in 2013.

5.3.2 Potential Fugitive Cr(VI) Emissions

Similar to the 2013 reconciliation performed to determine potential fugitive Cr(VI) emissions, as discussed in detail in Appendix A, a reconciliation was performed the 30-day period of August 2, 2014 to August 31, 2014 to determine current potential fugitive Cr(VI) emissions. This period was chosen because the changes in equipment, operations, and procedures undertaken to reduce Cr(VI) emissions discussed in Section 4 above had been completed and the Facility's activity was at a level representative of future operations. Details of this reconciliation are presented in Appendix A.

Tables 6-9 present annual average and maximum hourly emissions for current Facility operations.

[24] Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

[25] Facility 2013 AER emissions were used in the Supplemental HRA, along with identified corrections in Section 5.1.1 and control efficiency updates presented in Section 5.3.1. To reflect current operations with respect to potential fugitive Cr(VI) emissions, a revised reconciliation was performed using monitored Cr(VI) data from August, 2014, as discussed in Section 5.3.2 and in Appendix A.

[26] The upgraded filter control efficiency was still applied after the 65% spray gun transfer efficiency.

6 Air Dispersion Modeling [Section III.B.3]

ENVIRON used the most recent version of AERMOD (v 14134) to estimate ambient concentrations for the Facility. Model results were then integrated into the latest version of HARP (v 1.4f) using the HARP On-Ramp tool (version 1), developed by ARB.[27] The air dispersion analysis was performed in accordance with OEHHA Guidance, the SCAQMD Supplemental Guidelines, and SCAQMD Modeling Guidance for AERMOD. The results of the air dispersion analysis were used in conjunction with the chemical-specific emissions rates discussed above to estimate potential ambient air concentrations of each compound.

The air dispersion analysis requires the following: identification of source parameters and operating schedules, evaluation of building downwash effects, preparation of meteorological data, evaluation of potential terrain considerations, selection of appropriate dispersion coefficients based on land use, selection of receptor locations, and selection of appropriate averaging time periods. The following sections describe each of these steps and a summary of model options and parameters are shown in Table 10.

Appendices B and D provide electronic files related to the air dispersion modeling analysis.

6.1 Source Parameters and Operating Schedules [Section III.B.2]

2013 Operations (2013 HRA)

Emission source parameters were provided by the Facility or were derived from source test reports. Point source modeling parameters are listed in Table 11. Area sources were used to model the potential fugitive Cr(VI) sources, as well as the nickel and cadmium plating emissions. Corresponding area source modeling parameters are listed in Table 12. The locations of potential onsite sources and nearby buildings are included as Figure 2. Routine sources were modeled according to their operating schedule, while potential fugitive Cr(VI) sources were modeled assuming continuous operation. The operating schedule for each source is shown in Table 13.

Current Operations (Supplemental HRA)

All source parameters and operating schedules used in the Supplemental HRA are consistent with those presented for the 2013 HRA, with the exception of the following:

- To account for the recent shutdown of roof fans on Building 3, the release height of fugitive emissions from Building 3 was updated to ½ of the building height. Area source modeling parameters used in the Supplemental HRA are presented in Table 14.

6.2 Building Downwash

ENVIRON included any surrounding buildings when the distance between the stack and the nearest part of the building in question was less than or equal to five times the building height (EPA 1995). The buildings included and corresponding heights are shown in Table 15. The

[27] HARP On-Ramp Version 1 is available for download online at: http://www.arb.ca.gov/toxics/harp/downloads.htm.

Building Profile Input Program for Plume Rise Model Enhancements (BPIP-PRIME) program was used to model building downwash, consistent with SCAQMD Modeling Guidance for AERMOD.

6.3 Dispersion Parameters

Per the SCAQMD Modeling Guidance for AERMOD, the urban dispersion option was used, with a population of 3,010,759, based on the population of Orange County. AERMOD was run using the regulatory default option, also per SCAQMD Modeling Guidance for AERMOD. Model options and parameters are summarized in Table 10.

6.4 Meteorological Data

After extensive review by SCAQMD, John Wayne Airport meteorological station (WBAN #93184, KSNA) was selected as the most representative surface station for the Facility.[28] While this is not the closest meteorological station (two other SCAQMD stations are closer – Costa Mesa and Superior), based on a review of the wind roses and siting characteristics of all stations in comparison with data available from the Facility's onsite station, John Wayne Airport was selected by the SCAQMD as the most representative station with available and complete data. The Facility's onsite station began operation on June 27, 2014, therefore a full year of meteorological data were not available for use in the 2013 or Supplemental HRAs.

Five years of meteorological data, 2009-2013, were processed for use in AERMOD using surface meteorological data from John Wayne Airport and upper-air meteorological data from San Diego Miramar (WBAN # 03190, KNKX). Data for the John Wayne Airport station in 1-min ASOS format and TD-3505 format were processed through AERMINUTE (v 14237). AERSUFACE (v 13016) was used to determine the corresponding surface characteristics (albedo, bowen ratio, and surface roughness). AERSURFACE input parameters were determined through SCAQMD correspondence, to ensure consistency with SCAQMD methods. AERSURFACE input parameters and final surface characteristics for the John Wayne Airport meteorological station are presented in Table 16. AERMET (v 14134) was used to process the surface and upper-air data for final use in AERMOD. The threshold for calm winds was set at 0.5 m/s, per Environmental Protection Agency (EPA) guidance (USEPA 2013). The five-year meteorological period was determined to meet the 90% quarterly completeness criteria required by EPA (USEPA 2000). Final profile and surface files used in AERMOD are provided in Appendix B. A wind rose for the five-year period from 2009-2013 is provided in Figure 4.

6.5 Terrain

Terrain data were obtained from the United States Geological Survey (USGS), with 1/3 arcsec (~10 meter) National Elevation Dataset (NED) data downloaded (USGS 2013). Elevations and hill heights were calculated for all sources, buildings, and receptors, using the latest version of AERMAP (v 11103).

[28] Phone and email communications between ENVIRON and SCAQMD, September 24-25, 2014.

6.6 Receptor Locations

Sensitive receptors, as identified in the Environmental Data Resources Inc (EDR) Offsite Receptor Report (provided in Appendix C), within a 1-mile radius of the Facility and census block centroids within a 5-km radius of the Facility were included in the model as discrete receptors. Receptor networks were constructed for the dispersion analysis, including along the property boundary line with a spacing of 20 meters,[29] a fine grid containing receptors spaced 25 meters apart out to a 500-meter radius from the Facility, and a coarse grid containing receptors spaced 100 meters apart out to a 5-km radius from the Facility. The grid receptor locations inside of the facility boundary are disregarded in the health risk analysis. Consistent with SCAQMD Modeling Guidance for AERMOD, all receptors were run with a height of 0.0 meters, so that ground-level concentrations are modeled.

6.7 Averaging Times

Calculation of chemical concentrations for use in exposure analysis requires the selection of appropriate concentration averaging times. Multiple dispersion averaging times are used in this analysis and are discussed below. The AERMOD model input and output files used to estimate long- and short-term dispersion factors are presented as an electronic attachment in Appendix D.

6.7.1 Long Term

Average concentrations over the five-year span of the John Wayne Airport meteorological data were calculated for each compound for use in estimating potential residential cancer risks and chronic non-cancer health effects.

6.7.2 Short Term

Maximum short-term concentrations (one-hour averages) of the five-year period modeled were calculated using maximum hourly emission rates to estimate acute non-health effects. One-hour maximum source-specific concentrations were summed regardless of time of occurrence (*i.e.*, hour of year), which can differ by source, thereby conservatively overestimating the true one-hour maximum at any one time.

6.7.3 Dispersion Factors

Both point and area source emissions were modeled using the X/Q ("chi over q") method, such that emission source groups are input to the model with unit average annual emission rates (*i.e.*, 1 gram per second [g/s]), and the model estimates 1-hour maximum or annual average dispersion factors (with units of [µg/m^3]/[g/s]). To calculate annual average ambient air concentrations, the period average dispersion factors were multiplied by the annual emission rates. To calculate 1-hr maximum ambient air concentrations, the 1-hr maximum dispersion factors were multiplied by the maximum hourly emission rates.

[29] Per SCAQMD Supplemental Guidelines, a receptor spacing of 20 meters was used to place boundary receptors since the total Facility area is less than 4 acres.

6.8 HARP On-Ramp

HARP was developed to include the Industrial Source Complex Short Term 3 (ISCST3) air dispersion model, the precursor to AERMOD, which is the air dispersion model currently recommended for regulatory applications. With the advent of AERMOD, which generates output files in a different format than ISCST3, ARB developed the On-Ramp program to integrate AERMOD output files into the risk analysis module of HARP. Rather than running the older ISCST3 model inside the HARP interface, as HARP was designed, ARB created the On-Ramp program to allow results, specifically plot files, from AERMOD to be integrated into HARP.

6.9 Ground-Level Concentrations

2013 Operations (2013 HRA)

Ground-level concentrations (GLCs) in the ambient air at each of the modeled 2013 Point of Maximum Impact (PMI), Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), and Maximally exposed individual sensitive receptor (MEISR) for both the long- and short-term scenarios are shown in Table 17 and are referenced in Section 7.2.2 below.

Current Operations (Supplemental HRA)

GLCs in the ambient air at each of the modeled current operations PMI, MEIR, MEIW, and MEISR for both the long- and short-term scenarios are shown in Table 18 and are referenced in Section 7.2.2 below.

7 Risk Assessment Procedures [Section III.C]

Modeled health risks were estimated for the Facility based on methods and tools outlined in the OEHHA Guidance. Potential Facility emissions and air dispersion results, using the HARP On-Ramp tool, were input into HARP, version 1.4f (ARB 2012a), the OEHHA-recommended program for completing an HRA. The HARP emissions file used is provided in Appendix E. Specific steps taken to complete the 2013 and Supplemental HRAs, such as hazard identification, exposure assessment, dose-response, and risk characterization are described in more detail below.

7.1 Hazard Identification

Table 1 identifies all substances identified as TACs which are potentially emitted from the Facility. The 21 chemicals potentially emitted are the result of curing ovens, drying ovens, miscellaneous natural gas combustion sources, nickel plating, cadmium plating, chromic anodizing, and painting operations. Additionally, per Cr(VI) monitoring data at offsite monitors installed and maintained by the SCAQMD, potential fugitive Cr(VI) emissions have been determined based on modeling-monitoring reconciliation and are included in the 2013 and Supplemental HRAs, as directed by SCAQMD. While the exact origin of the potential fugitive Cr(VI) emissions is still under investigation, potential sources of emissions include Facility equipment such as tanks, racks, and drums as well as Facility operations such as packaging, product transfer, and maintenance and cleaning activities.

Of the 21 substances emitted by the Facility, Table 1 identifies which are evaluated for cancer risk or non-cancer chronic and acute health impacts. There are some TACs which do not have toxicity values for either cancer or non-cancer health effects. OEHHA has not published toxicity values for methyl isobutyl ketone. Toxicity values for cadmium, Cr(VI), nickel, and polynuclear aromatic hydrocarbons (PAHs) specifically indicate health effects from pathways other than inhalation: Cr(VI) and PAHs have oral carcinogenicity; cadmium, Cr(VI), and nickel have oral non-cancer chronic health effects.

7.2 Exposure Assessment

The USEPA (1989) defines exposure as “the contact with a chemical or physical agent” and defines the magnitude of exposure as “the amount of an agent available at human exchange boundaries (i.e., lungs, gut, skin) during a specified time.” The components of the exposure assessment include the identification of potentially exposed populations, the estimation of exposure point concentrations, the identification of exposure pathways, and the selection of exposure assumptions and exposure analysis methods to quantify chemical intakes that may result from potential Facility emissions.

7.2.1 Identification of Potentially Exposed Populations

The potentially exposed populations considered include current residents, off-site workers, and sensitive receptors located within the grid of receptors and described in Section 6.6. Locations of each potentially exposed population were identified based on review of aerial photographs (Google Earth 2013) and nearby general plan and zoning maps (City of Costa Mesa 2004, City

of Costa Mesa 2007, City of Newport Beach 2014). The nearest residential property identified is located approximately 50 feet south of the Facility.

Since the Facility is located on the southern side of a large industrial zone, when evaluating the MEIR, receptors within the industrial zone were excluded. The industrial zone was identified based on general plan and zoning maps (City of Costa Mesa 2004, City of Costa Mesa 2007, City of Newport Beach 2014), as shown in Figure 5.

Sensitive population locations, such as hospitals, K-12 schools, preschools, child care facilities, and age-care facilities as defined by State and District guidance, were also identified within a 1 mile radius of the Facility, per an EDR Offsite Receptor Report, which can be found in Appendix C.

Based on the EDR Offsite Receptor Report, 30 unique sensitive receptors were identified within a 1-mile radius of the facility. The sensitive receptor locations identified from the EDR Offsite Receptor Report and used in the modeling are provided in Table 19, as discussed below.

Consistent with the methods specified by the OEHHA Guidance, risks were estimated at the location of the MEIR and the location of the MEIW The MEIR and MEIW are defined as the off-site receptor locations where individuals may reside or work, respectively, with the potential highest cancer risk, acute Hazard Index (HI) or chronic non-cancer HI.

In addition, the point of PMIwas identified for acute non-cancer hazards.

7.2.2 Estimation of Exposure Point Concentrations

Exposure point concentrations are the concentrations of each chemical to which an individual may be exposed at a given receptor location. Chemical concentrations in air at each receptor location were estimated based on the air dispersion modeling described in Section 6.0. The exposure point concentrations used to estimate carcinogenic risks and chronic non-cancer HIs are the annual average concentrations of each chemical. The exposure point concentrations used to estimate acute non-cancer HIs are the one-hour maximum concentrations of each chemical. These concentrations at the 2013 and current operations modeled PMI, MEIR, MEIW, and the MEISR are presented in Tables 17 and 18, respectively, as discussed in Section 6.9 above.

7.2.3 Exposure Pathways

The exposure pathways evaluated in the 2013 and Supplemental HRAs were selected in accordance with the OEHHA Guidance and the SCAQMD Supplemental Guidelines. The inhalation pathway must be evaluated for all chemicals. In addition, the OEHHA Guidance also requires the evaluation of non-inhalation exposure pathways, referred to as a multipathway analysis, for specific chemicals.

Selection of the additional pathways for a multipathway analysis is specific to the chemical and land use in the area surrounding the Facility and was based on the recommendations in the OEHHA Guidance. The chemicals that must be evaluated in a multipathway analysis are shown

in Table 5.1 of the OEHHA Guidance and are programmed into HARP. As discussed in Section 2, HARP, which complements the OEHHA Guidance with respect to exposure pathway selection, was used in the 2013 and Supplemental HRAs to estimate potential cancer risks and potential non-cancer hazards. The sections below discuss the exposure pathways considered for each potentially exposed population identified in the vicinity of the Facility.

7.2.3.1 Residents

Consistent with the OEHHA Guidance for conducting a multipathway analysis, it was assumed that residents considered in the 2013 and Supplemental HRAs may be exposed to Facility emissions via inhalation, dermal absorption, incidental ingestion of soil, ingestion of homegrown produce, and mother's milk. A deposition rate of 0.02 meters per second (m/s) was used, per SCAQMD Supplemental Guidelines.

Since the Facility is located in an urban area with no agricultural areas (*e.g.*, cattle grazing areas or dairy farms) in the vicinity, the 2013 and Supplemental HRAs do not include an evaluation of potential exposures via ingestion of meat, dairy, or eggs. However, potential exposures to chemicals in homegrown produce were evaluated for a resident in the 2013 and Supplemental HRAs because it is possible that residents in the area may have small vegetable gardens exclusively for personal use. The default home-grown produce parameters for urban settings were used in HARP, including the default value of 5.2 percent for the fraction of homegrown fruits and vegetables consumed, consistent with SCAQMD Supplemental Guidelines. Nearby drinking water reservoirs were not identified within the modeled zone of impact, therefore the drinking water pathway was not included.

7.2.3.2 Off-Site Workers

Consistent with the OEHHA Guidance, off-site workers are assumed to be potentially exposed to facility emissions via inhalation, dermal absorption, and incidental ingestion of soil. Similar to residents, a deposition rate of 0.02 meters per second (m/s) was used, per SCAQMD Supplemental Guidelines.

7.2.3.3 Sensitive Receptors

The sensitive populations considered in the 2013 and Supplemental HRAs include schools, hospitals, nursing homes, and daycare centers as identified in Table 19. However, HARP does not include methods for evaluating these specific populations differently than residential populations. Thus, as a conservative screening approach, sensitive receptor locations were evaluated assuming the exposure pathways utilized for evaluating the residential population noted above.

7.2.4 Exposure Assumptions

For all pathways, default exposure assumptions built into HARP were used in the risk calculations. The exposure assumptions in HARP are consistent with OEHHA Guidance. However, the specific exposure assumptions applied to calculate risks are dependent on the exposure analysis method selected to calculate risks, as described below in Section 7.2.5.

7.2.5 HARP Exposure Analysis Methods

HARP allows a user to select from a series of exposure analysis methods. Each method in HARP utilizes exposure assumptions differently, depending on the requirements of a specific regulation (*e.g.*, compliance with CARB's Air Toxics Hot Spots Program) or project need (*e.g.*, provide point estimates for risk management decisions). That is, HARP will select the dominant pathway(s) and assign exposure assumptions depending on the exposure analysis method identified by the user. For the 2013 and Supplemental HRAs, each exposure analysis method selected was based on the type of receptor and is described below.

7.2.5.1 Resident

Consistent with HARP and OEHHA Guidance, potential cancer risks for residential populations were calculated using the Derived (Adjusted) Analysis Method. This method applies conservative exposure assumptions to the two dominant exposure pathways for each chemical. The remaining pathways are evaluated using average exposure assumptions. If inhalation is one of the two dominant exposure pathways, then it is evaluated using the 80th percentile breathing rate of 302 liter/kilogram (L/kg)-day (ARB 2008).

As required in the OEHHA Guidance for preparing a Tier 1 risk assessment under AB2588, it was assumed that a resident may be exposed to Facility emissions for their entire lifetime (70 years). Cancer risks estimated assuming a residential exposure duration of 70 years are used by State and local agencies for risk management and public notification purposes, even though they are overly conservative and not representative of actual exposure scenarios. Specifically, OEHHA Guidance states that "Lifetime or 70-year exposure is the historical benchmark for comparing facility impacts on receptors for evaluating the effectiveness of air pollution control measures" (OEHHA 2003). Use of the 70-year exposure duration in risk assessments is intended to produce a hypothetical estimate of risk that does not underestimate risks and that can be viewed as a conservative upper-bound. To illustrate the conservative nature of the assumption, it is worth noting that the USEPA has estimated that 50% of the U.S. population lives in the same residence for only eight years, while only 10% remain in the same house for 32 years (USEPA 2011). Adults, moreover, spend only 66 to 82% of their total daily time at home (USEPA 2011), rather than the 100% assumed in the 2013 and Supplemental HRAs. Accordingly, any actual potential risks to residents in the vicinity of the Facility are likely to be significantly lower than those calculated in the 2013 and Supplemental HRAs.

As discussed previously, it was assumed that individuals residing in the vicinity of the Facility may ingest produce obtained from vegetable gardens grown at their homes. Ingestion of homegrown produce is estimated by applying a default parameter of 5.2 percent of produce ingested by individuals in an urban setting that is homegrown and is comprised of four categories including exposed, leafy, protected, and root vegetables (OEHHA 2003). This is the default setting in HARP, and is recommended in the SCAQMD Supplemental Guidelines.

The Derived (OEHHA) Analysis method was used to calculate chronic non-cancer HIs for the resident. This method utilizes high-end exposure assumptions to evaluate the two dominant pathways for each chemical. The remaining pathways are evaluated using average exposure assumptions.

7.2.5.2 Off-Site Worker

Consistent with the OEHHA Guidance, the Point Estimate Analysis method was used to calculate carcinogenic risks and chronic non-cancer HIs associated with off-site worker exposure to Facility emissions. This method utilizes the standard exposure assumptions for worker populations as defined in OEHHA Guidance.

Since potential cancer risks are driven by potential fugitive Cr(VI) emissions which are assumed to be emitted 24 hours a day, 7 days a week, an adjustment factor of 1.0 for off-site worker ground-level concentrations is used, consistent with what is shown in Table 11 of SCAQMD Supplemental Guidelines for continuous operation. This is consistent with OEHHA Guidance which recommends using the average concentration that the worker breathes over their work day, which, for continuous operation, is equivalent to the annual average air concentration calculated in AERMOD.

7.2.5.3 Sensitive Receptor

The Derived (Adjusted) Analysis method described previously was used to calculate risks for the MEISR. Potential exposures of the MEISR were evaluated using a continuous 70-year exposure duration, consistent with the residential exposure duration. This is a very conservative approach, as the sensitive receptors include locations such as hospitals, K-12 schools, preschools, child care facilities, and age-care facilities, where the exposure duration is not continuous and is much lower than 70 years.

7.3 Dose-Response Assessment

The dose-response assessment (also referred to as the toxicity assessment) examines the potential for a chemical to cause adverse health effects in exposed individuals (as modeled). Toxicity values that are used to estimate the likelihood of adverse effects occurring in humans are identified in this component of the risk assessment process. Toxicity factors in the latest HARP Health Database,[30] integrated into the HARP program, version 1.4f, were used in the 2013 and Supplemental HRAs. The HARP program contains the most up-to-date listing of available inhalation and oral CPFs, chronic inhalation and oral RELs, and acute RELs approved by California Environmental Protection Agency (Cal/EPA) for use in AB2588 Air Toxics Hot Spots Program risk assessments. Table 20 shows the CPFs and RELs used for the 21 chemicals in this analysis. Table 21 shows the target organ systems for non-cancer health effects for each compound.

The methods used to evaluate potential non-cancer effects of lead are described in Section 7.4.4.

7.4 Risk Characterization Methodology

This section describes the methods used to estimate potential adverse effects associated with off-site exposures to chemicals emitted from the Facility. The results of the 2013 and

[30] The latest HARP Health Database is from July 2014 and is available from ARB here: http://www.arb.ca.gov/toxics/harp/news.htm

Supplemental HRAs are presented in Section 8.0. HARP was used to estimate carcinogenic risks and non-cancer HIs associated with potential exposures to potential emissions from the Facility.

7.4.1 Carcinogenic Risks

Carcinogenic risks were estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to carcinogens potentially present in Facility emissions (USEPA 1989). The estimated risk is expressed as a unitless probability. For carcinogenic chemicals, both inhalation and non-inhalation pathways must be considered, using the CPFs in HARP. Total risk is the sum of risks attributable to each chemical considered by each pathway.

The equation used to calculate the potential excess cancer risk from inhalation for each carcinogenic chemical is:

$$\text{Risk}_i = \text{Inhalation Dose}_i \times \text{Cancer Potency Factor}_i$$

Where:

Risk_i	=	Lifetime excess cancer risk from exposure to chemical_i
Inhalation Dose_i	=	Inhalation dose of chemical_i (mg/kg-day)
CPF_i	=	Inhalation CPF for chemical_i $(\text{mg/kg-day})^{-1}$

A similar equation, using oral dose and the oral CPF, is used to calculate risks from oral exposure. In the 2013 and Supplemental HRAs, oral cancer risks include dermal absorption, incidental ingestion of soil, ingestion of homegrown produce, and mother's milk. HARP default exposure parameters were used, as described in Section 7.2.5.

7.4.2 Chronic Non-cancer Hazards

When evaluating chronic non-cancer effects due to chemical exposures, a hazard quotient (HQ) is established for each constituent. The equation used to calculate an inhalation HQ is:

Where:

$$\text{HQ}_i = \frac{\text{C}_i}{REL_i}$$

HQ_i	=	Chronic hazard quotient for chemical_i
C_i	=	Annual average air concentration of chemical_i ($\mu g/m^3$)
REL_i	=	Chronic REL for chemical_i ($\mu g/m^3$)

To evaluate the potential for adverse non-cancer health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals that affect the same target organ are summed yielding a HI. The HI is thus estimated as follows:

$$HI_{(eyes)} = \sum HQ_{substance\,1\,(eyes)} + HQ_{substance2\ \ (eyes)}$$

Estimation of non-inhalation chronic health effects uses a similar method, but the annual average air concentration is replaced by the dose calculated by HARP using the exposure parameters mentioned above, and the appropriate non-inhalation REL is used.

Estimation of an HI for each target organ (also referred to as a segregation of HI by target organ analysis) is recommended by OEHHA because the non-cancer effects of chemicals with different target organs are generally not additive. For the 2013 and Supplemental HRAs, a segregation of hazard indices analysis was performed for the modeled PMI, MEIR, MEIW, and the MEISR.

7.4.3 Acute Non-cancer Hazards

The potential for acute effects was evaluated by comparing the one-hour maximum concentrations with the acute RELs within the HARP program. Acute HQs were estimated for those chemicals for which an REL was available. The equation used to calculate acute HQs is as follows:

$$HQ_i = \frac{C_i}{REL_i}$$

Where:

HQ_i	=	Acute hazard quotient for $chemical_i$
C_i	=	One-hour maximum air concentration for $chemical_i$ ($\mu g/m^3$)
REL	=	Acute non-cancer reference exposure level for $chemical_i$ ($\mu g/m^3$)

ENVIRON summed the HQs to obtain a target organ-specific HI as follows:

$$HI_{(eyes)} = \sum HQ_{substance\,1\,(eyes)} + HQ_{substance2\ \ (eyes)}$$

The acute HIs presented in the 2013 and Supplemental HRAs conservatively overestimate the true one hour maximum at any one time because one hour maximum air concentrations were summed regardless of time of occurrence (*i.e.*, hour of year) which can differ by source.

7.4.4 Non-cancer Evaluation of Lead

Appendix F of the OEHHA Guidance introduces a tiered approach to estimating non-cancer health effects from lead under AB2588, based on the methods outlined in Cal/EPA's Risk Management Guidelines for New, Modified, and Existing Sources of Lead ("Cal/EPA Lead Guidance", Cal/EPA 2001).

The most conservative screening method, the Tier 1 method, uses a screening table (Table F-1 of the OEHHA Guidance). The screening table presents the resultant percent of children with

Blood Lead Levels (BLL) greater than or equal to the screening value of 10 micrograms per deciliter (µg/dl) for a given 30-day average air lead concentration.

In their 2001 guidance, Cal/EPA identifies a risk management threshold lead concentration of 0.12 µg/m^3. This value represents the concentration of lead in air that yields a greater than 10% increase in blood-lead levels for children within a high exposure area. This threshold represents the most stringent threshold lead concentration proposed in the Cal/EPA Lead Guidance. Concentrations below this level are not expected to pose adverse health effects among the exposed population. To evaluate the non-cancer effects of lead in the 2013 and Supplemental HRAs, the lead threshold concentration of 0.12 µg/m^3 was compared, conservatively, to the modeled maximum 1-hour lead concentration.

8 Risk Characterization Results [Section III.C] [31]

The subsections below present the risk results for both the 2013 and Supplemental HRAs. To focus the presentation and evaluation of the risk assessment results, the magnitude of the estimated carcinogenic risks and non-cancer HIs are discussed relative to Notification Levels set by the ARB (ARB 2012b). The Notification Level set for SCAQMD is 10 in one million for cancer effects ("cancer risk Notification Level") and 1 for chronic and acute non-cancer HIs ("non-cancer HI Notification Level"). Further, risks are presented relative to Risk Reduction Levels set by SCAQMD which are 25 in one million for cancer effects ("cancer risk Risk Reduction Level"), 3 for chronic and acute non-cancer HIs ("non-cancer HI Risk Reduction Level"), and 0.5 excess cancer cases for cancer burden ("cancer burden Risk Reduction Level").[32]

2013 Operations (2013 HRA)
Table 22 shows the results of the 2013 HRA at the modeled PMI [33], the modeled MEIR, and the modeled MEIW. Sensitive receptors above a cancer risk of 10 in one million or above a noncancer health hazard index of one are listed in Table 23. Figures 6 through 9 show the locations of these receptors.

Figure 10 shows the modeled 70-year lifetime cancer risk zone of impact, which represents receptor locations where the multipathway lifetime cancer risk is greater than 1 in one million. Figure 11 presents the modeled 1 in one million cancer risk contour assuming all receptors are residential (which is not the case), along with the modeled 10, 25, and 100 in one million cancer risk contours. Figure 12 presents the modeled 1 in one million cancer risk contour, along with the modeled 10, 25, and 100 in one million cancer risk contours, adjusted for worker cancer risk in the industrial zone immediately north of the Facility (shown in Figure 5). Since the maximum chronic and acute HI are less than 0.5, contours for chronic and acute HI at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

The results presented in the 2013 HRA incorporate information from 2013 operations, plus the permanent and enforceable changes (as interpreted by the SCAQMD) made since that time; however, these results are not indicative of the operations and procedures currently in place at the Facility. To demonstrate the reduction in nearby Cr(VI) concentrations, and the corresponding reduction in risk, that has occurred since 2013 operations, a Supplemental HRA was completed that reflects the most current operations at the Facility. As shown in this Supplemental HRA, cancer risks dropped by an average of 86% compared to 2013 operations, due to measures undertaken at the Facility to reduce both point source and potential fugitive

[31] When evaluating risk results, total multipathway potential cancer risks and maximum potential non-cancer hazard indices as reported in HARP were used. Additionally, rounding procedures specified in Section 3.5 of the SCAQMD Supplemental Guidelines were followed.

[32] The Risk Reduction Levels may also be referred to as Action Risk Levels, as established in SCAQMD's Rule 1402 (Control of Toxic Air Contaminants from Existing Sources).

[33] The modeled PMI was only evaluated for acute non-cancer hazards. The cancer risk and chronic HI PMI would otherwise be co-located with the MEIW.

Cr(VI) emissions. Adverse non-cancer health effects remain below the District Notification Levels in the Supplemental HRA. A detailed discussion of risk characterization results for current Facility operations follows.

Current Operations (Supplemental HRA)
Table 24 shows the results of the Supplemental HRA at the modeled PMI[34], the modeled MEIR, and the modeled MEIW. As shown in Table 25, there are no modeled sensitive receptors above a cancer risk of ten in one million or above a noncancer health hazard index of one in this Supplemental HRA. Figures 13 through 16 show the locations of these receptors.

Figure 17 shows the modeled 70-year lifetime cancer risk zone of impact, which represents receptor locations where the multipathway lifetime cancer risk is greater than 1 in one million. To demonstrate the magnitude of risk reduction achieved through measures undertaken at the Facility to reduce both point source and potential fugitive Cr(VI) emissions, Figure 18 shows the modeled zone of impact for both the 2013 HRA as well as this Supplemental HRA, which represents current Facility operations. Figure 19 presents the modeled 1 in one million cancer risk contour assuming all receptors are residential (which is not the case), along with the modeled 10, 25, and 100 in one million cancer risk contours. Figure 20 presents the modeled 1 in one million cancer risk contour, along with the modeled 10 and 25[35] in one million cancer risk contours, adjusted for worker cancer risk in the industrial zone immediately north of the Facility (shown in Figure 5). Since the maximum chronic and acute HI are less than 0.5, contours for chronic and acute HI at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

The standard report sets generated by HARP are included in Appendix F for both the 2013 HRA and the Supplemental HRA. Other reports from HARP used to complete these HRAs are included in Appendix G.

8.1 Point of Maximum Impact

2013 Operations (2013 HRA)
The modeled acute HI PMI was found to be at Receptor #14, located at UTM coordinates 413,425 m east and 3,721,596 m north, as shown in Figure 6. This receptor is located on the southern boundary of the Facility, approximately 815 feet east of Monrovia Avenue and approximately 460 feet west of Placentia Avenue.

The modeled acute HI at the PMI (Receptor #14) is 0.15. Table 26 shows the acute health quotients by substance and target organ at this receptor. Nickel is the major contributor to potential non-cancer acute health effects at the modeled acute HI PMI, with potential emissions likely coming from Facility plating operations. Table 27 shows the modeled non-cancer acute health effects contribution by source at this receptor. Because the individuals at the modeled PMI would presumably experience greater exposure than all other receptors, it may be

[34] The modeled PMI was only evaluated for acute non-cancer hazards. The cancer risk and chronic HI PMI would otherwise be co-located with the MEIW.

[35] The 100 in one million risk contour has been eliminated here due to the reduction in Facility Cr(VI) emissions.

assumed that the adverse acute non-cancer health effects are not expected to occur at any of the receptor locations identified in the vicinity of the Facility as a result of potential exposures to Facility emissions.

A detailed discussion of risk characterization results at the modeled PMI for current Facility operations follows.

Current Operations (Supplemental HRA)
The modeled acute HI PMI was found to be at Receptor #14, located at UTM coordinates 413,425 m east and 3,721,596 m north, as shown in Figure 13. This receptor is located on the southern boundary of the Facility, approximately 815 feet east of Monrovia Avenue and approximately 460 feet west of Placentia Avenue.

The modeled acute HI at the PMI (Receptor #14) is 0.25. Table 28 shows the acute health quotients by substance and target organ at this receptor. Nickel is the major contributor to potential non-cancer acute health effects at the modeled acute HI PMI, with potential emissions likely coming from Facility plating operations. Table 29 shows the modeled non-cancer acute health effects contribution by source at this receptor. Because the individuals at the modeled PMI would presumably experience greater exposure than all other receptors, it may be assumed that the adverse acute non-cancer health effects are not expected to occur at any of the receptor locations identified in the vicinity of the Facility as a result of potential exposures to Facility emissions.

8.2 Resident (MEIR)

2013 Operations (2013 HRA)
The MEIR was found to be at different receptor locations for the modeled cancer risk, modeled chronic health effects, and modeled acute health effects analyses. These receptors, #748, #750, and #749 respectively, are located at UTM coordinates 413,375 m east and 3,721,575 m north; 413,425 m east and 3,721,575 m north; and 413,400 m east and 3,721,575 m north as shown in Figure 7. The modeled cancer risk MEIR is located at a residential unit south of the Facility, along the same block, approximately 650 feet east of Monrovia Avenue and approximately 630 feet west of Placentia Avenue. The modeled chronic HI MEIR is located just east of the modeled cancer risk MEIR, approximately 815 feet east of Monrovia Avenue and approximately 465 feet west of Placentia Avenue. The modeled acute HI MEIR is located just in between the modeled cancer risk MEIR and modeled chronic HI MEIR, approximately 730 feet east of Monrovia Avenue and approximately 540 feet west of Placentia Avenue.

The potential cancer risk at Receptor #748 and chronic HI at Receptor #750 are shown in Table 22. The chronic HI at Receptor #750 is 0.03. Cancer risk and chronic non-cancer health effects were estimated at these locations using residential exposure parameters, such as a 70-year lifetime exposure. Assuming a continuous 70-year lifetime in one residential location provides a high estimate of actual risk at the modeled cancer risk MEIR, as discussed in section 7.2.5.1. Therefore cancer risks are also presented at this location in Table 22 for 30-year, 9-year adult, and 9-year child exposure scenarios (which are still very conservative, but less so than the 70-

year period). Further, concentrations were evaluated at ground-level, per SCAQMD guidance, not at a typical breathing height.

Tables 30 and 31 show the dose and cancer risk contribution by substance at the modeled cancer risk MEIR (Receptor #748). Potential Facility Cr(VI) emissions drive the modeled cancer risk at this location. Table 32 shows the modeled cancer risk contribution by source at the modeled cancer risk MEIR.

Table 33 shows the inhalation concentration and dose by pathway at the modeled chronic HI MEIR (Receptor #750). Table 34 shows the modeled chronic health quotients by substance and target organ at this receptor. Cadmium is the major contributor to potential non-cancer chronic health effects at the MEIR, with potential emissions coming from Facility plating operations. Cr(VI) is the second-largest contributor to non-cancer chronic health effects at the MEIR, with potential emissions coming from potential fugitive sources. Table 35 shows the non-cancer chronic health effects contribution by source at the modeled chronic HI MEIR.

Table 36 shows the acute health quotients by substance and target organ at the modeled acute HI MEIR (Receptor #749). Nickel is the major contributor to potential non-cancer acute health effects at the acute HI MEIR, with potential emissions likely coming from Facility plating operations. Table 37 shows the modeled non-cancer acute health effects contribution by source at this receptor.

Due to measures undertaken at the Facility since 2013 to reduce both point source and potential fugitive Cr(VI) emissions, the potential cancer risk at the modeled MEIR (Receptor #748) has dropped by 85%[36], as shown in the Supplemental HRA prepared, that reflects the most current operations at the Facility. A detailed discussion of risk characterization results at the modeled MEIR for current Facility operations follows.

Current Operations (Supplemental HRA)
The MEIR was found to be at the same receptor location for the modeled cancer risk and chronic health effects analyses, but at a different location for the modeled acute health effects analysis. These receptors, #750 and #749, respectively, are located at UTM coordinates 413,425 m east and 3,721,575 m north and 413,400 m east and 3,721,575 m north, as shown in Figure 14. The modeled cancer risk and chronic HI MEIR is located at a residential unit south of the Facility, along the same block, approximately 815 feet east of Monrovia Avenue and approximately 465 feet west of Placentia Avenue. The modeled acute HI MEIR is located just west of the modeled cancer risk and chronic HI MEIR, approximately 730 feet east of Monrovia Avenue and approximately 540 feet west of Placentia Avenue.

The potential cancer risk and chronic HI at Receptor #750 are shown in Table 24. The chronic HI at Receptor #750 is 0.04. Cancer risk and chronic non-cancer health effects were estimated at these locations using residential exposure parameters, such as a 70-year lifetime exposure.

[36] The cancer risk MEIR moved to Receptor #750 in the Supplemental HRA.

Assuming a continuous 70-year lifetime in one residential location provides a high estimate of actual risk at the modeled cancer risk MEIR, as discussed in section 7.2.5.1. Therefore cancer risks are also presented at this location in Table 24 for 30-year, 9-year adult, and 9-year child exposure scenarios (which are still very conservative, but less so than the 70-year period). Further, concentrations were evaluated at ground-level, per SCAQMD guidance not at a typical breathing height.

Tables 38 and 39 show the dose and cancer risk contribution by substance at the modeled cancer risk MEIR (Receptor #750). Potential Facility Cr(VI) emissions drive the modeled cancer risk at this location. Table 40 shows the modeled cancer risk contribution by source at the modeled cancer risk MEIR.

Table 41 shows the inhalation concentration and dose by pathway at the modeled chronic HI MEIR (Receptor #750). Table 42 shows the modeled chronic health quotients by substance and target organ at this receptor. Cadmium is the major contributor to potential non-cancer chronic health effects at the MEIR, with potential emissions coming from Facility plating operations. Table 43 shows the non-cancer chronic health effects contribution by source at the modeled chronic HI MEIR.

Table 44 shows the acute health quotients by substance and target organ at the modeled acute HI MEIR (Receptor #749). Nickel is the major contributor to potential non-cancer acute health effects at the acute HI MEIR, with potential emissions likely coming from Facility plating operations. Table 45 shows the modeled non-cancer acute health effects contribution by source at this receptor.

8.3 Off-Site Worker (MEIW)

2013 Operations (2013 HRA)

The MEIW receptor locations are representative of the points with the highest numerical cancer risk and chronic HI within a non-residential land use zone[37] and may not reflect the actual location where individuals work. To estimate modeled cancer risks for off-site workers, workers were assumed to be exposed to Facility emissions for 245 days per year for 40 years, the conservative default exposure values from the OEHHA Guidance. The 40-year exposure duration assumed for the off-site worker will likely overestimate the time a worker is employed in a single location. Further, concentrations were evaluated at ground-level, per SCAQMD guidance, not at a typical breathing height.

The MEIW was found to be at the same receptor locations for the modeled cancer risk and acute health effects analyses, but at a different location for the modeled chronic health effects analysis. These receptors, #924 and #925, respectively, are located at UTM coordinates 413,425 m east and 3,721,675 m north and 413,450 m east and 3,721,675 m north, as shown in Figure 8. The potential cancer risk at Receptor #924 and chronic HI at Receptor #925 are shown in Table 22. The modeled cancer risk and acute HI MEIW is located north of the Facility

[37] Receptors located on streets were not considered when determining the MEIW.

on Production Place, at a complex of industrial buildings, approximately 820 feet east of Monrovia Avenue and approximately 450 feet west of Placentia Avenue. The modeled chronic HI MEIW is located just east of the modeled cancer risk MEIW, also north of the Facility on Production Place, at a complex of industrial buildings, approximately 890 feet east of Monrovia Avenue and approximately 370 feet west of Placentia Avenue.

Tables 46 and 47 show the dose and cancer risk contribution by substance at the modeled cancer risk MEIW (Receptor #924). Potential Facility Cr(VI) emissions drive the modeled cancer risk at this location. Table 48 shows the modeled cancer risk contribution by source at the modeled cancer risk MEIW.

Table 49 shows the inhalation concentration and dose by pathway at the modeled chronic HI MEIW. Table 50 shows the chronic health quotients by substance and target organ at this receptor. Cadmium is the major contributor to potential non-cancer chronic health effects at the MEIW, with potential emissions coming from Facility plating operations. Cr(VI) is the second-largest contributor to non-cancer chronic health effects at the MEIW, with potential emissions coming from potential fugitive sources. Table 51 shows the modeled non-cancer chronic health effects contribution by source at the modeled chronic HI MEIW.

Table 52 shows the acute health quotients by substance and target organ at the modeled acute HI MEIW (Receptor #924). Nickel is the major contributor to potential non-cancer acute health effects at the acute HI MEIW, with potential emissions likely coming from Facility plating operations. Table 53 shows the modeled non-cancer acute health effects contribution by source at this receptor.

Due to measures undertaken at the Facility since 2013 to reduce both point source and potential fugitive Cr(VI) emissions, the potential cancer risk at the modeled MEIW (Receptor #924) has dropped by 85%[38], to below the District Risk Reduction Level of 25 in one million, as shown in the Supplemental HRA prepared, that reflects the most current operations at the Facility. A detailed discussion of risk characterization results at the modeled MEIW for current Facility operations follows.

Current Operations (Supplemental HRA)

The MEIW receptor locations are representative of the points with the highest numerical cancer risk and chronic HI within a non-residential land use zone[39] and may not reflect the actual location where individuals work. To estimate modeled cancer risks for off-site workers, workers were assumed to be exposed to Facility emissions for 245 days per year for 40 years, the conservative default exposure values from the OEHHA Guidance. The 40-year exposure duration assumed for the off-site worker will likely overestimate the time a worker is employed in a single location. Further, concentrations were evaluated at ground-level, per SCAQMD guidance.

[38] The modeled cancer risk MEIW moved to Receptor #925 in the Supplemental HRA.

[39] Receptors located on streets were not considered when determining the MEIW.

The MEIW was found to be at the same receptor location for the modeled cancer risk and chronic health effects analyses, but at a different location for the modeled acute health effects analysis. These receptors, #925 and #924, respectively, are located at UTM coordinates 413,450 m east and 3,721,675 m north and 413,425 m east and 3,721,675 m north, as shown in Figure 15. The potential cancer risk at Receptor #924 and chronic HI at Receptor #925 are shown in Table 24. The modeled cancer risk and chronic HI MEIW is located north of the Facility on Production Place, at a complex of industrial buildings, approximately 890 feet east of Monrovia Avenue and approximately 370 feet west of Placentia Avenue. The modeled acute HI MEIW is located just west of the modeled cancer risk and chronic HI MEIW, also north of the Facility on Production Place, at a complex of industrial buildings, approximately 820 feet east of Monrovia Avenue and approximately 450 feet west of Placentia Avenue.

Tables 54 and 55 show the dose and cancer risk contribution by substance at the modeled cancer risk MEIW (Receptor #924). Potential Facility Cr(VI) emissions drive the modeled cancer risk at this location. Table 56 shows the modeled cancer risk contribution by source at the modeled cancer risk MEIW.

Table 57 shows the inhalation concentration and dose by pathway at the modeled chronic HI MEIW. Table 58 shows the chronic health quotients by substance and target organ at this receptor. Cadmium is the major contributor to potential non-cancer chronic health effects at the MEIW, with potential emissions coming from Facility plating operations. Table 59 shows the modeled non-cancer chronic health effects contribution by source at the modeled chronic HI MEIW.

Table 60 shows the acute health quotients by substance and target organ at the modeled acute HI MEIW (Receptor #924). Nickel is the major contributor to potential non-cancer acute health effects at the acute HI MEIW, with potential emissions likely coming from Facility plating operations. Table 61 shows the modeled non-cancer acute health effects contribution by source at this receptor.

8.4 Maximally Exposed Individual Sensitive Receptor (MEISR)

2013 Operations (2013 HRA)

Receptor #10942, located at UTM coordinates 413,172 m east and 3,721,497 m north and street address 1527 Monrovia Avenue, Newport Beach, California, is the modeled cancer risk and acute HI MEISR. The modeled cancer risk and acute HI at this receptor are shown in Table 23. Receptor #10970, located at UTM coordinates 413,974 m east and 3,721,750 m north and street address 1501 Superior Avenue, Newport Beach, California, represents the modeled MEISR for chronic health effects. The modeled chronic HI at this receptor is shown in Table 23. Figure 9 presents the locations of these receptors. Potential cancer risk and chronic non-cancer health effects were estimated at these locations using residential exposure parameters, such as a 70-year lifetime exposure. Assuming a continuous 70-year lifetime at medical facilities provides a high estimate of actual risk at the modeled cancer risk MEISR.

The chronic and acute non-cancer health effects at the modeled MEISR location are well below the District Notification Levels of 1. Because the individuals at the maximally exposed sensitive

receptor experience greater exposure than all other sensitive receptors identified in Section 7.2.1, it may be assumed adverse non-cancer health effects are not expected to occur at any of the sensitive receptor locations identified in the vicinity of the Facility as a result of exposures to Facility emissions.

The cancer risk at the modeled MEISR (Receptor #10942) is below the District Risk Reduction Level of 25 in one million. More reasonable exposure periods for such receptors, including 30-year and 9-year periods, were also modeled at the MEISR and are shown in Table 23, although these time periods also are very conservative for the same reasons mentioned above for the 70-year period. These cancer risks all fall below the District Notification Levels of 10 in one million.

Tables 62 and 63 show the dose and cancer risk contribution by substance at the modeled cancer risk MEISR (Receptor #10942). Potential Facility Cr(VI) emissions drive the modeled cancer risk, at this location. Table 64 shows the modeled cancer risk contribution by source at the modeled cancer risk MEISR.

Table 65 shows the inhalation concentration and dose by pathway at the modeled chronic HI MEISR (Receptor #10970). Table 66 shows the modeled chronic health quotients by substance and target organ at this receptor. Cadmium is the major contributor to potential non-cancer chronic health effects at the MEISR, with potential emissions coming from Facility plating operations. Cr(VI) is the second-largest contributor to non-cancer chronic health effects at the MEISR, with potential emissions coming from potential fugitive sources. Table 67 shows the non-cancer chronic health effects contribution by source at the modeled chronic HI MEISR.

Table 68 shows the acute health quotients by substance and target organ at the modeled acute HI MEISR (Receptor #10942). Nickel is the major contributor to potential non-cancer acute health effects at the acute HI MEIW, with potential emissions likely coming from Facility plating operations. Table 69 shows the modeled non-cancer acute health effects contribution by source at this receptor.

Due to measures undertaken at the Facility since 2013 to reduce both point source and potential fugitive Cr(VI) emissions, the potential cancer risk at the modeled MEISR, assuming a continuous 70-year exposure, has dropped by 88%, to below the District Notification Level of 10 in one million, as shown in the Supplemental HRA prepared, that reflects the most current operations at the Facility. A detailed discussion of risk characterization results at the modeled MEISR for current Facility operations follows.

Current Operations (Supplemental HRA)
Receptor #10942, located at UTM coordinates 413,172 m east and 3,721,497 m north and street address 1527 Monrovia Avenue, Newport Beach, California, is the modeled cancer risk and acute HI MEISR. The modeled cancer risk and acute HI at this receptor are 2.0 and 0.01, respectively. Receptor #10970, located at UTM coordinates 413,974 m east and 3,721,750 m north and street address 1501 Superior Avenue, Newport Beach, California, represents the modeled MEISR for chronic health effects. The modeled chronic HI at this receptor is 0.002. Figure 16 presents the locations of these receptors. Potential cancer risk and chronic non-

cancer health effects were estimated at these locations using residential exposure parameters, such as a 70-year lifetime exposure. Assuming a continuous 70-year lifetime at medical facilities provides a high estimate of actual risk at the modeled cancer risk MEISR.

The chronic and acute non-cancer health effects at the modeled MEISR location are well below the District Notification Levels of 1. Because the individuals at the maximally exposed sensitive receptor experience greater exposure than all other sensitive receptors identified in Section 7.2.1, it may be assumed adverse non-cancer health effects are not expected to occur at any of the sensitive receptor locations identified in the vicinity of the Facility as a result of exposures to Facility emissions.

The cancer risk at the modeled MEISR (Receptor #10942) is below the Notification Level of 10 in one million. Tables 70 and 71 show the dose and cancer risk contribution by substance at the modeled cancer risk MEISR (Receptor #10942). Potential Facility Cr(VI) emissions drive the modeled cancer risk, at this location. Table 72 shows the modeled cancer risk contribution by source at the modeled cancer risk MEISR.

Table 73 shows the inhalation concentration and dose by pathway at the modeled chronic HI MEISR (Receptor #10970). Table 74 shows the modeled chronic health quotients by substance and target organ at this receptor. Cadmium is the major contributor to potential non-cancer chronic health effects at the MEISR, with potential emissions coming from Facility plating operations. Table 75 shows the non-cancer chronic health effects contribution by source at the modeled chronic HI MEISR.

Table 76 shows the acute health quotients by substance and target organ at the modeled acute HI MEISR (Receptor #10942). Nickel is the major contributor to potential non-cancer acute health effects at the acute HI MEIW, with potential emissions likely coming from Facility plating operations. Table 77 shows the modeled non-cancer acute health effects contribution by source at this receptor.

8.5 Population Exposure & Cancer Burden

2013 Operations (2013 HRA)

Along with potential cancer risk and non-cancer hazards, potential population exposure was analyzed and potential cancer burden was calculated within the modeled zone of impact. Census block receptors were extracted from HARP v 1.4f within a 5-km radius from the Facility and were modeled in AERMOD. Using census data provided in HARP v 1.4f together with the cancer risk or non-cancer hazard at each census block receptor, persons exposed to a total potential cancer risk greater than 1 in one million, 10 in one million, 25 in one million, and 100 in one million or a total potential HI of greater than 0.5, 1.0, 3.0, and 5.0 are presented in Table 78.[40] Cancer burden was also calculated using the census data provided in HARP v 1.4f together with the cancer risk at each census block receptor. Table 79 summarizes the cancer

[40] Chronic and Acute HI PMIs do not exceed 0.5, therefore corresponding population exposures cannot be assessed.

burden results within the modeled zone of impact, which is 0.21 and is below the District Risk Reduction Level of 0.5 excess cancer cases.

Due to measures undertaken at the Facility since 2013 to reduce both point source and potential fugitive Cr(VI) emissions, cancer burden within the modeled zone of impact has dropped 90% from 0.21 to 0.02, as shown in the Supplemental HRA, and discussed below.

Current Operations (Supplemental HRA)

Along with cancer risk and non-cancer hazards, potential population exposure was analyzed and potential cancer burden was calculated within the modeled zone of impact. Census block receptors were extracted from HARP v 1.4f within a 5-km radius from the Facility and were modeled in AERMOD. Using census data provided in HARP v 1.4f together with the cancer risk or non-cancer hazard at each census block receptor, persons exposed to a total cancer risk greater than 1 in one million, 10 in one million, and 25 in one million[41] or a total HI of greater than 0.5, 1.0, 3.0, and 5.0 are presented in Table 80.[42] Cancer burden was also calculated using the census data provided in HARP v 1.4f together with the cancer risk at each census block receptor. Table 81 summarizes the cancer burden results within the modeled zone of impact, which is 0.02 and is well below the District Risk Reduction Level of 0.5 excess cancer cases.

8.6 Lead Evaluation

2013 Operations (2013 HRA)

As discussed in Section 7.4.4, the lead risk management threshold of 0.12 µg/m^3 recommended by Cal/EPA was compared to the maximum 1-hour lead concentration to evaluate non-cancer effects of lead. In a conservative comparison of the modeled 1-hour maximum to the 30-day average threshold, the estimated maximum 1-hour average lead concentration at a fenceline receptor of 2.11E-07 µg/m^3 does not exceed the Cal/EPA recommended risk management 30-day average threshold for lead. Thus, lead emissions from the Facility are not expected to pose any non-cancer adverse health effects.

In an additional measure of conservativism, the maximum 1-hour lead concentration of 2.11E-07 µg/m^3, which is at a fenceline receptor, was compared to the 30-day average air lead concentrations in the maximum exposure area in Table F-1 of the OEHHA Guidance. The maximum 1-hour lead concentration is lower than the baseline 30-day average air lead concentration that represents lead in soil, dust, water, food, and background air. As such, the maximum lead concentration in air at the Facility boundary does not pose any significant adverse non-cancer effect for the residents.

[41] The exposed population in the 100 in a million bin has dropped to zero here due to the reduction in Facility Cr(VI) emissions.

[42] Maximum chronic and acute HIs do not exceed 0.5, therefore corresponding population exposures cannot be assessed.

Current Operations (Supplemental HRA)

As discussed in Section 7.4.4, the lead risk management threshold of 0.12 µg/m^3 recommended by Cal/EPA was compared to the maximum 1-hour lead concentration to evaluate non-cancer effects of lead. In a conservative comparison of the modeled 1-hour maximum to the 30-day average threshold, the estimated maximum 1-hour average lead concentration at a fenceline receptor of 6.92E-08 µg/m^3 does not exceed the Cal/EPA recommended risk management 30-day average threshold for lead. Thus, lead emissions from the Facility are not expected to pose any non-cancer adverse health effects.

In an additional measure of conservativism, the maximum 1-hour lead concentration of 6.92E-08 µg/m^3, which is at a fenceline receptor, was compared to the 30-day average air lead concentrations in the maximum exposure area in Table F-1 of the OEHHA Guidance. The maximum 1-hour lead concentration is lower than the baseline 30-day average air lead concentration that represents lead in soil, dust, water, food, and background air. As such, the maximum lead concentration in air at the Facility boundary does not pose any significant adverse non-cancer effect for the residents.

9 Uncertainties [Section III.C]

In any risk evaluation, a number of assumptions must be made in order to estimate human exposure and to calculate potential risks. These assumptions may, however, introduce uncertainty in risk calculations. Regulatory guidance requires that conservative assumptions be used to provide an upper-bound estimate of the risk and to avoid underestimating the potential exposures and associated health risks, even though these assumptions may not be indicative or representative of actual conditions at and in the vicinity of the Facility. The key sources of uncertainty in the 2013 and Supplemental HRAs include:

- Estimation of emissions,
- Estimation of exposure concentrations,
- Exposure assumptions, and
- Chemical toxicity criteria.

In all of these cases, conservative, health-protective assumptions were used in the 2013 and Supplemental HRAs. By compounding conservative assumptions, the estimated excess cancer risks are upper-bound estimates and the actual incidence of cancer or non-cancer health impacts is likely to be significantly lower (USEPA 1989). The following sections summarize the critical uncertainties associated with the emissions estimation, air dispersion modeling, and risk estimation components of the risk assessment.

9.1 Estimation of Emissions

There are some uncertainties associated with the estimation of emissions, as presented in the 2013 AER prepared and submitted by the Facility, that may affect the subsequent estimation of exposure concentrations and risk characterization. TAC emission rates used in the 2013 AER, and in the 2013 and Supplemental HRAs, are derived from standard emission factors, source test reports, and from relevant material safety data sheets (MSDS). Standard emission factors include data from the following sources:

- SCAQMD AER Guideline documents and reporting tools;
- USEPA AP-42, Chapter 12.20 Electroplating (USEPA 1996), and
- Ventura County Air Pollution Control District (VCAPCD) AB2588 Combustion Emission Factors (VCAPCD 2001).

Some of these factors were developed using test data from similar activities performed at other facilities. Since operations at similar facilities may not be the same as operations at Hixson, corresponding emission factors may not be an exact representation.

Further, there are some uncertainties associated with the estimation of potential fugitive Cr(VI) emissions from the Facility, as determined per the modeling-monitoring reconciliation performed based on 2013 and August, 2014 data. As discussed below, air dispersion models introduce a source of uncertainty in the estimation of exposure concentrations; therefore the resulting

reconciled emissions are also subject to the uncertainty introduced through the model. Further, the results of the reconciliation analysis may be biased due to the proximity of certain buildings to the Millet and Apartments monitors, and therefore may not accurately reflect the true location of potential fugitive Cr(VI) emissions at the Facility.

9.2 Estimation of Exposure Concentrations

There are a number of uncertainties associated with the estimation of exposure concentrations from air dispersion modeling of potential emissions from the Facility's operations. This section briefly describes some of the uncertainties that may influence the exposure concentrations used in the risk characterization.

9.2.1 Estimates from Air Dispersion Models

As discussed in Section 5, the dispersion modeling algorithm in AERMOD was used to estimate average off-site TAC exposure concentrations at the various offsite receptor locations. The AERMOD model uses a steady-state Gaussian plume equation to calculate ambient air concentrations from emission sources. The limitations of the air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to USEPA, errors due to the limitation of the algorithms implemented in the AERMOD model in the highest estimated concentrations of +/- 10 percent to 40 percent are typical (USEPA 2005).

9.2.2 Meteorological Data Selection

Uncertainty also exists in the meteorological data used in the AERMOD air dispersion model. These uncertainties are related to the use of meteorological data that is not collected at the site. After extensive review by SCAQMD, meteorological data for air dispersion modeling was selected based upon their spatial and temporal representativeness of conditions in the immediate vicinity of the Facility. The Facility's onsite station began operation on June 27, 2014, therefore a full year of onsite meteorological data were not available for use in the 2013 and Supplemental HRAs. Therefore, the meteorological data used in this analysis was based on meteorological data from a National Weather Service (NWS) station, the John Wayne Airport monitoring station (approximately five miles from the Facility). While this meteorological station is close to the Facility, the uncertainties due to the use of meteorological data not collected at the site resulted in approximate exposure concentrations.

9.3 Risk Characterization

There are a number of uncertainties associated with the risk characterization process. This section briefly describes some of the uncertainties that may influence the risk estimates produced in this analysis.

9.3.1 Exposure Assumption Uncertainties

Consistent with OEHHA Guidance, risks were estimated assuming that hypothetical residents at the receptor points spend a continuous 70 years at one location. However, the USEPA has estimated that 50% of the population lives in the same residence for only eight years, while only 10% remain in the same house for 32 years (USEPA 2011). Adults, moreover, spend only 66 to 82% of their total daily time at home (USEPA 2011), rather than the 100% assumed here.

Accordingly, the actual risks to hypothetical residents at the modeled receptor locations are likely lower than those calculated in this assessment. Moreover, as discussed previously, use of residential exposure parameters represents a conservative assessment of actual risk to other types of receptors, such as sensitive receptors.

9.3.2 Dose-Response Assessment

The primary uncertainties associated with the toxicity assessment are related to derivation of toxicity values. Standard RELs and CPFs established by Cal/EPA and listed in the HARP model were used to estimate potential carcinogenic and non-cancer health effects from exposures to compounds emitted from the Facility. These values are derived by applying conservative assumptions and are intended to protect the most sensitive individuals in the potentially exposed populations.

To derive the toxicity values, Cal/EPA makes several assumptions that tend to overestimate the actual hazard or risk to human health. Because data from human studies are generally unavailable, RELs are typically derived from animal studies. Uncertainty factors and modifying factors are then applied to these data to ensure that the RELs are adequately protective of human health. For many compounds, it is anticipated that this approach overestimates the potential for non-cancer effects.

CPFs used to estimate carcinogenic risk are also typically derived based on data from animal studies. These data are based on studies in which high doses of a test chemical were administered to laboratory animals, and the reported response is extrapolated to the much lower doses typical of human exposure. Very little experimental data are available on the nature of the dose-response relationship at low doses, such as whether a threshold exists or if the dose-response curve passes through the origin. Because of this uncertainty, a conservative model is used to estimate the low-dose relationship, and uses an upper bound estimate (the 95 upper confidence limit of the slope predicted by the extrapolation model) as the CPF. With this factor, an upper-bound estimate of potential cancer risks is obtained.

9.3.3 Risk Calculation

The USEPA (1989) notes that the conservative assumptions used in a risk assessment are intended to assure that the estimated risks do not underestimate the actual risks posed by a site and that the estimated risks do not necessarily represent actual risks experienced by populations at or near a site. The estimated risks in this risk assessment are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. Although it is difficult to quantify the uncertainties associated with all the assumptions made in this risk assessment, the use of conservative assumptions is likely to result in substantial overestimates of exposure, and hence, risk.

10 Conclusions [Section III.C]

The results of the 2013 HRA indicate that cancer risks estimated for individuals who may be exposed to potential Facility emissions under 2013 operational conditions and who reside, work, or attend medical facilities in areas surrounding the Facility exceed the Notification Levels, and in some cases the Risk Reduction Levels, established by the District.

As shown in the Supplemental HRA, measures have already been undertaken at the Facility since 2013 to reduce both point source and potential fugitive Cr(VI) emissions. While results at the modeled cancer risk MEIR are still above the District Notification and Risk Reduction Levels when evaluating current Facility operations, cancer risks are significantly reduced from the 2013 HRA levels. Further, cancer risks at the MEIW have been reduced to below the District Risk Reduction Level and cancer risks at the MEISR have been reduced to below the District Notification Level.

Since cancer risks in the 2013 HRA and in the Supplemental HRA are above the District Risk Reduction Level at select locations nearby the Facility, the Facility will prepare a Risk Reduction Plan (RRP), in accordance with SCAQMD Rule 1402. The RRP will make measures already undertaken at the Facility permanent and enforceable and will discuss additional measures to be undertaken at the Facility that will reduce nearby risks to levels below the District Risk Reduction Level (SCAQMD, 2005).

The results of the 2013 HRA indicate that non-cancer hazards estimated for individuals who may be exposed to Facility emissions under 2013 operational conditions and who reside, work, or attend medical facilities in areas surrounding the Facility do not exceed the Notification Levels established by the District. The non-cancer hazards remain below the District Notification Levels in the Supplemental HRA, demonstrating current Facility operations.

In addition, the estimated maximum 30-day average lead concentration for both the 2013 and Supplemental HRA is less that the lead threshold (0.12 µg/m^3) established by Cal/EPA to be protective of children, the most sensitive receptor when considering lead exposures.

11 References [Section III.D]

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Tables

Table 1
List of TAC Compounds, Associated Endpoints Evaluated, and Identification of Non-inhalation Pathways
Hixson Metal Finishing
Newport Beach, CA

Compound	CAS Number	Endpoints Evaluated[1]			Multipathway Substance[4]
		Cancer Risk	Chronic HI	Acute HI	
Acetaldehyde	75-07-0	X	X	X	
Acrolein	107-02-8		X	X	
Ammonia	7664-41-7		X	X	
Benzene	71-43-2	X	X	X	
Cadmium	7440-43-9	X	X		X[5]
Crystalline Silica[2]	7631-86-9		X		
Ethyl Benzene	100-41-4	X	X		
Formaldehyde	50-00-0	X	X	X	
Glycol Ethers and Acetates[3]	1115		X	X	
Hexane	110-54-3		X		
Hexavalent Chromium	18540-29-9	X	X		X[5]
Lead	7439-92-1	X			X[5]
Methanol	67-56-1		X	X	
Methyl Ethyl Ketone	78-93-3			X	
Methyl Isobutyl Ketone	108-10-1				
Nickel	7440-02-0	X	X	X	X[6]
Phosphorus Compounds	7664-38-2		X		
Polynuclear Aromatic Hydrocarbons	1151	X			X[7]
Naphthalene	91-20-3	X	X		
Toluene	108-88-3		X	X	
Xylenes	1330-20-7		X	X	

Notes:

1. Endpoints identified based on classifications within HARP (ARB 2014).
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Multipathway substances identified based on OEHHA 2003.
5. Potential non-inhalation pathways include: Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Fish Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Protected Vegetable Ingestion; Root Vegetable Ingestion; Water Ingestion
6. Potential non-inhalation pathways include: Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Protected Vegetable Ingestion; Root Vegetable Ingestion; Water Ingestion
7. Potential non-inhalation pathways include: Soil Ingestion; Dermal; Meat, Milk & Egg Ingestion; Fish Ingestion; Exposed Vegetable Ingestion; Leafy Vegetable Ingestion; Water Ingestion

Abbreviations:

ARB = (California) Air Resources Board
CAS = Chemical Abstract Service
HARP = Hotspots Analysis and Reporting Program
HI = Hazard Index
TAC = Toxic Air Contaminant

References:

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Table 2
2013 Modeled Annual Emissions by Source and Substance, in Pounds per Year
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	3.29E-01	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.28E-01	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	3.60E-02	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	4.45E-02	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	1.41E-01	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.17E-01	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	5.31E-02	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	2.52E-01	-	-	-	-	-	-	-	-	-	-	8.20E-03	-	-	-	-	-
9	PS1	SB #1	-	-	4.14E-01	-	-	1.34E-05	4.53E+00	4.48E-02	4.20E+01	-	9.81E-04	5.51E-07	2.50E-01	1.36E+02	6.72E+01	5.06E-07	-	-	1.68E-02	1.79E+01	2.55E+01
10	PS2	SB #2	-	-	3.22E-02	-	-	-	4.65E+00	6.60E-04	1.12E+01	-	9.08E-04	2.25E-06	1.29E+01	1.74E+02	4.36E+01	7.88E-09	-	-	8.56E-01	4.40E+01	2.15E+01
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	4.00E-04	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	4.30E-03	2.70E-03	1.80E+01	8.00E-03	-	-	9.50E-03	1.70E-02	-	6.30E-03	-	-	-	-	-	-	1.00E-04	3.00E-04	-	3.66E-02	2.72E-02
13	PS5	Oven #6	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
14	PS6	Oven #7	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
Total Facility Emissions			**1.61E-02**	**1.01E-02**	**6.79E+01**	**3.00E-02**	**2.52E-01**	**1.34E-05**	**9.22E+00**	**1.09E-01**	**5.32E+01**	**2.36E-02**	**8.51E-01**	**2.80E-06**	**1.31E+01**	**3.10E+02**	**1.11E+02**	**8.20E-03**	**3.75E-04**	**1.13E-03**	**8.73E-01**	**6.20E+01**	**4.70E+01**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 3
2013 Modeled Annual Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	4.74E-06	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.84E-06	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	5.17E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	6.41E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.02E-06	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.68E-06	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	7.64E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	2.48E-07	-	-	-	-	-
9	PS1	SB #1	-	-	7.36E-06	-	-	2.37E-10	8.05E-05	7.96E-07	7.46E-04	-	1.74E-08	9.79E-12	4.44E-06	2.42E-03	1.19E-03	8.99E-12	-	-	2.98E-07	3.18E-04	4.52E-04
10	PS2	SB #2	-	-	6.48E-07	-	-	-	9.36E-05	1.33E-08	2.26E-04	-	1.83E-08	4.54E-11	2.59E-04	3.51E-03	8.77E-04	1.59E-13	-	-	1.72E-05	8.85E-04	4.32E-04
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	6.18E-08	3.88E-08	2.59E-04	1.15E-07	-	-	1.37E-07	2.45E-07	-	9.06E-08	-	-	-	-	-	-	1.44E-09	4.31E-09	-	5.26E-07	3.91E-07
13	PS5	Oven #6	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
14	PS6	Oven #7	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
		Total Facility Emissions	**2.72E-07**	**1.71E-07**	**1.15E-03**	**5.06E-07**	**7.61E-06**	**2.37E-10**	**1.75E-04**	**1.88E-06**	**9.72E-04**	**3.98E-07**	**1.22E-05**	**5.51E-11**	**2.63E-04**	**5.92E-03**	**2.07E-03**	**2.48E-07**	**6.32E-09**	**1.90E-08**	**1.75E-05**	**1.21E-03**	**8.87E-04**

Notes:
1. To convert to g/s, the annual emissions (lb/yr) were divided over the source operating schedule hours.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 4
2013 Modeled Maximum Hourly Emissions by Source and Substance, in Pounds per Hour
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	3.76E-05	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.46E-05	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	4.11E-06	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	5.08E-06	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	1.61E-05	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.33E-05	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	6.07E-06	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	6.04E-05	-	-	-	-	-	-	-	-	-	-	2.55E-05	-	-	-	-	-
9	PS1	SB #1	-	-	1.99E-04	-	-	6.42E-09	2.18E-03	2.15E-05	2.02E-02	-	4.72E-07	2.65E-10	1.20E-04	6.54E-02	3.23E-02	2.43E-10	-	-	8.08E-06	8.61E-03	1.22E-02
10	PS2	SB #2	-	-	1.55E-05	-	-	-	2.23E-03	3.17E-07	5.39E-03	-	4.37E-07	1.08E-09	6.18E-03	8.37E-02	2.09E-02	3.79E-12	-	-	4.12E-04	2.11E-02	1.03E-02
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	9.59E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	8.19E-06	5.14E-06	3.43E-02	1.52E-05	-	-	1.81E-05	3.24E-05	-	1.20E-05	-	-	-	-	-	-	1.90E-07	5.71E-07	-	6.97E-05	5.18E-05
13	PS5	Oven #6	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
14	PS6	Oven #7	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
Total Facility Emissions			**1.15E-05**	**7.20E-06**	**4.82E-02**	**2.13E-05**	**6.04E-05**	**6.42E-09**	**4.44E-03**	**6.72E-05**	**2.56E-02**	**1.68E-05**	**9.78E-05**	**1.35E-09**	**6.30E-03**	**1.49E-01**	**5.33E-02**	**2.55E-05**	**2.67E-07**	**8.00E-07**	**4.20E-04**	**2.98E-02**	**2.26E-02**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 5
2013 Modeled Maximum Hourly Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-58-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	4.74E-06	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	1.84E-06	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	5.17E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	6.41E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.02E-06	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	1.68E-06	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	7.64E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	3.21E-06	-	-	-	-	-
9	PS1	SB #1	-	-	2.51E-05	-	-	8.09E-10	2.75E-04	2.71E-06	2.54E-03	-	5.94E-08	3.34E-11	1.51E-05	8.23E-03	4.07E-03	3.07E-11	-	-	1.02E-06	1.08E-03	1.54E-03
10	PS2	SB #2	-	-	1.95E-06	-	-	-	2.81E-04	4.00E-08	6.80E-04	-	5.50E-08	1.36E-10	7.79E-04	1.06E-02	2.64E-03	4.77E-13	-	-	5.19E-05	2.66E-03	1.30E-03
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	1.03E-06	6.48E-07	4.32E-03	1.92E-06	-	-	2.28E-06	4.08E-06	-	1.51E-06	-	-	-	-	-	-	2.40E-08	7.20E-08	-	8.78E-06	6.53E-06
13	PS5	Oven #6	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
14	PS6	Oven #7	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
Total Facility Emissions			**1.44E-06**	**9.07E-07**	**6.07E-03**	**2.69E-06**	**7.61E-06**	**8.09E-10**	**5.59E-04**	**8.46E-06**	**3.22E-03**	**2.12E-06**	**1.23E-05**	**1.70E-10**	**7.94E-04**	**1.88E-02**	**6.71E-03**	**3.21E-06**	**3.36E-08**	**1.01E-07**	**5.29E-05**	**3.76E-03**	**2.85E-03**

Notes:
1. Hourly emissions were converted assuming operation over the full hour.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per 2013 modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 6
Current Operations, Modeled Annual Emissions by Source and Substance, in Pounds per Year
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	9.88E-03	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	2.10E-02	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.23E-02	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.19E-02	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.03E-02	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	2.77E-02	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.21E-02	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	2.52E-01	-	-	-	-	-	-	-	-	-	-	8.20E-03	-	-	-	-	-
9	PS1	SB #1	-	-	4.14E-01	-	-	4.45E-06	4.53E+00	4.48E-02	4.20E+01	-	3.27E-04	1.84E-07	2.50E-01	1.36E+02	6.72E+01	1.69E-07	-	-	1.68E-02	1.79E+01	2.55E+01
10	PS2	SB #2	-	-	3.22E-02	-	-	-	4.65E+00	6.60E-04	1.12E+01	-	3.03E-04	7.51E-07	1.29E+01	1.74E+02	4.36E+01	2.62E-09	-	-	8.56E-01	4.40E+01	2.15E+01
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	4.00E-04	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	4.30E-03	2.70E-03	1.80E+01	8.00E-03	-	-	9.50E-03	1.70E-02	-	6.30E-03	-	-	-	-	-	-	1.00E-04	3.00E-04	-	3.66E-02	2.72E-02
13	PS5	Oven #6	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
14	PS6	Oven #7	5.91E-03	3.71E-03	2.48E+01	1.10E-02	-	-	1.31E-02	2.34E-02	-	8.66E-03	-	-	-	-	-	-	1.38E-04	4.13E-04	-	5.03E-02	3.74E-02
Total Facility Emissions			**1.61E-02**	**1.01E-02**	**6.79E+01**	**3.00E-02**	**2.52E-01**	**4.45E-06**	**9.22E+00**	**1.09E-01**	**5.32E+01**	**2.36E-02**	**1.16E-01**	**9.34E-07**	**1.31E+01**	**3.10E+02**	**1.11E+02**	**8.20E-03**	**3.75E-04**	**1.13E-03**	**8.73E-01**	**6.20E+01**	**4.70E+01**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 7
Current Operations, Modeled Annual Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	1.42E-07	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	3.02E-07	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.76E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.71E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.92E-07	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	3.98E-07	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.75E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	2.48E-07	-	-	-	-	-
9	PS1	SB #1	-	-	7.36E-06	-	-	7.91E-11	8.05E-05	7.96E-07	7.46E-04	-	5.81E-09	3.26E-12	4.44E-06	2.42E-03	1.19E-03	3.00E-12	-	-	2.98E-07	3.18E-04	4.52E-04
10	PS2	SB #2	-	-	6.48E-07	-	-	-	9.36E-05	1.33E-08	2.26E-04	-	6.10E-09	1.51E-11	2.59E-04	3.51E-03	8.77E-04	5.29E-14	-	-	1.72E-05	8.85E-04	4.32E-04
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	6.18E-08	3.88E-08	2.59E-04	1.15E-07	-	-	1.37E-07	2.45E-07	-	9.06E-08	-	-	-	-	-	-	1.44E-09	4.31E-09	-	5.26E-07	3.91E-07
13	PS5	Oven #6	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
14	PS6	Oven #7	1.05E-07	6.60E-08	4.40E-04	1.95E-07	-	-	2.32E-07	4.15E-07	-	1.54E-07	-	-	-	-	-	-	2.44E-09	7.33E-09	-	8.94E-07	6.65E-07
		Total Facility Emissions	**2.72E-07**	**1.71E-07**	**1.15E-03**	**5.06E-07**	**7.61E-06**	**7.91E-11**	**1.75E-04**	**1.88E-06**	**9.72E-04**	**3.98E-07**	**1.68E-06**	**1.84E-11**	**2.63E-04**	**5.92E-03**	**2.07E-03**	**2.48E-07**	**6.32E-09**	**1.90E-08**	**1.75E-05**	**1.21E-03**	**8.87E-04**

Notes:
1. To convert to g/s, the annual emissions (lb/yr) were divided over the source operating schedule hours.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 8
Current Operations, Modeled Maximum Hourly Emissions by Source and Substance, in Pounds per Hour
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[1]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[2]	Hexane	Hexavalent Chromium[3]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-56-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	1.13E-06	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	2.40E-06	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.40E-06	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.36E-06	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.31E-06	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	3.16E-06	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.39E-06	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	6.04E-05	-	-	-	-	-	-	-	-	-	-	2.55E-05	-	-	-	-	-
9	PS1	SB #1	-	-	1.99E-04	-	-	2.14E-09	2.18E-03	2.15E-05	2.02E-02	-	1.57E-07	8.83E-11	1.20E-04	6.54E-02	3.23E-02	8.11E-11	-	-	8.08E-06	8.61E-03	1.22E-02
10	PS2	SB #2	-	-	1.55E-05	-	-	-	2.23E-03	3.17E-07	5.39E-03	-	1.46E-07	3.61E-10	6.18E-03	8.37E-02	2.09E-02	1.26E-12	-	-	4.12E-04	2.11E-02	1.03E-02
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	9.59E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	8.19E-06	5.14E-06	3.43E-02	1.52E-05	-	-	1.81E-05	3.24E-05	-	1.20E-05	-	-	-	-	-	-	1.90E-07	5.71E-07	-	6.97E-05	5.18E-05
13	PS5	Oven #6	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
14	PS6	Oven #7	1.64E-06	1.03E-06	6.85E-03	3.05E-06	-	-	3.62E-06	6.47E-06	-	2.40E-06	-	-	-	-	-	-	3.81E-08	1.14E-07	-	1.39E-05	1.04E-05
Total Facility Emissions			**1.15E-05**	**7.20E-06**	**4.82E-02**	**2.13E-05**	**6.04E-05**	**2.14E-09**	**4.44E-03**	**6.72E-05**	**2.56E-02**	**1.68E-05**	**1.35E-05**	**4.49E-10**	**6.30E-03**	**1.49E-01**	**5.33E-02**	**2.55E-05**	**2.67E-07**	**8.00E-07**	**4.20E-04**	**2.98E-02**	**2.26E-02**

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
3. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 9
Current Operations, Modeled Maximum Hourly Emissions by Source and Substance, in Grams per Second[1]
Hixson Metal Finishing
Newport Beach, CA

			Compound and CAS Number																			
			Acetaldehyde	Acrolein	Ammonia	Benzene	Cadmium	Crystalline Silica[2]	Ethyl Benzene	Formaldehyde	Glycol Ethers and Acetates[3]	Hexane	Hexavalent Chromium[4]	Lead	Methanol	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Nickel	PAHs	Naphthalene	Phosphoric Acid	Toluene	Xylenes
Source Number	**Source**	**Source Description**	**75-07-0**	**107-02-8**	**7664-41-7**	**71-43-2**	**7440-43-9**	**7631-86-9**	**100-41-4**	**50-00-0**	**1115**	**110-54-3**	**18540-29-9**	**7439-92-1**	**67-58-1**	**78-93-3**	**108-10-1**	**7440-02-0**	**1151**	**91-20-3**	**7664-38-2**	**108-88-3**	**1330-20-7**
1	FS1	Building 4	-	-	-	-	-	-	-	-	-	-	1.42E-07	-	-	-	-	-	-	-	-	-	-
2	FS2	Building 3	-	-	-	-	-	-	-	-	-	-	3.02E-07	-	-	-	-	-	-	-	-	-	-
3	FS3	Building 2	-	-	-	-	-	-	-	-	-	-	1.76E-07	-	-	-	-	-	-	-	-	-	-
4	FS4	Building 1	-	-	-	-	-	-	-	-	-	-	1.71E-07	-	-	-	-	-	-	-	-	-	-
5	FS5	Between Building 3&4	-	-	-	-	-	-	-	-	-	-	2.92E-07	-	-	-	-	-	-	-	-	-	-
6	FS6	Between Building 2&3	-	-	-	-	-	-	-	-	-	-	3.98E-07	-	-	-	-	-	-	-	-	-	-
7	FS7	Between Building 1&2	-	-	-	-	-	-	-	-	-	-	1.75E-07	-	-	-	-	-	-	-	-	-	-
8	FS8	Building 3 Plating	-	-	-	-	7.61E-06	-	-	-	-	-	-	-	-	-	-	3.21E-06	-	-	-	-	-
9	PS1	SB #1	-	-	2.51E-05	-	-	2.70E-10	2.75E-04	2.71E-06	2.54E-03	-	1.98E-08	1.11E-11	1.51E-05	8.23E-03	4.07E-03	1.02E-11	-	-	1.02E-06	1.08E-03	1.54E-03
10	PS2	SB #2	-	-	1.95E-06	-	-	-	2.81E-04	4.00E-08	6.80E-04	-	1.83E-08	4.55E-11	7.79E-04	1.06E-02	2.64E-03	1.59E-13	-	-	5.19E-05	2.66E-03	1.30E-03
11	PS3	Scrubber (Anodize Line, Tank 70)	-	-	-	-	-	-	-	-	-	-	1.21E-08	-	-	-	-	-	-	-	-	-	-
12	PS4	Oven #3	1.03E-06	6.48E-07	4.32E-03	1.92E-06	-	-	2.28E-06	4.08E-06	-	1.51E-06	-	-	-	-	-	-	2.40E-08	7.20E-08	-	8.78E-06	6.53E-06
13	PS5	Oven #6	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
14	PS6	Oven #7	2.06E-07	1.30E-07	8.64E-04	3.84E-07	-	-	4.56E-07	8.16E-07	-	3.02E-07	-	-	-	-	-	-	4.80E-09	1.44E-08	-	1.76E-06	1.31E-06
Total Facility Emissions			**1.44E-06**	**9.07E-07**	**6.07E-03**	**2.69E-06**	**7.61E-06**	**2.70E-10**	**5.59E-04**	**8.46E-06**	**3.22E-03**	**2.12E-06**	**1.71E-06**	**5.66E-11**	**7.94E-04**	**1.88E-02**	**6.71E-03**	**3.21E-06**	**3.36E-08**	**1.01E-07**	**5.29E-05**	**3.76E-03**	**2.85E-03**

Notes:
1. Hourly emissions were converted assuming operation over the full hour.
2. The CAS # for crystalline silica in the HARP software is 1175.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).
4. Hexavalent chromium emissions from potential fugitive sources FS1 through FS7 were estimated per current operations modeling-monitoring reconciliation discussed in detail in Appendix A. Potential fugitive emissions estimated here are subject to uncertainty associated with air dispersion modeling, as discussed in Section 9.2.1.

Abbreviations:
CAS = Chemical Abstract Service
HARP = Hotspots Analysis Reporting Program

Table 10
Summary of Model Options and Parameters
Hixson Metal Finishing
Newport Beach, California

Parameter	Assumptions
Model Control Options	
Use Regulatory Default	Yes
Urban or Rural Option	Urban County: Orange County Population: 3,010,759
Flagpole Receptor Height	0.0 meters
Source Options	
Include Building Downwash	Yes
Receptor Information	
Census Receptors	1,358 receptors within 5 km radius
Fenceline Receptors	22 receptors at 20 meter spacing along property boundary line (for facilities with area < 4 acres)
Sensitive Receptors	30 unique receptors within 1 mile radius
Grid Receptors	9,561 receptors; fine grid at 25 meter spacing to 500 meter radius, and coarse grid at 100 meter spacing to 5 km radius
Meteorology Information	
Meteorological Station	John Wayne Airport met station, KSNA
Station Base Elevation	16.8 meters
Output	
Averaging Times	Highest 1-hour and Period

References:

South Coast Air Quality Management District (SCAQMD). 2014. SCAQMD Modeling Guidance for AERMOD. Available online at: http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/modeling-guidance. Accessed September, 2014.

SCAQMD. 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spot” Information and Assessment Act (AB2588). June.

Table 11
Point Source Modeling Parameters
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	UTM East (m)	UTM North (m)	Base Elevation (m)	Modeled Emission Rate (g/s)	Stack Height (m)	Stack Diameter (m)	Stack Temperature (K)	Exhaust Flow Rate (acfm)	Exhaust Velocity (m/s)
PS1	SB #1	413,411.30	3,721,600.93	33.02	1	6.8	0.61	304.8	10,649	18.5
PS2	SB #2	413,371.50	3,721,612.79	32.83	1	6.8	0.76	300.5	11,374	12.4
PS3	Scrubber (Anodize Line, Tank 70)	413,465.76	3,721,610.29	32.74	1	7.6	0.46	304.8	3,564	10.8
PS4	Oven #3	413,380.93	3,721,625.18	32.81	1	6.1	0.25	390.9	2,224	20.7
PS5	Oven #6	413,398.67	3,721,609.63	32.65	1	6.2	0.20	400.4	2,087	43.9
PS6	Oven #7	413,404.22	3,721,607.44	32.83	1	6.3	0.20	381.5	2,361	47.2

Abbreviations:
acfm = actual cubic feet per minute
g/s = grams per second
K = Kelvin
m = meter
m/s = meters per second
SB = Spray Booth
UTM = Universal Transverse Mercator

Table 12
2013 Area Source Modeling Parameters
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	UTM East[1] (m)	UTM North[1] (m)	Base Elevation (m)	Area (m^2)	Modeled Emission Rate[2] (g/ (s-m^2))	Release Height[3] (m)	Initial Vertical Dimension[4] (m)
FS1	Building 4	413,382.1	3,721,628.0	32.77	969.2	0.00103	2.3	2.13
FS2	Building 3	413,396.5	3,721,627.4	32.67	969.2	0.00103	4.6	2.13
FS3	Building 2	413,442.0	3,721,628.0	32.52	998.9	0.00100	4.6	2.13
FS4	Building 1	413,487.0	3,721,604.8	32.59	458.0	0.00218	2.8	2.62
FS5	Between Buildings 3 and 4	413,382.1	3,721,596.7	32.67	457.5	0.00219	0	0.00
FS6	Between Buildings 2 and 3	413,427.4	3,721,628.0	32.63	463.5	0.00216	0	0.00
FS7	Between Buildings 1 and 2	413,472.9	3,721,633.3	32.51	515.5	0.00194	0	0.00
FS8	Building 3 Plating	413,396.5	3,721,627.4	32.67	969.2	0.00103	4.6	2.13

Notes:

1. Represents the coordinates of the first vertex as it appears in the modeling files.
2. Modeled emission rates were derived using unit emission rates of 1 g/s and corresponding areas.
3. Due to the strong pull from the roof vents/fans on Buildings 2 and 3, the release heights of these fugitive sources have been set to the building height. The release height for Buildings 1 and 4 have been set to 1/2 of the building height.
4. The initial vertical dimension for Building sources represents the building height divided by 2.15, per model guidance.

Abbreviations:

g/s-m^2 = grams per second per meter squared
K = Kelvin
m = meter
UTM = Universal Transverse Mercator

Table 13
Operating Schedules
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	Weekday Hours of Operation	Weekday Shift Hours	Weekend Hours of Operation	Weekend Shift Hours	Hours/Week	Hours/Year
PS1	SB #1	24	all	8	6am - 2pm	136	7091
PS2	SB #2	24	all	0	-	120	6257
PS3	Scrubber (Anodize Line, Tank 70)	16	6am - 10pm	0	-	80	4171
PS4	Oven #3	24	all	24	all	168	8760
PS5	Oven #6	24	all	8	6am - 2pm	136	7091
PS6	Oven #7	24	all	8	6am - 2pm	136	7091
FS1	Building 4	24	all	24	all	168	8760
FS2	Building 3	24	all	24	all	168	8760
FS3	Building 2	24	all	24	all	168	8760
FS4	Building 1	24	all	24	all	168	8760
FS5	Between Buildings 3 and 4	24	all	24	all	168	8760
FS6	Between Buildings 2 and 3	24	all	24	all	168	8760
FS7	Between Buildings 1 and 2	24	all	24	all	168	8760
FS8	Building 3 Plating	16	6am - 10pm	0	-	80	4171

Abbreviations:
SB = Spray Booth

Table 14
Current Operations, Area Source Modeling Parameters
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	UTM East[1] (m)	UTM North[1] (m)	Base Elevation (m)	Area (m^2)	Modeled Emission Rate[2] (g/ ($s-m^2$))	Release Height[3] (m)	Initial Vertical Dimension[4] (m)
FS1	Building 4	413,382.1	3,721,628.0	32.77	969.2	0.00103	2.3	2.13
FS2	Building 3	413,396.5	3,721,627.4	32.67	969.2	0.00103	2.3	2.13
FS3	Building 2	413,442.0	3,721,628.0	32.52	998.9	0.00100	4.6	2.13
FS4	Building 1	413,487.0	3,721,604.8	32.59	458.0	0.00218	2.8	2.62
FS5	Between Buildings 3 and 4	413,382.1	3,721,596.7	32.67	457.5	0.00219	0	0.00
FS6	Between Buildings 2 and 3	413,427.4	3,721,628.0	32.63	463.5	0.00216	0	0.00
FS7	Between Buildings 1 and 2	413,472.9	3,721,633.3	32.51	515.5	0.00194	0	0.00
FS8	Building 3 Plating	413,396.5	3,721,627.4	32.67	969.2	0.00103	2.3	2.13

Notes:
1. Represents the coordinates of the first vertex as it appears in the modeling files.
2. Modeled emission rates were derived using unit emission rates of 1 g/s and corresponding areas.
3. Due to the strong pull from the roof vents/fans on Building 2, the release height for this fugitive source has been set to the building height. The release height for Buildings 1, 3, and 4 have been set to 1/2 of the building height. The release height for Building 3 was modified in the current operations reconciliation to account for the recent shutdown of roof fans on Building 3.
4. The initial vertical dimension for Building sources represents the building height divided by 2.15, per model guidance.

Abbreviations:
$g/s-m^2$ = grams per second per meter squared
K = Kelvin
m = meter
UTM = Universal Transverse Mercator

Table 15
Building Downwash Parameters
Hixson Metal Finishing
Newport Beach, California

Building ID	Building	Building Centroid UTM East[1] (m)[1]	Building Centroid UTM North[1] (m)	Elevation (m)	Tier	Tier Height (m)
3	Building 1	413,495.0	3,721,619.0	32.59	1	5.6
2	Building 2	413,457.4	3,721,612.8	32.52	1	4.6
18	Building 2 (Upper Tier)	413,462.3	3,721,618.2	32.63	2	5.9
1	Building 3	413,411.9	3,721,611.8	32.67	1	4.6
0	Building 4	413,366.6	3,721,612.3	32.74	1	4.6
4	E of Bldg 1	413,545.1	3,721,619.8	32.31	1	4.0
5	W of Bldg 4	413,321.4	3,721,617.6	32.81	1	4.0
6	Across Street, 1	413,344.0	3,721,679.3	32.88	1	4.6
7	Across Street, 2	413,389.5	3,721,680.5	32.78	1	4.6
8	Across Street, 3 (Millet)	413,417.8	3,721,676.7	32.91	1	4.6
9	Across Street, 4	413,457.2	3,721,680.6	32.88	1	4.6
10	Across Street, 5	413,502.7	3,721,671.6	32.71	1	5.8
11	Apartments, 3	413,525.8	3,721,563.2	32.32	1	6.1
12	Apartments, 1	413,432.3	3,721,563.0	32.50	1	6.1
13	Apartments, 2	413,479.2	3,721,576.8	32.51	1	3.4
14	Home 1	413,362.8	3,721,573.1	32.34	1	3.0
15	Home 2	413,333.5	3,721,573.4	32.27	1	3.0
16	Parking Structure 1	413,342.8	3,721,591.5	32.80	1	2.7
17	Parking Structure 2	413,467.0	3,721,592.7	32.66	1	2.7

Notes:
1. Refer to modeling files for coordinates of each vertex.

Abbreviations:
m = meter
UTM = Universal Transverse Mercator

Table 16
AERSURFACE Inputs and Resulting Surface Characteristics
John Wayne Airport Meteorological Station
Hixson Metal Finishing
Newport Beach, California

AERSURFACE Input	John Wayne Airport
Study Radius	1 km
Sectors	1
Temporal Resolution	Annual
Month/Season Assignments	Default
Airport?	Y
Continuous Snow Cover?	N
Arid?	Y
Surface Moisture	Average
AERSURFACE Output	
Albedo	0.18
Bowen Ratio	1.23
Surface Roughness	0.11

Table 17
2013 Ground-level Concentrations (GLCs) at the Modeled PMI, MEIR, MEIW, and MEISR
Hixson Metal Finishing
Newport Beach, California

Compound	Average Annual Concentration (µg/m^3) at Cancer Risk MEI*			Average Annual Concentration (µg/m^3) at Chronic HI MEI*			One-Hour Maximum Concentration (µg/m^3) at Acute HI PMI/MEI*			
	MEIR	MEIW	MEISR[1]	MEIR	MEIW	MEISR[2]	PMI	MEIR	MEIW	MEISR[1]
Acetaldehyde	3.47E-06	1.3E-05	6.03E-07	2.58E-06	1.52E-05	5.97E-07	8.47E-04	9.48E-04	4.39E-04	3.77E-04
Acrolein	2.18E-06	8.3E-06	3.79E-07	1.62E-06	9.55E-06	3.75E-07	5.32E-04	5.96E-04	2.76E-04	2.37E-04
Ammonia	1.46E-02	5.5E-02	2.54E-03	1.08E-02	6.39E-02	2.52E-03	3.56E+00	3.98E+00	1.84E+00	1.58E+00
Benzene	6.46E-06	2.4E-05	1.12E-06	4.79E-06	2.83E-05	1.11E-06	1.58E-03	1.76E-03	8.17E-04	7.02E-04
Crystalline Silica	1.68E-09	2.1E-09	3.64E-10	1.28E-09	6.49E-09	5.04E-10	4.01E-07	3.44E-07	1.00E-07	7.73E-08
Ethyl benzene	1.50E-03	5.5E-03	3.60E-04	9.89E-04	5.71E-03	3.73E-04	3.68E-01	2.62E-01	2.29E-01	9.74E-02
Formaldehyde	1.95E-05	6.0E-05	3.64E-06	1.46E-05	8.24E-05	4.08E-06	4.73E-03	4.93E-03	2.10E-03	1.76E-03
Ethylene Glycol Monomethyl Ether	7.49E-03	1.8E-02	1.71E-03	5.35E-03	2.88E-02	2.07E-03	1.82E+00	1.43E+00	7.86E-01	4.14E-01
Hexane	5.09E-06	1.9E-05	8.84E-07	3.77E-06	2.23E-05	8.75E-07	1.24E-03	1.39E-03	6.43E-04	5.52E-04
Hexavalent Chromium	2.72E-03	3.0E-03	1.14E-04	2.10E-03	2.82E-03	8.31E-05	1.21E-01	8.42E-02	4.78E-02	8.77E-03
Lead	5.15E-10	2.4E-09	1.29E-10	3.19E-10	1.95E-09	1.18E-10	1.30E-07	8.50E-08	9.99E-08	3.79E-08
Methanol	2.58E-03	1.3E-02	6.57E-04	1.54E-03	9.74E-03	5.64E-04	6.43E-01	4.02E-01	5.39E-01	1.96E-01
Methyl Ethyl Ketone	5.15E-02	2.0E-01	1.25E-02	3.36E-02	1.96E-01	1.26E-02	1.27E+01	8.88E+00	8.31E+00	3.42E+00
Methyl Isobutyl Ketone	1.71E-02	5.5E-02	4.03E-03	1.16E-02	6.52E-02	4.41E-03	4.18E+00	3.08E+00	2.33E+00	1.05E+00
Nickel	6.79E-06	2.4E-05	3.86E-07	1.30E-05	3.17E-05	6.45E-07	2.93E-02	1.84E-02	9.63E-03	1.36E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	8.07E-08	3.1E-07	1.40E-08	5.99E-08	3.54E-07	1.39E-08	1.97E-05	2.20E-05	1.02E-05	8.75E-06
Phosphoric Acid	1.71E-04	8.8E-04	4.37E-05	1.03E-04	6.49E-04	3.76E-05	4.28E-02	2.68E-02	3.59E-02	1.30E-02
Toluene	1.10E-02	4.8E-02	2.72E-03	6.94E-03	4.17E-02	2.58E-03	2.72E+00	1.82E+00	1.98E+00	7.72E-01
Xylenes	7.46E-03	2.6E-02	1.78E-03	5.00E-03	2.85E-02	1.89E-03	1.83E+00	1.32E+00	1.09E+00	4.75E-01
Cadmium	2.08E-04	7.5E-04	1.18E-05	4.00E-04	9.72E-04	1.98E-05	6.94E-02	4.37E-02	2.28E-02	3.23E-03
Naphthalene	2.42E-07	9.2E-07	4.21E-08	1.80E-07	1.06E-06	4.17E-08	5.90E-05	6.61E-05	3.06E-05	2.63E-05

Notes:
1. Maximally Exposed Individual Sensitive Receptor is #10942 Allergy Immuno Technologies, 1527 Monrovia Ave, Newport Beach, at UTM 11N 413,172 E 3,721,497 N
2. Maximally Exposed Individual Sensitive Receptor is #10970 Multiple medical offices, 1501 Superior Ave, Newport Beach, at UTM 11N 413,974 E 3,721,750 N

Abbreviations:
µg = microgram
GLC = Ground-Level Concentration
m^3 = cubic meter
MEIR = Maximally Exposed Individual Resident
MEIW = Maximally Exposed Individual Worker
MEISR = Maximally Exposed Individual Sensitive Receptor
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

Table 18
Current Operations, Ground-level Concentrations (GLCs) at the Modeled PMI, MEIR, MEIW, and MEISR
Hixson Metal Finishing
Newport Beach, California

Compound	Average Annual Concentration (µg/m^3) at Cancer Risk PMI/MEI*			Average Annual Concentration (µg/m^3) at Chronic HI MEI*			One-Hour Maximum Concentration (µg/m^3) at Acute HI PMI/MEI*			
	MEIR	MEIW	MEISR[1]	MEIR	MEIW	MEISR[2]	PMI	MEIR	MEIW	MEISR[1]
Acetaldehyde	2.6E-06	1.5E-05	6.0E-07	2.6E-06	1.5E-05	6.0E-07	8.5E-04	9.5E-04	4.4E-04	3.8E-04
Acrolein	1.6E-06	9.6E-06	3.8E-07	1.6E-06	9.6E-06	3.8E-07	5.3E-04	6.0E-04	2.8E-04	2.4E-04
Ammonia	1.1E-02	6.4E-02	2.5E-03	1.1E-02	6.4E-02	2.5E-03	3.6E+00	4.0E+00	1.8E+00	1.6E+00
Benzene	4.8E-06	2.8E-05	1.1E-06	4.8E-06	2.8E-05	1.1E-06	1.6E-03	1.8E-03	8.2E-04	7.0E-04
Crystalline Silica	4.3E-10	2.2E-09	1.2E-10	4.3E-10	2.2E-09	1.7E-10	1.3E-07	1.2E-07	3.4E-08	2.6E-08
Ethyl benzene	9.9E-04	5.7E-03	3.6E-04	9.9E-04	5.7E-03	3.7E-04	3.7E-01	2.6E-01	2.3E-01	9.7E-02
Formaldehyde	1.5E-05	8.2E-05	3.6E-06	1.5E-05	8.2E-05	4.1E-06	4.7E-03	4.9E-03	2.1E-03	1.8E-03
Ethylene Glycol Monomethyl Ether	5.4E-03	2.9E-02	1.7E-03	5.4E-03	2.9E-02	2.1E-03	1.8E+00	1.4E+00	7.9E-01	4.1E-01
Hexane	3.8E-06	2.2E-05	8.8E-07	3.8E-06	2.2E-05	8.8E-07	1.2E-03	1.4E-03	6.4E-04	5.5E-04
Hexavalent Chromium	3.8E-04	4.2E-04	1.3E-05	3.8E-04	4.2E-04	1.2E-05	2.4E-02	1.2E-02	7.6E-03	1.2E-03
Lead	1.1E-10	6.5E-10	4.3E-11	1.1E-10	6.5E-10	3.9E-11	4.3E-08	2.8E-08	3.3E-08	1.2E-08
Methanol	1.5E-03	9.7E-03	6.6E-04	1.5E-03	9.7E-03	5.6E-04	6.4E-01	4.0E-01	5.4E-01	2.0E-01
Methyl Ethyl Ketone	3.4E-02	2.0E-01	1.3E-02	3.4E-02	2.0E-01	1.3E-02	1.3E+01	8.9E+00	8.3E+00	3.4E+00
Methyl Isobutyl Ketone	1.2E-02	6.5E-02	4.0E-03	1.2E-02	6.5E-02	4.4E-03	4.2E+00	3.1E+00	2.3E+00	1.1E+00
Nickel	1.7E-05	3.7E-05	4.0E-07	1.7E-05	3.7E-05	6.5E-07	5.0E-02	2.3E-02	1.2E-02	1.6E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	6.0E-08	3.5E-07	1.4E-08	6.0E-08	3.5E-07	1.4E-08	2.0E-05	2.2E-05	1.0E-05	8.8E-06
Phosphoric Acid	1.0E-04	6.5E-04	4.4E-05	1.0E-04	6.5E-04	3.8E-05	4.3E-02	2.7E-02	3.6E-02	1.3E-02
Toluene	6.9E-03	4.2E-02	2.7E-03	6.9E-03	4.2E-02	2.6E-03	2.7E+00	1.8E+00	2.0E+00	7.7E-01
Xylenes	5.0E-03	2.9E-02	1.8E-03	5.0E-03	2.9E-02	1.9E-03	1.8E+00	1.3E+00	1.1E+00	4.8E-01
Cadmium	5.1E-04	1.1E-03	1.2E-05	5.1E-04	1.1E-03	2.0E-05	1.2E-01	5.5E-02	2.8E-02	3.9E-03
Naphthalene	1.8E-07	1.1E-06	4.2E-08	1.8E-07	1.1E-06	4.2E-08	5.9E-05	6.6E-05	3.1E-05	2.6E-05

Notes:
1. Maximally Exposed Individual Sensitive Receptor is #10942 Allergy Immuno Technologies, 1527 Monrovia Ave, Newport Beach, at UTM 11N 413,172 E 3,721,497 N
2. Maximally Exposed Individual Sensitive Receptor is #10970 Multiple medical offices, 1501 Superior Ave, Newport Beach, at UTM 11N 413,974 E 3,721,750 N

Abbreviations:
µg = microgram
GLC = Ground-Level Concentration
m^3 = cubic meter
MEIR = Maximally Exposed Individual Resident
MEIW = Maximally Exposed Individual Worker
MEISR = Maximally Exposed Individual Sensitive Receptor
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

Table 19
Sensitive Receptors
Hixson Metal Finishing
Newport Beach, California

Sensitive Receptor Name	Receptor Type	Street Address	UTM East (m)	UTM North (m)
Allergy Immuno Technologies Inc	Hospitals	1527 Monrovia Avenue, Newport Beach	413,171.8	3,721,496.5
Multiple Medical Offices And Nursing Homes	Hospitals and Nursing Homes	1555 Superior Ave, Newport Beach	413,807.1	3,721,552.4
Multiple Medical Offices And Nursing Homes	Hospitals and Nursing Homes	1445 Superior Ave, Newport Beach	413,463.5	3,721,155.5
Multiple Medical Offices	Hospitals	320 Superior Avenue, Newport Beach	413,415.5	3,721,081.0
Multiple Medical Offices	Hospitals	1419 Superior Avenue, Newport Beach	413,351.3	3,721,092.0
Multiple Medical Offices	Hospitals	355V Placentia Avenue, Newport Beach	413,612.7	3,721,176.9
Multiple Medical Offices	Hospitals	330 Placentia Avenue, Newport Beach	413,663.2	3,721,168.6
Multiple Medical Offices	Hospitals	307 Placenta Avenue, Newport Beach	413,645.9	3,721,100.9
Multiple Medical Offices	Hospitals	351 And 361 Hospital Rd, Newport Beach	413,687.1	3,721,042.6
Multiple Medical Offices	Hospitals	One Hoag Drive, Newport Beach	413,604.9	3,721,042.0
Childs-Pace	Daycare	1860 Anaheim Ave, Costa Mesa	414,377.3	3,722,769.4
Multiple Medical Offices And Nursing Homes	Hospitals and Nursing Homes	661 Center Street, Costa Mesa	414,134.2	3,722,792.1
Sano Medical Center	Hospitals	700 West 19Th Street, Costa Mesa	413,972.1	3,722,997.9
Orange County Latino Medical Group	Hospitals	767 West 19Th Street, Costa Mesa	413,709.6	3,722,989.8
Nmusd Whittier Preschool	Daycare	1800 Whittier Ave., Costa Mesa	412,774.5	3,722,602.5
Family Care Centers Inc - Costa Mesa	Hospitals	131 E 17 Street, Costa Mesa	414,558.2	3,722,213.0
Lifestyles Health And Fitness Consul	Hospitals	170 E 17Th Street Suite, Costa Mesa	414,672.8	3,722,197.0
Saves The Day Dermatology	Hospitals	188 East 17Th Street, Costa Mesa	414,739.4	3,722,149.1
James Albert School Of Cosmetology	Colleges	281 E 17Th St, Costa Mesa	415,040.3	3,721,888.0
Personal Health Care	Hospitals	3101 W Pacific Coast Hwy, Newport Beach	414,100.1	3,720,511.0
Multiple Medical Offices	Hospitals	3300 West Coast Highway, Newport Beach	414,012.2	3,720,534.9
Multiple Medical Offices	Hospitals	4000 W Pacific Coast Hwy, Newport Beach	413,431.5	3,720,600.2
Multiple Hospitals	Hospitals	301 Newport Blvd And 300 Old Newport Blvd, Newport Beach	413,912.3	3,720,769.3
Multiple Medical Offices	Hospitals	350 Old Newport Blvd, Newport Beach	413,996.2	3,720,994.4
Newpory Heart A Medical Group	Hospitals	415 Old Newport, Newport Beach	414,048.2	3,721,087.6
Alan Freedman Md	Hospitals	401 Old Newport Blvd, Newport Beach	413,986.9	3,721,060.1
Multiple Medical Offices And Nursing Homes	Hospitals and Nursing Homes	466 Flagship Road, Newport Beach	413,851.0	3,721,310.0
Nobis Preschool	Daycare	190 E. 15Th St., Costa Mesa	414,266.6	3,721,493.8
Multiple Medical Offices	Hospitals	1501 Superior Ave, Newport Beach	413,973.6	3,721,749.5
Share Ourselves Free Medical Clinic	Hospitals	1550 Superior Avenue, Costa Mesa	414,024.2	3,721,802.8

Abbreviations:
m = meter
UTM = Universal Transverse Mercator

Table 20
Toxicity Values for Compounds Included in Risk Assessment
Hixson Metal Finishing
Newport Beach, California

Compound	CAS Number	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	Acute Inhalation REL ($\mu g/m^3$)
Acetaldehyde	75-07-0	0.01	-	140	-	470
Acrolein	107-02-8	-	-	0.35	-	2.5
Ammonia	7664-41-7	-	-	200	-	3,200
Benzene	71-43-2	0.1	-	3	-	27
Cadmium	7440-43-9	15	-	0.02	0.0005	-
Crystalline Silica[1]	7631-86-9	-	-	3	-	-
Ethyl benzene	100-41-4	0.0087	-	2,000	-	-
Formaldehyde	50-00-0	0.021	-	9	-	55
Glycol Ethers and Acetates[2]	1115	-	-	60	-	93
Hexane	110-54-3	-	-	7,000	-	-
Hexavalent Chromium	18540-29-9	510	0.5	0.2	0.02	-
Lead	7439-92-1	0.042	0.0085		-	-
Methanol	67-56-1	-	-	4,000	-	28,000
Methyl Ethyl Ketone	78-93-3	-	-	-	-	13,000
Methyl Isobutyl Ketone	108-10-1	-	-	-	-	-
Nickel	7440-02-0	0.91	-	0.014	0.011	0.2
Phosphorus Compounds	7664-38-2	-	-	7	-	-
Polynuclear Aromatic Hydrocarbons (PAHs)	1151	3.9	12	-	-	-
Napthalene	91-20-3	0.12	-	9	-	-
Toluene	108-88-3	-	-	300	-	37,000
Xylenes	1330-20-7	-	-	700	-	22,000

Notes:

1. The CAS # for crystalline silica in the HARP software is 1175.

2. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).

Abbreviations:

µg = microgram
ARB = (California) Air Resources Board
CAS = Chemical Abstract Service
HARP = Hotspots Analysis and Reporting Program
kg = kilogram
m^3 = cubic meter
mg = milligram
REL = Reference Exposure Level

References:

Air Resources Board (ARB). 2014. Hotspots Analysis and Reporting Program (HARP). California Environmental Protection Agency. Version 1.4f. August. Available online at http://www.arb.ca.gov/toxics/harp/downloads.htm

Table 21
Target Organ Systems for Noncancer Health Effects
Hixson Metal Finishing
Newport Beach, CA

Compound	CAS Number	Chronic Hazard Target Organs	Acute Hazard Target Organs
Acetaldehyde	75-07-0	Respiratory system	Eyes; respiratory system (sensory irritation)
Acrolein	107-02-8	Respiratory system	Eyes; respiratory system (sensory irritation)
Ammonia	7664-41-7	Respiratory system	Respiratory system; eyes
Benzene	71-43-2	Hematologic system	Developmental; Immune system; Hematologic system
Cadmium	7440-43-9	*Inhalation:* Kidney; respiratory system *Oral* : Kidney	-
Crystalline Silica[1]	7631-86-9	Respiratory system	-
Ethyl benzene	100-41-4	Alimentary system (liver); kidney; endocrine system; development	-
Formaldehyde	50-00-0	Respiratory system	Eyes (Sensory irritation)
Glycol Ethers and Acetates[2,3]	1115	Reproductive system; hematologic system; development; alimentary system (liver)	Respiratory system; eyes; reproductive system; development; nervous system
Hexane	110-54-3	Nervous system	-
Hexavalent Chromium	18540-29-9	*Inhalation:* Respiratory system *Oral:* Hematologic system	-
Lead	7439-92-1	Developmental	-
Methanol	67-58-1	Developmental	Nervous system
Methyl Ethyl Ketone	78-93-3	-	Respiratory system; eyes
Methyl Isobutyl Ketone	108-10-1	-	-
Nickel	7440-02-0	*Inhalation:* Respiratory system; hematologic system *Oral:* Developmental	Immune System
PAHs	1151	-	-
Naphthalene	91-20-3	Respiratory system	-
Phosphorus Compounds	7664-38-2	Respiratory system	-
Toluene	108-88-3	Nervous system; respiratory system; developmental	Respiratory, nervous systems; eyes; reproductive/developmental
Xylenes	1330-20-7	Nervous & respiratory systems; eyes	Nervous & respiratory systems; eyes

Notes:
1. The CAS # for crystalline silica in the HARP software is 1175.
2. Category includes target organs for substances in the glycol ethers and acetates category.
3. To conservatively estimate the risk from glycol ethers and acetates, the CAS # representing the most conservative toxicity values was used (109-86-4, ethylene glycol monomethyl ether).

Abbreviations:
HARP = Hotspots Analysis Reporting Program

References:
Office of Environmental Health Hazard Assessment (OEHHA). OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL)s. Available online at: http://www.oehha.ca.gov/air/allrels.html.
OEHHA. Toxicity Criteria Database. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp

Table 22
2013 Health Effects Results for Modeled PMI, MEIR, and MEIW
Hixson Metal Finishing
Newport Beach, CA

Receptor	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million[1]	Excess Cancer Risk in One Million (30-year)[2]	Excess Cancer Risk in One Million (9-year, Adult)[2]	Excess Cancer Risk in One Million (9-year, Child)[3]	Chronic HI[4]	Acute HI[4]
Acute HI PMI[5]	413,425	3,721,596	-	-	-	-	-	0.15
Cancer Risk MEIR	413,375	3,721,575	407.0	227.0	68.0	102.0	-	-
Chronic HI MEIR	413,425	3,721,575	-	-	-	-	0.03	-
Acute HI MEIR	413,400	3,721,575	-	-	-	-	-	0.09
Cancer Risk MEIW	413,425	3,721,675	89.5	-	-	-	-	-
Chronic HI MEIW	413,450	3,721,675	-	-	-	-	0.07	-
Acute HI MEIW	413,425	3,721,675	-	-	-	-	-	0.05
AB2588 Thresholds[6]	**-**	**-**	**10.0**	**-**	**-**	**-**	**1.0**	**1.0**

Notes:

1. Excess cancer risks for PMI and MEIR assume a 70-year exposure period; excess cancer risk for MEIW assumes a 40-year exposure period.
2. Assumes exposure for an adult resident, calculated using the Derived (OEHHA) Method.
3. Assumes exposure for a child resident, calculated using the Derived (OEHHA) Method.
4. The chronic HI and acute HI reflect the maximum risk to a given target organ.
5. The location of the Acute HI PMI is on the facility boundary.
6. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:

ARB = (California) Air Resources Board
HI = Hazard Index
MEIR = Maximally Exposed Individual Resident
MEIW = Maximally Exposed Individual Worker
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

References:

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf.

Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table 23
2013 Health Effects Results for Modeled Sensitive Receptors, Excess Cancer Risk ≥10 in one million or HI≥1
Hixson Metal Finishing
Newport Beach, CA

Receptor[1]	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million (70-year)[2]	Excess Cancer Risk in One Million (30-year)[3]	Excess Cancer Risk in One Million (9-year, Adult)[3]	Excess Cancer Risk in One Million (9-year, Child)[4]	Chronic HI[5]	Acute HI[5]
10942	413,172	3,721,497	17.1	9.5	2.9	4.3	0.001	0.007
10970	413,974	3,721,750	12.5	7.0	2.1	3.1	0.001	0.003
10971	414,024	3,721,803	11.7	6.5	2.0	2.9	0.001	0.002
10943	413,807	3,721,552	11.3	6.3	1.9	2.8	0.001	0.004
AB2588 Thresholds[6]	**-**	**-**	**10.0**	**-**	**-**	**-**	**1.0**	**1.0**

Notes:

1. The maximally exposed sensitive receptors are at:
   Receptor 10942 - Allergy Immuno Technologies, 1527 Monrovia Ave, Newport Beach
   Receptor 10970 - Multiple medical offices, 1501 Superior Ave, Newport Beach
   Receptor 10971 - Share Ourselves Free Medical Clinic, 1550 Superior Ave, Costa Mesa
   Receptor 10943 - Multiple medical offices and nursing home, 1555 Superior Ave, Newport Beach
   Receptor 10942 represents the Cancer Risk and Acute HI MEISR. Receptor 10970 represents the Chronic HI MEISR.
2. Excess cancer risks for sensitive receptors conservatively assume a continuous 70-year exposure period associated with a resident. This is very conservative given that the sensitive receptors evaluated include hospitals, schools, child care facilities, and age-care facilities, where the exposure duration is not continuous and is much lower than 70 years. Therefore, alternative, and likely more representative (though still conservative) exposure periods are shown here.
3. Assumes exposure for an adult resident, calculated using the Derived (OEHHA) Method.
4. Assumes exposure for a child resident, calculated using the Derived (OEHHA) Method.
5. The chronic HI and acute HI reflect the maximum risk to a given target organ.
6. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:

ARB = (California) Air Resources Board
HI = Hazard Index
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

References:

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf.

Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table 24
Current Operations, Health Effects Results for Modeled PMI, MEIR, and MEIW
Hixson Metal Finishing
Newport Beach, CA

Receptor	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million[1]	Excess Cancer Risk in One Million (30-year)[2]	Excess Cancer Risk in One Million (9-year, Adult)[2]	Excess Cancer Risk in One Million (9-year, Child)[3]	Chronic HI[4]	Acute HI[4]
Acute HI PMI[5]	413,425	3,721,596	-	-	-	-		0.25
Cancer Risk and Chronic HI MEIR	413,425	3,721,575	59.2	32.9	9.9	14.8	0.04	-
Acute HI MEIR	413,400	3,721,575	-	-	-	-	-	0.12
Cancer Risk and Chronic HI MEIW	413,450	3,721,675	13.4	-	-	-	0.06	-
Acute HI MEIW	413,425	3,721,675	-	-	-	-	-	0.06
AB2588 Thresholds[6]	**-**	**-**	**10.0**	**-**	**-**	**-**	**1.0**	**1.0**

Notes:
1. Excess cancer risks for PMI and MEIR assume a 70-year exposure period; excess cancer risk for MEIW assumes a 40-year exposure period.
2. Assumes exposure for an adult resident, calculated using the Derived (OEHHA) Method.
3. Assumes exposure for a child resident, calculated using the Derived (OEHHA) Method.
4. The chronic HI and acute HI reflect the maximum risk to a given target organ.
5. The location of the Acute HI PMI is on the facility boundary.
6. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:
ARB = (California) Air Resources Board
HI = Hazard Index
MEIR = Maximally Exposed Individual Resident
MEIW = Maximally Exposed Individual Worker
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

References:
Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at
Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table 25
Current Operations, Health Effects Results for Modeled Sensitive Receptors, Cancer Risk ≥10 in one million or HI ≥1
Hixson Metal Finishing
Newport Beach, CA

Receptor[1]	UTM East (m)	UTM North (m)	Excess Cancer Risk in One Million (70-year)[1]	Chronic HI[2]	Acute HI[2]
There are no sensitive receptors with a cancer risk ≥ 10 or HI ≥ 1.					
AB2588 Thresholds[3]	**-**	**-**	**10.0**	**1.0**	**1.0**

Notes:

1. Excess cancer risks for sensitive receptors conservatively assume a continuous 70-year exposure period associated with a resident. This is very conservative given that the sensitive receptors evaluated include hospitals, schools, child care facilities, and age-care facilities, where the exposure duration is not continuous and is much lower than 70 years. Therefore, alternative, and likely more representative (though still conservative) exposure periods are shown here.
2. The chronic HI and acute HI reflect the maximum risk to a given target organ.
3. SCAQMD Notification Levels, from ARB 2008.

Abbreviations:

ARB = (California) Air Resources Board

HI = Hazard Index

MEISR = Maximally Exposed Individual Sensitive Receptor

UTM = Universal Transverse Mercator

References:

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. August. Available online at http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf.

Air Resources Board (ARB). 2008. District Prioritization Scores and Risk Threshold Values. Available online at: http://www.arb.ca.gov/ab2588/district_levels.htm. Accessed September, 2014.

Table 26
Acute Health Quotients by Substance and Target Organ at the 2013 Modeled Acute HI PMI
Hixson Metal Finishing
Newport Beach, California

Acute HI PMI: Receptor #14														
UTM East (m): 413,425, UTM North (m): 3,721,596; Southern Facility Boundary														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-06	0.0E+00	0.0E+00	1.8E-06
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-04	0.0E+00	0.0E+00	2.1E-04
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-03	0.0E+00	0.0E+00	1.1E-03
Benzene	0.0E+00	0.0E+00	0.0E+00	5.8E-05	0.0E+00	0.0E+00	0.0E+00	5.8E-05	0.0E+00	5.8E-05	0.0E+00	0.0E+00	5.8E-05	5.8E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	2.0E-02
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-05
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-04	0.0E+00	0.0E+00	9.8E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-01
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	7.4E-05	0.0E+00	7.4E-05	0.0E+00	7.4E-05	0.0E+00	0.0E+00	0.0E+00	7.4E-05	7.4E-05	0.0E+00	0.0E+00	7.4E-05
Xylenes	0.0E+00	8.3E-05	0.0E+00	0.0E+00	0.0E+00	8.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.3E-05	0.0E+00	0.0E+00	8.3E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**2.0E-02**	**0.0E+00**	**2.6E-03**	**0.0E+00**	**1.5E-01**	**0.0E+00**	**2.0E-02**	**2.5E-03**	**0.0E+00**	**5.8E-05**	**1.5E-01**

Abbreviations:
HI = Hazard Index
m = meter
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

Table 27
Acute Health Quotients by Source at the 2013 Modeled Acute HI PMI
Hixson Metal Finishing
Newport Beach, California

Acute HI PMI: Receptor #14															
UTM East (m): 413,425, UTM North (m): 3,721,596; Southern Facility Boundary															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Repro-ductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-01
PS1	SB #1	0.0E+00	5.0E-05	0.0E+00	1.4E-02	0.0E+00	3.9E-04	0.0E+00	7.5E-08	0.0E+00	1.4E-02	3.7E-04	0.0E+00	0.0E+00	1.4E-02
PS2	SB #2	0.0E+00	1.3E-04	0.0E+00	6.0E-03	0.0E+00	7.7E-04	0.0E+00	2.0E-09	0.0E+00	6.0E-03	7.7E-04	0.0E+00	0.0E+00	6.0E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	2.7E-07	0.0E+00	3.6E-05	0.0E+00	8.6E-04	0.0E+00	3.6E-05	0.0E+00	3.6E-05	8.2E-04	0.0E+00	3.6E-05	8.6E-04
PS5	Oven #6	0.0E+00	7.8E-08	0.0E+00	1.0E-05	0.0E+00	2.5E-04	0.0E+00	1.0E-05	0.0E+00	1.0E-05	2.4E-04	0.0E+00	1.0E-05	2.5E-04
PS6	Oven #7	0.0E+00	8.9E-08	0.0E+00	1.2E-05	0.0E+00	2.8E-04	0.0E+00	1.2E-05	0.0E+00	1.2E-05	2.7E-04	0.0E+00	1.2E-05	2.8E-04
	Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**2.0E-02**	**0.0E+00**	**2.6E-03**	**0.0E+00**	**1.5E-01**	**0.0E+00**	**2.0E-02**	**2.5E-03**	**0.0E+00**	**5.8E-05**	**1.5E-01**

Abbreviations:
HI = Hazard Index
m = meter
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

Table 28
Current Operations, Acute Health Quotients by Substance and Target Organ at the Modeled Acute HI PMI
Hixson Metal Finishing
Newport Beach, California

Acute HI PMI: Receptor #14														
UTM East (m): 413,425, UTM North (m): 3,721,596; Southern Facility Boundary														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-06	0.0E+00	0.0E+00	1.8E-06
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-04	0.0E+00	0.0E+00	2.1E-04
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-03	0.0E+00	0.0E+00	1.1E-03
Benzene	0.0E+00	0.0E+00	0.0E+00	5.8E-05	0.0E+00	0.0E+00	0.0E+00	5.8E-05	0.0E+00	5.8E-05	0.0E+00	0.0E+00	5.8E-05	5.8E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	2.0E-02
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-05
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-04	0.0E+00	0.0E+00	9.8E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	7.4E-05	0.0E+00	7.4E-05	0.0E+00	7.4E-05	0.0E+00	0.0E+00	0.0E+00	7.4E-05	7.4E-05	0.0E+00	0.0E+00	7.4E-05
Xylenes	0.0E+00	8.3E-05	0.0E+00	0.0E+00	0.0E+00	8.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.3E-05	0.0E+00	0.0E+00	8.3E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**2.0E-02**	**0.0E+00**	**2.6E-03**	**0.0E+00**	**2.5E-01**	**0.0E+00**	**2.0E-02**	**2.5E-03**	**0.0E+00**	**5.8E-05**	**2.5E-01**

Abbreviations:
HI = Hazard Index
m = meter
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

Table 29
Current Operations, Acute Health Quotients by Source at the Modeled Acute HI PMI
Hixson Metal Finishing
Newport Beach, California

Acute HI PMI: Receptor #14															
UTM East (m): 413,425, UTM North (m): 3,721,596; Southern Facility Boundary															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Repro-ductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01
PS1	SB #1	0.0E+00	5.0E-05	0.0E+00	1.4E-02	0.0E+00	3.9E-04	0.0E+00	2.5E-08	0.0E+00	1.4E-02	3.7E-04	0.0E+00	0.0E+00	1.4E-02
PS2	SB #2	0.0E+00	1.3E-04	0.0E+00	6.0E-03	0.0E+00	7.7E-04	0.0E+00	6.5E-10	0.0E+00	6.0E-03	7.7E-04	0.0E+00	0.0E+00	6.0E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	2.7E-07	0.0E+00	3.6E-05	0.0E+00	8.6E-04	0.0E+00	3.6E-05	0.0E+00	3.6E-05	8.2E-04	0.0E+00	3.6E-05	8.6E-04
PS5	Oven #6	0.0E+00	7.8E-08	0.0E+00	1.0E-05	0.0E+00	2.5E-04	0.0E+00	1.0E-05	0.0E+00	1.0E-05	2.4E-04	0.0E+00	1.0E-05	2.5E-04
PS6	Oven #7	0.0E+00	8.9E-08	0.0E+00	1.2E-05	0.0E+00	2.8E-04	0.0E+00	1.2E-05	0.0E+00	1.2E-05	2.7E-04	0.0E+00	1.2E-05	2.8E-04
	Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**2.0E-02**	**0.0E+00**	**2.6E-03**	**0.0E+00**	**2.5E-01**	**0.0E+00**	**2.0E-02**	**2.5E-03**	**0.0E+00**	**5.8E-05**	**2.5E-01**

Abbreviations:
HI = Hazard Index
m = meter
PMI = Point of Maximum Impact
UTM = Universal Transverse Mercator

Table 30
Dose by Substance and Exposure Pathway at the 2013 Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIR: Receptor #748					
UTM East (m): 413,375, UTM North (m): 3,721,575; Residential Unit South of Facility					
Chemical Name	**Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	1.01E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	5.66E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	3.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	1.87E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Crystalline Silica	4.35E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethyl benzene	4.33E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	5.64E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Glycol Monomethyl Ether	1.95E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	1.32E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexavalent Chromium	7.88E-07	2.23E-07	7.35E-06	0.00E+00	1.22E-06
Lead	1.34E-13	4.22E-14	1.39E-12	0.00E+00	9.91E-13
Methanol	6.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	1.34E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Isobutyl Ketone	4.43E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	1.97E-09	2.22E-09	1.83E-08	0.00E+00	7.39E-09
Polynuclear Aromatic Hydrocarbons (PAHs)	2.10E-11	9.07E-11	1.36E-11	0.00E+00	1.15E-10
Phosphoric Acid	4.46E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	2.85E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1.94E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	6.04E-08	1.71E-09	5.63E-07	0.00E+00	5.42E-07
Naphthalene	7.01E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Abbreviations:
d = day
kg = kilogram
m = meter
MEIR = Maximally Exposed Individual Resident
mg = milligram
UTM = Universal Transverse Mercator

Table 31
Excess Cancer Risk Contribution by Substance at the 2013 Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIR: Receptor #748							
UTM East (m): 413,375, UTM North (m): 3,721,575; Residential Unit South of Facility							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	1.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	3.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	1.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	4.0E-04	1.1E-07	3.7E-06	0.0E+00	6.1E-07	407.0	100%
Lead	5.6E-15	3.6E-16	1.2E-14	0.0E+00	8.4E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	8.2E-11	1.1E-09	1.6E-10	0.0E+00	1.4E-09	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	9.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.9	0%
Naphthalene	8.4E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**4.0E-04**	**1.1E-07**	**3.7E-06**	**0.0E+00**	**6.1E-07**	**407.0**	**100%**

Abbreviations:
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 32
Cancer Risk Contribution by Source at the 2013 Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIR: Receptor #748								
UTM East (m): 413,375, UTM North (m): 3,721,575; Residential Unit South of Facility								
Source	Source Description	Cancer Risk by Exposure Pathway					Total Cancer Risk (number in one million)	Cancer Risk Contribution (%)
		Inhalation	Dermal	Soil Ingestion	Mother's Milk	Home-Grown Produce		
FS1	Building 4	2.0E-04	5.4E-08	1.8E-06	0.0E+00	3.0E-07	197.0	48%
FS2	Building 3	4.1E-05	1.1E-08	3.7E-07	0.0E+00	6.2E-08	41.0	10%
FS3	Building 2	4.0E-06	1.1E-09	3.7E-08	0.0E+00	6.1E-09	4.0	1%
FS4	Building 1	2.8E-06	7.8E-10	2.6E-08	0.0E+00	4.3E-09	2.8	1%
FS5	Between Buildings 3 and 4	1.3E-04	3.7E-08	1.2E-06	0.0E+00	2.0E-07	134.0	33%
FS6	Between Buildings 2 and 3	2.3E-05	6.4E-09	2.1E-07	0.0E+00	3.5E-08	23.5	6%
FS7	Between Buildings 1 and 2	4.3E-06	1.2E-09	3.9E-08	0.0E+00	6.5E-09	4.3	1%
FS8	Building 3 Plating	9.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.9	0%
PS1	SB #1	2.0E-08	5.0E-12	1.7E-10	0.0E+00	2.8E-11	0.0	0%
PS2	SB #2	2.9E-08	7.4E-12	2.4E-10	0.0E+00	4.0E-11	0.0	0%
PS3	Scrubber (Anodize Line, Tank 70)	6.9E-09	1.9E-12	6.3E-11	0.0E+00	1.1E-11	0.0	0%
PS4	Oven #3	2.2E-10	6.0E-10	9.0E-11	0.0E+00	7.7E-10	0.0	0%
PS5	Oven #6	8.2E-11	2.3E-10	3.4E-11	0.0E+00	2.9E-10	0.0	0%
PS6	Oven #7	9.1E-11	2.6E-10	3.8E-11	0.0E+00	3.2E-10	0.0	0%
	Total	**4.0E-04**	**1.1E-07**	**3.7E-06**	**0.0E+00**	**6.1E-07**	**407.0**	**100%**

Abbreviations:
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 33
Inhalation Concentration and Dose by Substance and Exposure Pathway at the 2013 Modeled Chronic HI MEIR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIR: Receptor #750					
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility					
Chemical Name	**Inhalation Concentration (µg/m^3) and Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	1.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ammonia	1.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	4.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Crystalline Silica	1.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	9.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	5.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	3.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	2.1E-03	5.2E-07	5.9E-06	0.0E+00	3.5E-06
Lead	3.2E-10	7.9E-14	9.0E-13	0.0E+00	6.4E-13
Methanol	1.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Ethyl Ketone	3.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	1.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	1.3E-05	7.5E-08	3.7E-08	0.0E+00	5.1E-08
Polynuclear Aromatic Hydrocarbons (PAHs)	6.0E-08	7.0E-11	1.1E-11	0.0E+00	8.9E-11
Phosphoric Acid	1.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	6.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylenes	5.0E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cadmium	4.0E-04	9.9E-09	1.1E-06	0.0E+00	3.8E-06
Naphthalene	1.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Abbreviations:
µg = microgram
d = day
HI = Hazard Index
kg = kilogram
m = meter
m^3 = cubic meter
MEIR = Maximally Exposed Individual Resident
mg = milligram
UTM = Universal Transverse Mercator

Table 34
Chronic Health Quotients by Substance and Target Organ at the 2013 Modeled Chronic HI MEIR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIR: Receptor #750														
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility														
Chemical Name	**Chronic Hazard Quotients for Target Organs**													**Maximum Chronic HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-08	0.0E+00	0.0E+00	1.8E-08
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-06	0.0E+00	0.0E+00	4.6E-06
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-05	0.0E+00	0.0E+00	5.4E-05
Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-06	1.6E-06
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-10	0.0E+00	0.0E+00	4.3E-10
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	5.0E-07	5.0E-07	0.0E+00	5.0E-07	0.0E+00	5.0E-07	5.0E-07	0.0E+00	0.0E+00	0.0E+00	5.0E-07
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-06	0.0E+00	0.0E+00	1.6E-06
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	8.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.9E-05	0.0E+00	0.0E+00	0.0E+00	8.9E-05
Hexane	0.0E+00	5.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-10
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00	5.0E-04	1.1E-02
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	0.0E+00	0.0E+00	3.9E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.9E-07	0.0E+00	0.0E+00	0.0E+00	3.9E-07
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-05	9.3E-04	0.0E+00	9.3E-04	9.3E-04
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-05	0.0E+00	0.0E+00	1.5E-05
Toluene	0.0E+00	2.3E-05	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-05	2.3E-05	0.0E+00	0.0E+00	2.3E-05
Xylenes	0.0E+00	7.1E-06	0.0E+00	0.0E+00	0.0E+00	7.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-06	0.0E+00	0.0E+00	7.1E-06
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-02	0.0E+00	2.0E-02	0.0E+00	0.0E+00	3.0E-02
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-08	0.0E+00	0.0E+00	2.0E-08
Total	**0.0E+00**	**3.0E-05**	**0.0E+00**	**1.3E-04**	**5.0E-07**	**7.1E-06**	**5.0E-07**	**0.0E+00**	**3.0E-02**	**1.3E-04**	**3.2E-02**	**0.0E+00**	**1.4E-03**	**3.2E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 35
Chronic Health Quotients by Source at the 2013 Modeled Chronic HI MEIR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIR: Receptor #750															
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility															
Source	Source Description	Chronic Hazard Quotients for Target Organs													Maximum Chronic HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-03	0.0E+00	1.0E-04	2.1E-03
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-03	0.0E+00	8.8E-05	1.9E-03
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-04	0.0E+00	2.1E-05	4.3E-04
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-04	0.0E+00	1.0E-05	2.1E-04
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-03	0.0E+00	6.8E-05	1.4E-03
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.0E-03	0.0E+00	1.9E-04	4.0E-03
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.9E-04	0.0E+00	1.9E-05	3.9E-04
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-02	1.5E-05	2.1E-02	0.0E+00	9.3E-04	3.0E-02
PS1	SB #1	0.0E+00	9.2E-06	0.0E+00	7.3E-05	2.2E-07	3.5E-06	2.2E-07	0.0E+00	2.2E-07	7.3E-05	1.1E-05	0.0E+00	2.6E-08	7.3E-05
PS2	SB #2	0.0E+00	2.1E-05	0.0E+00	4.0E-05	2.8E-07	3.6E-06	2.8E-07	0.0E+00	2.8E-07	4.0E-05	3.6E-05	0.0E+00	2.5E-08	4.0E-05
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-07	0.0E+00	1.6E-08	3.4E-07
PS4	Oven #3	0.0E+00	2.6E-08	0.0E+00	2.0E-08	7.6E-10	6.2E-09	7.6E-10	0.0E+00	7.6E-10	2.0E-08	1.6E-05	0.0E+00	4.3E-07	1.6E-05
PS5	Oven #6	0.0E+00	2.9E-08	0.0E+00	2.2E-08	8.4E-10	6.9E-09	8.4E-10	0.0E+00	8.4E-10	2.2E-08	1.8E-05	0.0E+00	4.7E-07	1.8E-05
PS6	Oven #7	0.0E+00	4.3E-08	0.0E+00	3.3E-08	1.3E-09	1.0E-08	1.3E-09	0.0E+00	1.3E-09	3.3E-08	2.6E-05	0.0E+00	7.0E-07	2.6E-05
	Total	**0.0E+00**	**3.0E-05**	**0.0E+00**	**1.3E-04**	**5.0E-07**	**7.1E-06**	**5.0E-07**	**0.0E+00**	**3.0E-02**	**1.3E-04**	**3.2E-02**	**0.0E+00**	**1.4E-03**	**3.2E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 36
Acute Health Quotients by Substance and Target Organ at the 2013 Modeled Acute HI MEIR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIR: Receptor #749														
UTM East (m): 413,400, UTM North (m): 3,721,575; Apartment Complex South of Facility														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-06	0.0E+00	0.0E+00	2.0E-06
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-04	0.0E+00	0.0E+00	2.4E-04
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-03	0.0E+00	0.0E+00	1.2E-03
Benzene	0.0E+00	0.0E+00	0.0E+00	6.5E-05	0.0E+00	0.0E+00	0.0E+00	6.5E-05	0.0E+00	6.5E-05	0.0E+00	0.0E+00	6.5E-05	6.5E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	1.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-02	0.0E+00	0.0E+00	0.0E+00	1.5E-02
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-05
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-04	0.0E+00	0.0E+00	6.8E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-02
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	4.9E-05	0.0E+00	4.9E-05	0.0E+00	4.9E-05	0.0E+00	0.0E+00	0.0E+00	4.9E-05	4.9E-05	0.0E+00	0.0E+00	4.9E-05
Xylenes	0.0E+00	6.0E-05	0.0E+00	0.0E+00	0.0E+00	6.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-05	0.0E+00	0.0E+00	6.0E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**1.6E-02**	**0.0E+00**	**2.4E-03**	**0.0E+00**	**9.2E-02**	**0.0E+00**	**1.6E-02**	**2.3E-03**	**0.0E+00**	**6.5E-05**	**9.2E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 37
Acute Health Quotients by Source at the 2013 Modeled Acute HI MEIR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIR: Receptor #749															
UTM East (m): 413,400, UTM North (m): 3,721,575; Apartment Complex South of Facility															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-02
PS1	SB #1	0.0E+00	4.3E-05	0.0E+00	1.2E-02	0.0E+00	3.4E-04	0.0E+00	6.5E-08	0.0E+00	1.2E-02	3.2E-04	0.0E+00	0.0E+00	1.2E-02
PS2	SB #2	0.0E+00	8.1E-05	0.0E+00	3.8E-03	0.0E+00	4.8E-04	0.0E+00	1.2E-09	0.0E+00	3.8E-03	4.8E-04	0.0E+00	0.0E+00	3.8E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	3.7E-07	0.0E+00	4.9E-05	0.0E+00	1.2E-03	0.0E+00	4.9E-05	0.0E+00	4.9E-05	1.1E-03	0.0E+00	4.9E-05	1.2E-03
PS5	Oven #6	0.0E+00	7.4E-08	0.0E+00	9.9E-06	0.0E+00	2.3E-04	0.0E+00	9.8E-06	0.0E+00	9.9E-06	2.2E-04	0.0E+00	9.8E-06	2.3E-04
PS6	Oven #7	0.0E+00	4.9E-08	0.0E+00	6.5E-06	0.0E+00	1.5E-04	0.0E+00	6.5E-06	0.0E+00	6.5E-06	1.5E-04	0.0E+00	6.5E-06	1.5E-04
	Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**1.6E-02**	**0.0E+00**	**2.4E-03**	**0.0E+00**	**9.2E-02**	**0.0E+00**	**1.6E-02**	**2.3E-03**	**0.0E+00**	**6.5E-05**	**9.2E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 38
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIR: Receptor #750					
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility					
Chemical Name	**Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	7.46E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	4.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	2.81E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	1.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Crystalline Silica	1.11E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethyl benzene	2.87E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	4.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene Glycol Monomethyl Ether	1.39E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	9.80E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexavalent Chromium	1.10E-07	3.12E-08	1.03E-06	0.00E+00	1.72E-07
Lead	2.76E-14	8.71E-15	2.87E-13	0.00E+00	2.05E-13
Methanol	4.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	8.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Isobutyl Ketone	3.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	4.77E-09	5.39E-09	4.44E-08	0.00E+00	1.79E-08
Polynuclear Aromatic Hydrocarbons (PAHs)	1.56E-11	6.73E-11	1.01E-11	0.00E+00	8.53E-11
Phosphoric Acid	2.67E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	1.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	1.46E-07	4.14E-09	1.36E-06	0.00E+00	1.31E-06
Naphthalene	5.20E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Abbreviations:
d = day
kg = kilogram
m = meter
MEIR = Maximally Exposed Individual Resident
mg = milligram
UTM = Universal Transverse Mercator

Table 39
Current Operations, Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIR: Receptor #750							
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	7.5E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	8.9E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	5.6E-05	1.6E-08	5.2E-07	0.0E+00	8.6E-08	57.0	96%
Lead	1.2E-15	7.4E-17	2.4E-15	0.0E+00	1.7E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	4.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	6.1E-11	8.1E-10	1.2E-10	0.0E+00	1.0E-09	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	2.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2	4%
Naphthalene	6.2E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**5.9E-05**	**1.6E-08**	**5.2E-07**	**0.0E+00**	**8.7E-08**	**59.2**	**100%**

Abbreviations:
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 40
Current Operations, Cancer Risk Contribution by Source at the Modeled Cancer Risk MEIR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIR: Receptor #750								
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility								
Source	Source Description	Cancer Risk by Exposure Pathway					Total Cancer Risk (number in one million)	Cancer Risk Contribution (%)
		Inhalation	Dermal	Soil Ingestion	Mother's Milk	Home-Grown Produce		
FS1	Building 4	1.9E-06	5.2E-10	1.7E-08	0.0E+00	2.9E-09	1.9	3%
FS2	Building 3	1.1E-05	3.1E-09	1.0E-07	0.0E+00	1.7E-08	11.5	19%
FS3	Building 2	4.4E-06	1.2E-09	4.0E-08	0.0E+00	6.7E-09	4.4	7%
FS4	Building 1	1.7E-06	4.7E-10	1.6E-08	0.0E+00	2.6E-09	1.7	3%
FS5	Between Buildings 3 and 4	6.1E-06	1.7E-09	5.6E-08	0.0E+00	9.3E-09	6.2	10%
FS6	Between Buildings 2 and 3	2.8E-05	7.8E-09	2.6E-07	0.0E+00	4.3E-08	28.6	48%
FS7	Between Buildings 1 and 2	2.7E-06	7.4E-10	2.4E-08	0.0E+00	4.1E-09	2.7	5%
FS8	Building 3 Plating	2.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2	4%
PS1	SB #1	5.7E-09	1.3E-12	4.2E-11	0.0E+00	7.0E-12	0.0	0%
PS2	SB #2	6.7E-09	1.5E-12	4.8E-11	0.0E+00	8.1E-12	0.0	0%
PS3	Scrubber (Anodize Line, Tank 70)	1.0E-08	2.8E-12	9.2E-11	0.0E+00	1.5E-11	0.0	0%
PS4	Oven #3	7.7E-11	2.2E-10	3.2E-11	0.0E+00	2.7E-10	0.0	0%
PS5	Oven #6	8.5E-11	2.4E-10	3.6E-11	0.0E+00	3.0E-10	0.0	0%
PS6	Oven #7	1.3E-10	3.5E-10	5.3E-11	0.0E+00	4.5E-10	0.0	0%
	Total	**5.9E-05**	**1.6E-08**	**5.2E-07**	**0.0E+00**	**8.7E-08**	**59.2**	**100%**

Abbreviations:
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 41
Current Operations, Inhalation Concentration and Dose by Substance and Exposure Pathway at the Modeled Chronic HI MEIR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIR: Receptor #750					
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility					
Chemical Name	**Inhalation Concentration (µg/m^3) and Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	1.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ammonia	1.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	4.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Crystalline Silica	4.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	9.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	5.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	3.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	3.8E-04	9.4E-08	1.1E-06	0.0E+00	6.3E-07
Lead	1.1E-10	2.6E-14	3.0E-13	0.0E+00	2.1E-13
Methanol	1.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Ethyl Ketone	3.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	1.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	1.7E-05	9.5E-08	4.6E-08	0.0E+00	6.5E-08
Polynuclear Aromatic Hydrocarbons (PAH	6.0E-08	7.0E-11	1.1E-11	0.0E+00	8.9E-11
Phosphoric Acid	1.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	6.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylenes	5.0E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cadmium	5.1E-04	1.3E-08	1.4E-06	0.0E+00	4.8E-06
Naphthalene	1.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Abbreviations:
µg = microgram
d = day
HI = Hazard Index
kg = kilogram
m = meter
m^3 = cubic meter
MEIR = Maximally Exposed Individual Resident
mg = milligram
UTM = Universal Transverse Mercator

Table 42
Current Operations, Chronic Health Quotients by Substance and Target Organ at the Modeled Chronic HI MEIR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIR: Receptor #750														
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility														
Chemical Name	**Chronic Hazard Quotients for Target Organs**													**Maximum Chronic HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-08	0.0E+00	0.0E+00	1.8E-08
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-06	0.0E+00	0.0E+00	4.6E-06
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-05	0.0E+00	0.0E+00	5.4E-05
Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-06	1.6E-06
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-10	0.0E+00	0.0E+00	1.4E-10
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	5.0E-07	5.0E-07	0.0E+00	5.0E-07	0.0E+00	5.0E-07	5.0E-07	0.0E+00	0.0E+00	0.0E+00	5.0E-07
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-06	0.0E+00	0.0E+00	1.6E-06
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	8.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.9E-05	0.0E+00	0.0E+00	0.0E+00	8.9E-05
Hexane	0.0E+00	5.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-10
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-03	0.0E+00	9.0E-05	1.9E-03
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	0.0E+00	0.0E+00	3.9E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.9E-07	0.0E+00	0.0E+00	0.0E+00	3.9E-07
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	1.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05	1.2E-03	0.0E+00	1.2E-03	1.2E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-05	0.0E+00	0.0E+00	1.5E-05
Toluene	0.0E+00	2.3E-05	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-05	2.3E-05	0.0E+00	0.0E+00	2.3E-05
Xylenes	0.0E+00	7.1E-06	0.0E+00	0.0E+00	0.0E+00	7.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-06	0.0E+00	0.0E+00	7.1E-06
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-02	0.0E+00	2.5E-02	0.0E+00	0.0E+00	3.8E-02
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-08	0.0E+00	0.0E+00	2.0E-08
Total	**0.0E+00**	**3.0E-05**	**0.0E+00**	**1.3E-04**	**5.0E-07**	**7.1E-06**	**5.0E-07**	**0.0E+00**	**3.8E-02**	**1.3E-04**	**2.9E-02**	**0.0E+00**	**1.3E-03**	**3.8E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 43
Current Operations, Chronic Health Quotients by Source at the Modeled Chronic HI MEIR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIR: Receptor #750															
UTM East (m): 413,425, UTM North (m): 3,721,575; Apartment Complex South of Facility															
Source	Source Description	Chronic Hazard Quotients for Target Organs													Maximum Chronic HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-05	0.0E+00	3.0E-06	6.4E-05
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-04	0.0E+00	1.8E-05	3.8E-04
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-04	0.0E+00	7.0E-06	1.5E-04
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.7E-05	0.0E+00	2.7E-06	5.7E-05
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-04	0.0E+00	9.7E-06	2.1E-04
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E-04	0.0E+00	4.5E-05	9.6E-04
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-05	0.0E+00	4.3E-06	9.0E-05
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	1.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-02	1.9E-05	2.6E-02	0.0E+00	1.2E-03	3.8E-02
PS1	SB #1	0.0E+00	9.2E-06	0.0E+00	7.3E-05	2.2E-07	3.5E-06	2.2E-07	0.0E+00	2.2E-07	7.3E-05	1.0E-05	0.0E+00	8.6E-09	7.3E-05
PS2	SB #2	0.0E+00	2.1E-05	0.0E+00	4.0E-05	2.8E-07	3.6E-06	2.8E-07	0.0E+00	2.8E-07	4.0E-05	3.6E-05	0.0E+00	8.5E-09	4.0E-05
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-07	0.0E+00	1.6E-08	3.4E-07
PS4	Oven #3	0.0E+00	2.6E-08	0.0E+00	2.0E-08	7.6E-10	6.2E-09	7.6E-10	0.0E+00	7.6E-10	2.0E-08	1.6E-05	0.0E+00	4.3E-07	1.6E-05
PS5	Oven #6	0.0E+00	2.9E-08	0.0E+00	2.2E-08	8.4E-10	6.9E-09	8.4E-10	0.0E+00	8.4E-10	2.2E-08	1.8E-05	0.0E+00	4.7E-07	1.8E-05
PS6	Oven #7	0.0E+00	4.3E-08	0.0E+00	3.3E-08	1.3E-09	1.0E-08	1.3E-09	0.0E+00	1.3E-09	3.3E-08	2.6E-05	0.0E+00	7.0E-07	2.6E-05
	Total	**0.0E+00**	**3.0E-05**	**0.0E+00**	**1.3E-04**	**5.0E-07**	**7.1E-06**	**5.0E-07**	**0.0E+00**	**3.8E-02**	**1.3E-04**	**2.9E-02**	**0.0E+00**	**1.3E-03**	**3.8E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 44
Current Operations, Acute Health Quotients by Substance and Target Organ at the Modeled Acute HI MEIR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIR: Receptor #749														
UTM East (m): 413,400, UTM North (m): 3,721,575; Apartment Complex South of Facility														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-06	0.0E+00	0.0E+00	2.0E-06
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-04	0.0E+00	0.0E+00	2.4E-04
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-03	0.0E+00	0.0E+00	1.2E-03
Benzene	0.0E+00	0.0E+00	0.0E+00	6.5E-05	0.0E+00	0.0E+00	0.0E+00	6.5E-05	0.0E+00	6.5E-05	0.0E+00	0.0E+00	6.5E-05	6.5E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	1.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-02	0.0E+00	0.0E+00	0.0E+00	1.5E-02
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-05
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-04	0.0E+00	0.0E+00	6.8E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	4.9E-05	0.0E+00	4.9E-05	0.0E+00	4.9E-05	0.0E+00	0.0E+00	0.0E+00	4.9E-05	4.9E-05	0.0E+00	0.0E+00	4.9E-05
Xylenes	0.0E+00	6.0E-05	0.0E+00	0.0E+00	0.0E+00	6.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-05	0.0E+00	0.0E+00	6.0E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**1.6E-02**	**0.0E+00**	**2.4E-03**	**0.0E+00**	**1.2E-01**	**0.0E+00**	**1.6E-02**	**2.3E-03**	**0.0E+00**	**6.5E-05**	**1.2E-01**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 45
Current Operations, Acute Health Quotients by Source at the Modeled Acute HI MEIR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIR: Receptor #749															
UTM East (m): 413,400, UTM North (m): 3,721,575; Apartment Complex South of Facility															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01
PS1	SB #1	0.0E+00	4.3E-05	0.0E+00	1.2E-02	0.0E+00	3.4E-04	0.0E+00	2.2E-08	0.0E+00	1.2E-02	3.2E-04	0.0E+00	0.0E+00	1.2E-02
PS2	SB #2	0.0E+00	8.1E-05	0.0E+00	3.8E-03	0.0E+00	4.8E-04	0.0E+00	4.0E-10	0.0E+00	3.8E-03	4.8E-04	0.0E+00	0.0E+00	3.8E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	3.7E-07	0.0E+00	4.9E-05	0.0E+00	1.2E-03	0.0E+00	4.9E-05	0.0E+00	4.9E-05	1.1E-03	0.0E+00	4.9E-05	1.2E-03
PS5	Oven #6	0.0E+00	7.4E-08	0.0E+00	9.9E-06	0.0E+00	2.3E-04	0.0E+00	9.8E-06	0.0E+00	9.9E-06	2.2E-04	0.0E+00	9.8E-06	2.3E-04
PS6	Oven #7	0.0E+00	4.9E-08	0.0E+00	6.5E-06	0.0E+00	1.5E-04	0.0E+00	6.5E-06	0.0E+00	6.5E-06	1.5E-04	0.0E+00	6.5E-06	1.5E-04
	Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**1.6E-02**	**0.0E+00**	**2.4E-03**	**0.0E+00**	**1.2E-01**	**0.0E+00**	**1.6E-02**	**2.3E-03**	**0.0E+00**	**6.5E-05**	**1.2E-01**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 46
Dose by Substance and Exposure Pathway at the 2013 Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIW: Receptor #924			
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place			
Chemical Name	**Estimated Dose by Pathway (mg/kg/d)**		
	Inhalation	**Dermal**	**Soil Ingestion**
Acetaldehyde	7.5E-10	0.0E+00	0.0E+00
Acrolein	4.7E-10	0.0E+00	0.0E+00
Ammonia	3.2E-06	0.0E+00	0.0E+00
Benzene	1.4E-09	0.0E+00	0.0E+00
Crystalline Silica	1.2E-13	0.0E+00	0.0E+00
Ethyl benzene	3.1E-07	0.0E+00	0.0E+00
Formaldehyde	3.4E-09	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	1.0E-06	0.0E+00	0.0E+00
Hexane	1.1E-09	0.0E+00	0.0E+00
Hexavalent Chromium	1.7E-07	1.6E-06	2.7E-06
Lead	1.4E-13	1.3E-12	2.1E-12
Methanol	7.6E-07	0.0E+00	0.0E+00
Methyl Ethyl Ketone	1.1E-05	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	3.2E-06	0.0E+00	0.0E+00
Nickel	1.4E-09	5.1E-08	2.2E-08
Polynuclear Aromatic Hydrocarbons (PAHs)	1.8E-11	1.3E-10	1.7E-11
Phosphoric Acid	5.0E-08	0.0E+00	0.0E+00
Toluene	2.7E-06	0.0E+00	0.0E+00
Xylenes	1.5E-06	0.0E+00	0.0E+00
Cadmium	4.3E-08	3.9E-08	6.6E-07
Naphthalene	5.2E-11	0.0E+00	0.0E+00

Abbreviations:
d = day
kg = kilogram
m = meter
MEIW = Maximally Exposed Individual Worker
mg = milligram
UTM = Universal Transverse Mercator

Table 47
Excess Cancer Risk Contribution by Substance at the 2013 Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIW: Receptor #924					
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place					
Chemical Name	**Excess Cancer Risk by Exposure Pathway**			**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**		
Acetaldehyde	7.5E-12	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.4E-10	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	2.7E-09	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	7.2E-11	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	8.7E-05	7.8E-07	1.3E-06	88.8	99%
Lead	5.8E-15	1.1E-14	1.8E-14	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.3E-09	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	6.8E-11	1.6E-09	2.0E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	6.4E-07	0.0E+00	0.0E+00	0.6	1%
Naphthalene	6.3E-12	0.0E+00	0.0E+00	0.0	0%
Total	**8.7E-05**	**7.8E-07**	**1.3E-06**	**89.5**	**100%**

Abbreviations:
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 48
Cancer Risk Contribution by Source at the 2013 Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIW: Receptor #924						
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place						
Source	Source Description	Cancer Risk by Exposure			Total Cancer Risk (number in one million)	Cancer Risk Contribution (%)
		Inhalation	Dermal	Soil Ingestion		
FS1	Building 4	3.7E-05	3.4E-07	5.7E-07	38.2	43%
FS2	Building 3	1.3E-05	1.1E-07	1.9E-07	12.8	14%
FS3	Building 2	1.6E-06	1.4E-08	2.4E-08	1.6	2%
FS4	Building 1	1.4E-06	1.3E-08	2.2E-08	1.5	2%
FS5	Between Buildings 3 and 4	2.3E-05	2.0E-07	3.4E-07	23.1	26%
FS6	Between Buildings 2 and 3	9.1E-06	8.2E-08	1.4E-07	9.3	10%
FS7	Between Buildings 1 and 2	2.3E-06	2.1E-08	3.5E-08	2.4	3%
FS8	Building 3 Plating	6.4E-07	0.0E+00	0.0E+00	0.6	1%
PS1	SB #1	4.8E-09	4.0E-11	6.8E-11	0.0	0%
PS2	SB #2	3.0E-08	2.5E-10	4.1E-10	0.0	0%
PS3	Scrubber (Anodize Line, Tank 70)	2.0E-09	1.8E-11	3.0E-11	0.0	0%
PS4	Oven #3	4.5E-11	2.3E-10	3.0E-11	0.0	0%
PS5	Oven #6	1.4E-10	7.5E-10	9.8E-11	0.0	0%
PS6	Oven #7	1.1E-10	5.8E-10	7.5E-11	0.0	0%
	Total	**8.7E-05**	**7.8E-07**	**1.3E-06**	**89.5**	**100%**

Abbreviations:
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 49
Inhalation Concentration and Dose by Substance and Exposure Pathway at the 2013 Modeled Chronic HI MEIW
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIW: Receptor #925			
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place			
Chemical Name	**Inhalation Concentration (µg/m^3) and Estimated Dose by Pathway (mg/kg/d)**		
	Inhalation	**Dermal**	**Soil Ingestion**
Acetaldehyde	1.5E-05	0.0E+00	0.0E+00
Acrolein	9.6E-06	0.0E+00	0.0E+00
Ammonia	6.4E-02	0.0E+00	0.0E+00
Benzene	2.8E-05	0.0E+00	0.0E+00
Crystalline Silica	6.5E-09	0.0E+00	0.0E+00
Ethyl benzene	5.7E-03	0.0E+00	0.0E+00
Formaldehyde	8.2E-05	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	2.9E-02	0.0E+00	0.0E+00
Hexane	2.2E-05	0.0E+00	0.0E+00
Hexavalent Chromium	2.8E-03	3.9E-06	6.5E-06
Lead	2.0E-09	2.7E-12	4.5E-12
Methanol	9.7E-03	0.0E+00	0.0E+00
Methyl Ethyl Ketone	2.0E-01	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	6.5E-02	0.0E+00	0.0E+00
Nickel	3.2E-05	1.7E-07	7.3E-08
Polynuclear Aromatic Hydrocarbons (PAHs)	3.5E-07	3.9E-10	5.1E-11
Phosphoric Acid	6.5E-04	0.0E+00	0.0E+00
Toluene	4.2E-02	0.0E+00	0.0E+00
Xylenes	2.9E-02	0.0E+00	0.0E+00
Cadmium	9.7E-04	1.3E-07	2.3E-06
Naphthalene	1.1E-06	0.0E+00	0.0E+00

Abbreviations:
µg = microgram
d = day
HI = Hazard Index
kg = kilogram
m = meter
m^3 = cubic meter
MEIW = Maximally Exposed Individual Worker
mg = milligram
UTM = Universal Transverse Mercator

Table 50
Chronic Health Quotients by Substance and Target Organ at the 2013 Modeled Chronic HI MEIW
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIW: Receptor #925														
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place														
Chemical Name	**Chronic Hazard Quotients for Target Organs**													**Maximum Chronic HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-07	0.0E+00	0.0E+00	1.1E-07
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-05	0.0E+00	0.0E+00	2.7E-05
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-04	0.0E+00	0.0E+00	3.2E-04
Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.4E-06	9.4E-06
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-09	0.0E+00	0.0E+00	2.2E-09
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	2.9E-06	2.9E-06	0.0E+00	2.9E-06	0.0E+00	2.9E-06	2.9E-06	0.0E+00	0.0E+00	0.0E+00	2.9E-06
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-06	0.0E+00	0.0E+00	9.2E-06
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	4.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-04	0.0E+00	0.0E+00	0.0E+00	4.8E-04
Hexane	0.0E+00	3.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-09
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-02	0.0E+00	5.2E-04	1.4E-02
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	0.0E+00	0.0E+00	2.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-06	0.0E+00	0.0E+00	0.0E+00	2.4E-06
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-05	2.3E-03	0.0E+00	2.3E-03	2.3E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-05	0.0E+00	0.0E+00	9.3E-05
Toluene	0.0E+00	1.4E-04	0.0E+00	1.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-04	1.4E-04	0.0E+00	0.0E+00	1.4E-04
Xylenes	0.0E+00	4.1E-05	0.0E+00	0.0E+00	0.0E+00	4.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-05	0.0E+00	0.0E+00	4.1E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-02	0.0E+00	4.9E-02	0.0E+00	0.0E+00	5.3E-02
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-07	0.0E+00	0.0E+00	1.2E-07
Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**6.5E-04**	**2.9E-06**	**4.1E-05**	**2.9E-06**	**0.0E+00**	**5.3E-02**	**6.5E-04**	**6.6E-02**	**0.0E+00**	**2.8E-03**	**6.6E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 51
Chronic Health Quotients by Source at the 2013 Modeled Chronic HI MEIW
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIW: Receptor #925															
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place															
Source	Source Description	Chronic Hazard Quotients for Target Organs													Maximum Chronic HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Repro-ductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-03	0.0E+00	1.7E-04	4.5E-03
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-03	0.0E+00	9.3E-05	2.5E-03
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-04	0.0E+00	1.5E-05	4.1E-04
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-04	0.0E+00	1.3E-05	3.5E-04
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-03	0.0E+00	1.1E-04	3.0E-03
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E-03	0.0E+00	1.0E-04	2.8E-03
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-04	0.0E+00	2.1E-05	5.6E-04
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-02	2.3E-05	5.1E-02	0.0E+00	2.3E-03	5.3E-02
PS1	SB #1	0.0E+00	4.7E-05	0.0E+00	3.7E-04	1.1E-06	1.8E-05	1.1E-06	0.0E+00	1.1E-06	3.7E-04	5.4E-05	0.0E+00	1.1E-07	3.7E-04
PS2	SB #2	0.0E+00	1.3E-04	0.0E+00	2.5E-04	1.7E-06	2.3E-05	1.7E-06	0.0E+00	1.7E-06	2.5E-04	2.3E-04	0.0E+00	1.3E-07	2.5E-04
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-07	0.0E+00	1.2E-08	3.3E-07
PS4	Oven #3	0.0E+00	6.4E-08	0.0E+00	5.0E-08	1.9E-09	1.6E-08	1.9E-09	0.0E+00	1.9E-09	5.0E-08	4.0E-05	0.0E+00	1.1E-06	4.0E-05
PS5	Oven #6	0.0E+00	2.4E-07	0.0E+00	1.8E-07	6.9E-09	5.7E-08	6.9E-09	0.0E+00	6.9E-09	1.8E-07	1.5E-04	0.0E+00	3.9E-06	1.5E-04
PS6	Oven #7	0.0E+00	2.7E-07	0.0E+00	2.1E-07	8.0E-09	6.5E-08	8.0E-09	0.0E+00	8.0E-09	2.1E-07	1.7E-04	0.0E+00	4.5E-06	1.7E-04
	Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**6.5E-04**	**2.9E-06**	**4.1E-05**	**2.9E-06**	**0.0E+00**	**5.3E-02**	**6.5E-04**	**6.6E-02**	**0.0E+00**	**2.8E-03**	**6.6E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIW = Maximumimally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 52
Acute Health Quotients by Substance and Target Organ at the 2013 Modeled Acute HI MEIW
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIW: Receptor #924														
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-07	0.0E+00	0.0E+00	9.3E-07
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-04	0.0E+00	0.0E+00	1.1E-04
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-04	0.0E+00	0.0E+00	5.8E-04
Benzene	0.0E+00	0.0E+00	0.0E+00	3.0E-05	0.0E+00	0.0E+00	0.0E+00	3.0E-05	0.0E+00	3.0E-05	0.0E+00	0.0E+00	3.0E-05	3.0E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	8.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.5E-03	0.0E+00	0.0E+00	0.0E+00	8.5E-03
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	1.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-04	0.0E+00	0.0E+00	6.4E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-02
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	5.3E-05	0.0E+00	5.3E-05	0.0E+00	5.3E-05	0.0E+00	0.0E+00	0.0E+00	5.3E-05	5.3E-05	0.0E+00	0.0E+00	5.3E-05
Xylenes	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	5.0E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**8.5E-03**	**0.0E+00**	**1.5E-03**	**0.0E+00**	**4.8E-02**	**0.0E+00**	**8.5E-03**	**1.4E-03**	**0.0E+00**	**3.0E-05**	**4.8E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 53
Acute Health Quotients by Source at the 2013 Modeled Acute HI MEIW
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIW: Receptor #924															
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-02
PS1	SB #1	0.0E+00	1.2E-05	0.0E+00	3.4E-03	0.0E+00	9.8E-05	0.0E+00	1.9E-08	0.0E+00	3.4E-03	9.2E-05	0.0E+00	0.0E+00	3.4E-03
PS2	SB #2	0.0E+00	1.1E-04	0.0E+00	5.1E-03	0.0E+00	6.5E-04	0.0E+00	1.7E-09	0.0E+00	5.1E-03	6.5E-04	0.0E+00	0.0E+00	5.1E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	1.1E-07	0.0E+00	1.4E-05	0.0E+00	3.4E-04	0.0E+00	1.4E-05	0.0E+00	1.4E-05	3.2E-04	0.0E+00	1.4E-05	3.4E-04
PS5	Oven #6	0.0E+00	5.9E-08	0.0E+00	7.9E-06	0.0E+00	1.9E-04	0.0E+00	7.8E-06	0.0E+00	7.9E-06	1.8E-04	0.0E+00	7.8E-06	1.9E-04
PS6	Oven #7	0.0E+00	6.1E-08	0.0E+00	8.2E-06	0.0E+00	1.9E-04	0.0E+00	8.2E-06	0.0E+00	8.2E-06	1.9E-04	0.0E+00	8.2E-06	1.9E-04
	Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**8.5E-03**	**0.0E+00**	**1.5E-03**	**0.0E+00**	**4.8E-02**	**0.0E+00**	**8.5E-03**	**1.4E-03**	**0.0E+00**	**3.0E-05**	**4.8E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 54
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIW: Receptor #925			
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place			
Chemical Name	**Estimated Dose by Pathway (mg/kg/d)**		
	Inhalation	**Dermal**	**Soil Ingestion**
Acetaldehyde	8.7E-10	0.0E+00	0.0E+00
Acrolein	5.5E-10	0.0E+00	0.0E+00
Ammonia	3.7E-06	0.0E+00	0.0E+00
Benzene	1.6E-09	0.0E+00	0.0E+00
Crystalline Silica	1.2E-13	0.0E+00	0.0E+00
Ethyl benzene	3.3E-07	0.0E+00	0.0E+00
Formaldehyde	4.7E-09	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	1.7E-06	0.0E+00	0.0E+00
Hexane	1.3E-09	0.0E+00	0.0E+00
Hexavalent Chromium	2.4E-08	2.2E-07	3.7E-07
Lead	3.7E-14	3.4E-13	5.8E-13
Methanol	5.6E-07	0.0E+00	0.0E+00
Methyl Ethyl Ketone	1.1E-05	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	3.7E-06	0.0E+00	0.0E+00
Nickel	2.1E-09	7.8E-08	3.3E-08
Polynuclear Aromatic Hydrocarbons (PAHs)	2.0E-11	1.5E-10	2.0E-11
Phosphoric Acid	3.7E-08	0.0E+00	0.0E+00
Toluene	2.4E-06	0.0E+00	0.0E+00
Xylenes	1.6E-06	0.0E+00	0.0E+00
Cadmium	6.5E-08	6.0E-08	1.0E-06
Naphthalene	6.1E-11	0.0E+00	0.0E+00

Abbreviations:
d = day
kg = kilogram
m = meter
MEIW = Maximally Exposed Individual Worker
mg = milligram
UTM = Universal Transverse Mercator

Table 55
Current Operations, Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEIW: Receptor #925					
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place					
Chemical Name	**Excess Cancer Risk by Exposure Pathway**			**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**		
Acetaldehyde	8.7E-12	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	1.6E-10	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	2.8E-09	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	9.9E-11	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	1.2E-05	1.1E-07	1.8E-07	12.4	93%
Lead	1.6E-15	2.9E-15	4.9E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.9E-09	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	7.9E-11	1.8E-09	2.4E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	9.7E-07	0.0E+00	0.0E+00	1.0	7%
Naphthalene	7.3E-12	0.0E+00	0.0E+00	0.0	0%
Total	**1.3E-05**	**1.1E-07**	**1.9E-07**	**13.4**	**100%**

Abbreviations:
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 56
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Cancer Risk MEIW
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEIW: Receptor #925						
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place						
Source	Source Description	Cancer Risk by Exposure			Total Cancer Risk (number in one million)	Cancer Risk Contribution (%)
		Inhalation	Dermal	Soil Ingestion		
FS1	Building 4	7.9E-07	7.1E-09	1.2E-08	0.8	6%
FS2	Building 3	2.8E-06	2.5E-08	4.3E-08	2.9	21%
FS3	Building 2	8.2E-07	7.4E-09	1.3E-08	0.8	6%
FS4	Building 1	5.5E-07	5.0E-09	8.4E-09	0.6	4%
FS5	Between Buildings 3 and 4	2.5E-06	2.3E-08	3.8E-08	2.6	19%
FS6	Between Buildings 2 and 3	3.9E-06	3.5E-08	5.9E-08	4.0	30%
FS7	Between Buildings 1 and 2	7.4E-07	6.7E-09	1.1E-08	0.8	6%
FS8	Building 3 Plating	9.7E-07	0.0E+00	0.0E+00	1.0	7%
PS1	SB #1	5.8E-09	4.2E-11	7.1E-11	0.0	0%
PS2	SB #2	8.3E-09	6.0E-11	1.0E-10	0.0	0%
PS3	Scrubber (Anodize Line, Tank 70)	1.9E-09	1.7E-11	2.9E-11	0.0	0%
PS4	Oven #3	3.9E-11	2.0E-10	2.7E-11	0.0	0%
PS5	Oven #6	1.4E-10	7.5E-10	9.7E-11	0.0	0%
PS6	Oven #7	1.6E-10	8.6E-10	1.1E-10	0.0	0%
	Total	**1.3E-05**	**1.1E-07**	**1.9E-07**	**13.4**	**100%**

Abbreviations:
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 57
Current Operations, Inhalation Concentration and Dose by Substance and Exposure Pathway at the Modeled Chronic HI MEIW
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIW: Receptor #925			
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place			
Chemical Name	**Inhalation Concentration (µg/m^3) and Estimated Dose by Pathway (mg/kg/d)**		
	Inhalation	**Dermal**	**Soil Ingestion**
Acetaldehyde	1.5E-05	0.0E+00	0.0E+00
Acrolein	9.6E-06	0.0E+00	0.0E+00
Ammonia	6.4E-02	0.0E+00	0.0E+00
Benzene	2.8E-05	0.0E+00	0.0E+00
Crystalline Silica	2.2E-09	0.0E+00	0.0E+00
Ethyl benzene	5.7E-03	0.0E+00	0.0E+00
Formaldehyde	8.2E-05	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	2.9E-02	0.0E+00	0.0E+00
Hexane	2.2E-05	0.0E+00	0.0E+00
Hexavalent Chromium	4.2E-04	5.7E-07	9.6E-07
Lead	6.5E-10	8.9E-13	1.5E-12
Methanol	9.7E-03	0.0E+00	0.0E+00
Methyl Ethyl Ketone	2.0E-01	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	6.5E-02	0.0E+00	0.0E+00
Nickel	3.7E-05	2.0E-07	8.5E-08
Polynuclear Aromatic Hydrocarbons (PAHs)	3.5E-07	3.9E-10	5.1E-11
Phosphoric Acid	6.5E-04	0.0E+00	0.0E+00
Toluene	4.2E-02	0.0E+00	0.0E+00
Xylenes	2.9E-02	0.0E+00	0.0E+00
Cadmium	1.1E-03	1.6E-07	2.6E-06
Naphthalene	1.1E-06	0.0E+00	0.0E+00

Abbreviations:
µg = microgram
d = day
HI = Hazard Index
kg = kilogram
m = meter
m^3 = cubic meter
MEIW = Maximally Exposed Individual Worker
mg = milligram
UTM = Universal Transverse Mercator

Table 58
Current Operations, Chronic Health Quotients by Substance and Target Organ at the Modeled Chronic HI MEIW
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIW: Receptor #925														
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place														
Chemical Name	**Chronic Hazard Quotients for Target Organs**													**Maximum Chronic HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-07	0.0E+00	0.0E+00	1.1E-07
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-05	0.0E+00	0.0E+00	2.7E-05
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-04	0.0E+00	0.0E+00	3.2E-04
Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.4E-06	9.4E-06
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.2E-10	0.0E+00	0.0E+00	7.2E-10
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	2.9E-06	2.9E-06	0.0E+00	2.9E-06	0.0E+00	2.9E-06	2.9E-06	0.0E+00	0.0E+00	0.0E+00	2.9E-06
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-06	0.0E+00	0.0E+00	9.2E-06
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	4.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-04	0.0E+00	0.0E+00	0.0E+00	4.8E-04
Hexane	0.0E+00	3.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-09
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-03	0.0E+00	7.7E-05	2.1E-03
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	0.0E+00	0.0E+00	2.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-06	0.0E+00	0.0E+00	0.0E+00	2.4E-06
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	2.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-05	2.6E-03	0.0E+00	2.6E-03	2.6E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-05	0.0E+00	0.0E+00	9.3E-05
Toluene	0.0E+00	1.4E-04	0.0E+00	1.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-04	1.4E-04	0.0E+00	0.0E+00	1.4E-04
Xylenes	0.0E+00	4.1E-05	0.0E+00	0.0E+00	0.0E+00	4.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-05	0.0E+00	0.0E+00	4.1E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-02	0.0E+00	5.7E-02	0.0E+00	0.0E+00	6.2E-02
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-07	0.0E+00	0.0E+00	1.2E-07
Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**6.5E-04**	**2.9E-06**	**4.1E-05**	**2.9E-06**	**0.0E+00**	**6.2E-02**	**6.5E-04**	**6.2E-02**	**0.0E+00**	**2.7E-03**	**6.2E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 59
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Chronic HI MEIW
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEIW: Receptor #925															
UTM East (m): 413,450, UTM North (m): 3,721,675; North of Facility on Production Place															
Source	Source Description	Chronic Hazard Quotients for Target Organs													Maximum Chronic HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Repro-ductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-04	0.0E+00	5.0E-06	1.4E-04
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-04	0.0E+00	1.8E-05	4.8E-04
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-04	0.0E+00	5.2E-06	1.4E-04
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-05	0.0E+00	3.5E-06	9.5E-05
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-04	0.0E+00	1.6E-05	4.3E-04
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E-04	0.0E+00	2.5E-05	6.7E-04
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-04	0.0E+00	4.7E-06	1.3E-04
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	2.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-02	2.6E-05	5.9E-02	0.0E+00	2.6E-03	6.2E-02
PS1	SB #1	0.0E+00	4.7E-05	0.0E+00	3.7E-04	1.1E-06	1.8E-05	1.1E-06	0.0E+00	1.1E-06	3.7E-04	5.2E-05	0.0E+00	3.5E-08	3.7E-04
PS2	SB #2	0.0E+00	1.3E-04	0.0E+00	2.5E-04	1.7E-06	2.3E-05	1.7E-06	0.0E+00	1.7E-06	2.5E-04	2.3E-04	0.0E+00	4.2E-08	2.5E-04
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-07	0.0E+00	1.2E-08	3.3E-07
PS4	Oven #3	0.0E+00	6.4E-08	0.0E+00	5.0E-08	1.9E-09	1.6E-08	1.9E-09	0.0E+00	1.9E-09	5.0E-08	4.0E-05	0.0E+00	1.1E-06	4.0E-05
PS5	Oven #6	0.0E+00	2.4E-07	0.0E+00	1.8E-07	6.9E-09	5.7E-08	6.9E-09	0.0E+00	6.9E-09	1.8E-07	1.5E-04	0.0E+00	3.9E-06	1.5E-04
PS6	Oven #7	0.0E+00	2.7E-07	0.0E+00	2.1E-07	8.0E-09	6.5E-08	8.0E-09	0.0E+00	8.0E-09	2.1E-07	1.7E-04	0.0E+00	4.5E-06	1.7E-04
	Total	**0.0E+00**	**1.8E-04**	**0.0E+00**	**6.5E-04**	**2.9E-06**	**4.1E-05**	**2.9E-06**	**0.0E+00**	**6.2E-02**	**6.5E-04**	**6.2E-02**	**0.0E+00**	**2.7E-03**	**6.2E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIW = Maximumimally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 60
Current Operations, Acute Health Quotients by Substance and Target Organ at the Modeled Acute HI MEIW
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIW: Receptor #924														
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-07	0.0E+00	0.0E+00	9.3E-07
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-04	0.0E+00	0.0E+00	1.1E-04
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-04	0.0E+00	0.0E+00	5.8E-04
Benzene	0.0E+00	0.0E+00	0.0E+00	3.0E-05	0.0E+00	0.0E+00	0.0E+00	3.0E-05	0.0E+00	3.0E-05	0.0E+00	0.0E+00	3.0E-05	3.0E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	8.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.5E-03	0.0E+00	0.0E+00	0.0E+00	8.5E-03
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	1.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-04	0.0E+00	0.0E+00	6.4E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-02
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	5.3E-05	0.0E+00	5.3E-05	0.0E+00	5.3E-05	0.0E+00	0.0E+00	0.0E+00	5.3E-05	5.3E-05	0.0E+00	0.0E+00	5.3E-05
Xylenes	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	5.0E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**8.5E-03**	**0.0E+00**	**1.5E-03**	**0.0E+00**	**5.9E-02**	**0.0E+00**	**8.5E-03**	**1.4E-03**	**0.0E+00**	**3.0E-05**	**5.9E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIR = Maximally Exposed Individual Resident
UTM = Universal Transverse Mercator

Table 61
Current Operations, Acute Health Quotients by Source at the Modeled Acute HI MEIW
Hixson Metal Finishing
Newport Beach, California

Acute HI MEIW: Receptor #924															
UTM East (m): 413,425, UTM North (m): 3,721,675; North of Facility on Production Place															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-02
PS1	SB #1	0.0E+00	1.2E-05	0.0E+00	3.4E-03	0.0E+00	9.8E-05	0.0E+00	6.4E-09	0.0E+00	3.4E-03	9.2E-05	0.0E+00	0.0E+00	3.4E-03
PS2	SB #2	0.0E+00	1.1E-04	0.0E+00	5.1E-03	0.0E+00	6.5E-04	0.0E+00	5.5E-10	0.0E+00	5.1E-03	6.5E-04	0.0E+00	0.0E+00	5.1E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	1.1E-07	0.0E+00	1.4E-05	0.0E+00	3.4E-04	0.0E+00	1.4E-05	0.0E+00	1.4E-05	3.2E-04	0.0E+00	1.4E-05	3.4E-04
PS5	Oven #6	0.0E+00	5.9E-08	0.0E+00	7.9E-06	0.0E+00	1.9E-04	0.0E+00	7.8E-06	0.0E+00	7.9E-06	1.8E-04	0.0E+00	7.8E-06	1.9E-04
PS6	Oven #7	0.0E+00	6.1E-08	0.0E+00	8.2E-06	0.0E+00	1.9E-04	0.0E+00	8.2E-06	0.0E+00	8.2E-06	1.9E-04	0.0E+00	8.2E-06	1.9E-04
	Total	**0.0E+00**	**1.2E-04**	**0.0E+00**	**8.5E-03**	**0.0E+00**	**1.5E-03**	**0.0E+00**	**5.9E-02**	**0.0E+00**	**8.5E-03**	**1.4E-03**	**0.0E+00**	**3.0E-05**	**5.9E-02**

Abbreviations:
HI = Hazard Index
m = meter
MEIW = Maximally Exposed Individual Worker
UTM = Universal Transverse Mercator

Table 62
Dose by Substance and Exposure Pathway at the 2013 Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEISR: Receptor #10942					
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach					
Chemical Name	**Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	1.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	9.8E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ammonia	6.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	3.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Crystalline Silica	9.5E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	1.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	4.5E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	2.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	3.3E-08	9.4E-09	3.1E-07	0.0E+00	5.1E-08
Lead	3.4E-14	1.1E-14	3.5E-13	0.0E+00	2.5E-13
Methanol	1.7E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Ethyl Ketone	3.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	1.1E-10	1.3E-10	1.0E-09	0.0E+00	4.2E-10
Polynuclear Aromatic Hydrocarbons (PAHs)	3.7E-12	1.6E-11	2.4E-12	0.0E+00	2.0E-11
Phosphoric Acid	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	7.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylenes	4.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cadmium	3.4E-09	9.7E-11	3.2E-08	0.0E+00	3.1E-08
Naphthalene	1.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Abbreviations:
d = day
kg = kilogram
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
mg = milligram
UTM = Universal Transverse Mercator

Table 63
Excess Cancer Risk Contribution by Substance at the 2013 Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEISR: Receptor #10942							
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	1.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	3.3E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	9.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	2.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	1.7E-05	4.7E-09	1.5E-07	0.0E+00	2.6E-08	17.1	100%
Lead	1.4E-15	9.0E-17	3.0E-15	0.0E+00	2.1E-15	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	1.4E-11	1.9E-10	2.8E-11	0.0E+00	2.4E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	5.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.1	0%
Naphthalene	1.5E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**1.7E-05**	**4.9E-09**	**1.5E-07**	**0.0E+00**	**2.6E-08**	**17.1**	**100%**

Abbreviations:
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 64
Cancer Risk Contribution by Source at the 2013 Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEISR: Receptor #10942								
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach								
Source	Source Description	Cancer Risk by Exposure Pathway					Total Cancer Risk (number in one million)	Cancer Risk Contribution (%)
		Inhalation	Dermal	Soil Ingestion	Mother's Milk	Home-Grown Produce		
FS1	Building 4	8.1E-06	2.3E-09	7.4E-08	0.0E+00	1.2E-08	8.2	48%
FS2	Building 3	2.3E-06	6.4E-10	2.1E-08	0.0E+00	3.5E-09	2.3	14%
FS3	Building 2	5.0E-07	1.4E-10	4.6E-09	0.0E+00	7.6E-10	0.5	3%
FS4	Building 1	5.1E-07	1.4E-10	4.6E-09	0.0E+00	7.7E-10	0.5	3%
FS5	Between Buildings 3 and 4	3.0E-06	8.2E-10	2.7E-08	0.0E+00	4.5E-09	3.0	18%
FS6	Between Buildings 2 and 3	1.8E-06	5.0E-10	1.7E-08	0.0E+00	2.8E-09	1.8	11%
FS7	Between Buildings 1 and 2	6.4E-07	1.8E-10	5.8E-09	0.0E+00	9.7E-10	0.6	4%
FS8	Building 3 Plating	5.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.1	0%
PS1	SB #1	4.3E-09	1.1E-12	3.6E-11	0.0E+00	6.0E-12	0.0	0%
PS2	SB #2	7.4E-09	1.9E-12	6.2E-11	0.0E+00	1.0E-11	0.0	0%
PS3	Scrubber (Anodize Line, Tank 70)	1.9E-09	5.2E-13	1.7E-11	0.0E+00	2.8E-12	0.0	0%
PS4	Oven #3	3.2E-11	8.9E-11	1.3E-11	0.0E+00	1.1E-10	0.0	0%
PS5	Oven #6	1.8E-11	5.0E-11	7.5E-12	0.0E+00	6.4E-11	0.0	0%
PS6	Oven #7	1.8E-11	5.0E-11	7.5E-12	0.0E+00	6.3E-11	0.0	0%
	Total	**1.7E-05**	**4.9E-09**	**1.5E-07**	**0.0E+00**	**2.6E-08**	**17.1**	**100%**

Abbreviations:
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 65
Inhalation Concentration and Dose by Substance and Exposure Pathway at the 2013 Modeled Chronic HI MEISR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEISR: Receptor #10970					
UTM East (m): 413,974, UTM North (m): 3,721,750; Multiple medical offices, 1501 Superior Ave, Newport Beach					
Chemical Name	**Inhalation Concentration (µg/m^3) and Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	6.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	3.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ammonia	2.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Crystalline Silica	5.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	3.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	4.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	2.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	8.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	8.3E-05	2.1E-08	2.3E-07	0.0E+00	1.4E-07
Lead	1.2E-10	2.9E-14	3.3E-13	0.0E+00	2.4E-13
Methanol	5.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Ethyl Ketone	1.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	4.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	6.5E-07	3.7E-09	1.8E-09	0.0E+00	2.5E-09
Polynuclear Aromatic Hydrocarbons (PAHs)	1.4E-08	1.6E-11	2.4E-12	0.0E+00	2.1E-11
Phosphoric Acid	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylenes	1.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cadmium	2.0E-05	4.9E-10	5.6E-08	0.0E+00	1.9E-07
Naphthalene	4.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Abbreviations:
µg = microgram
d = day
HI = Hazard Index
kg = kilogram
m = meter
m^3 = cubic meter
MEISR = Maximally Exposed Individual Sensitive Receptor
mg = milligram
UTM = Universal Transverse Mercator

Table 66
Chronic Health Quotients by Substance and Target Organ at the 2013 Modeled Chronic HI MEISR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEISR: Receptor #10970														
UTM East (m): 413,974, UTM North (m): 3,721,750; Multiple medical offices, 1501 Superior Ave, Newport Beach														
Chemical Name	**Chronic Hazard Quotients for Target Organs**													**Maximum Chronic HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-09	0.0E+00	0.0E+00	4.3E-09
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-06	0.0E+00	0.0E+00	1.1E-06
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-05	0.0E+00	0.0E+00	1.3E-05
Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-07	3.7E-07
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-10	0.0E+00	0.0E+00	1.7E-10
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	1.9E-07	1.9E-07	0.0E+00	1.9E-07	0.0E+00	1.9E-07	1.9E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-07
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-07	0.0E+00	0.0E+00	4.5E-07
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	3.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-05	0.0E+00	0.0E+00	0.0E+00	3.4E-05
Hexane	0.0E+00	1.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-10
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-04	0.0E+00	2.0E-05	4.2E-04
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	0.0E+00	0.0E+00	1.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-07	0.0E+00	0.0E+00	0.0E+00	1.4E-07
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	7.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E-07	4.6E-05	0.0E+00	4.6E-05	4.6E-05
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-06	0.0E+00	0.0E+00	5.4E-06
Toluene	0.0E+00	8.6E-06	0.0E+00	8.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-06	8.6E-06	0.0E+00	0.0E+00	8.6E-06
Xylenes	0.0E+00	2.7E-06	0.0E+00	0.0E+00	0.0E+00	2.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-06	0.0E+00	0.0E+00	2.7E-06
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-03	0.0E+00	9.9E-04	0.0E+00	0.0E+00	1.5E-03
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-09	0.0E+00	0.0E+00	4.6E-09
Total	**0.0E+00**	**1.1E-05**	**0.0E+00**	**4.4E-05**	**1.9E-07**	**2.7E-06**	**1.9E-07**	**0.0E+00**	**1.5E-03**	**4.4E-05**	**1.5E-03**	**0.0E+00**	**6.6E-05**	**1.5E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 67
Chronic Health Quotients by Source at the 2013 Modeled Chronic HI MEISR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEISR: Receptor #10970															
UTM East (m): 413,974, UTM North (m): 3,721,750; Multiple medical offices, 1501 Superior Ave, Newport Beach															
Source	Source Description	Chronic Hazard Quotients for Target Organs													Maximum Chronic HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Repro-ductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-04	0.0E+00	6.6E-06	1.4E-04
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-05	0.0E+00	2.9E-06	6.2E-05
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-05	0.0E+00	9.7E-07	2.1E-05
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-05	0.0E+00	1.4E-06	3.0E-05
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.5E-05	0.0E+00	3.1E-06	6.5E-05
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-05	0.0E+00	3.0E-06	6.4E-05
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-05	0.0E+00	1.6E-06	3.4E-05
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	7.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-03	7.4E-07	1.0E-03	0.0E+00	4.6E-05	1.5E-03
PS1	SB #1	0.0E+00	3.6E-06	0.0E+00	2.9E-05	8.5E-08	1.4E-06	8.5E-08	0.0E+00	8.5E-08	2.9E-05	4.2E-06	0.0E+00	1.0E-08	2.9E-05
PS2	SB #2	0.0E+00	7.7E-06	0.0E+00	1.5E-05	1.0E-07	1.3E-06	1.0E-07	0.0E+00	1.0E-07	1.5E-05	1.3E-05	0.0E+00	9.3E-09	1.5E-05
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-07	0.0E+00	5.8E-09	1.2E-07
PS4	Oven #3	0.0E+00	7.2E-09	0.0E+00	5.7E-09	2.1E-10	1.7E-09	2.1E-10	0.0E+00	2.1E-10	5.7E-09	4.5E-06	0.0E+00	1.2E-07	4.5E-06
PS5	Oven #6	0.0E+00	7.5E-09	0.0E+00	5.9E-09	2.2E-10	1.8E-09	2.2E-10	0.0E+00	2.2E-10	5.9E-09	4.6E-06	0.0E+00	1.2E-07	4.6E-06
PS6	Oven #7	0.0E+00	7.7E-09	0.0E+00	6.0E-09	2.3E-10	1.9E-09	2.3E-10	0.0E+00	2.3E-10	6.0E-09	4.8E-06	0.0E+00	1.3E-07	4.8E-06
	Total	**0.0E+00**	**1.1E-05**	**0.0E+00**	**4.4E-05**	**1.9E-07**	**2.7E-06**	**1.9E-07**	**0.0E+00**	**1.5E-03**	**4.4E-05**	**1.5E-03**	**0.0E+00**	**6.6E-05**	**1.5E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 68
Acute Health Quotients by Substance and Target Organ at the 2013 Modeled Acute HI MEISR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEISR: Receptor #10942														
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-07	0.0E+00	0.0E+00	8.0E-07
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-05	0.0E+00	0.0E+00	9.5E-05
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-04	0.0E+00	0.0E+00	4.9E-04
Benzene	0.0E+00	0.0E+00	0.0E+00	2.6E-05	0.0E+00	0.0E+00	0.0E+00	2.6E-05	0.0E+00	2.6E-05	0.0E+00	0.0E+00	2.6E-05	2.6E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	4.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-03	0.0E+00	0.0E+00	0.0E+00	4.5E-03
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	7.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.0E-06
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-04	0.0E+00	0.0E+00	2.6E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	2.1E-05	0.0E+00	2.1E-05	0.0E+00	2.1E-05	0.0E+00	0.0E+00	0.0E+00	2.1E-05	2.1E-05	0.0E+00	0.0E+00	2.1E-05
Xylenes	0.0E+00	2.2E-05	0.0E+00	0.0E+00	0.0E+00	2.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-05	0.0E+00	0.0E+00	2.2E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**4.9E-05**	**0.0E+00**	**4.5E-03**	**0.0E+00**	**9.3E-04**	**0.0E+00**	**6.8E-03**	**0.0E+00**	**4.5E-03**	**9.0E-04**	**0.0E+00**	**2.6E-05**	**6.8E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 69
Acute Health Quotients by Source at the 2013 Modeled Acute HI MEISR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEISR: Receptor #10942															
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-03
PS1	SB #1	0.0E+00	9.6E-06	0.0E+00	2.6E-03	0.0E+00	7.6E-05	0.0E+00	1.5E-08	0.0E+00	2.6E-03	7.1E-05	0.0E+00	0.0E+00	2.6E-03
PS2	SB #2	0.0E+00	4.0E-05	0.0E+00	1.8E-03	0.0E+00	2.4E-04	0.0E+00	6.0E-10	0.0E+00	1.8E-03	2.4E-04	0.0E+00	0.0E+00	1.8E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	1.7E-07	0.0E+00	2.3E-05	0.0E+00	5.3E-04	0.0E+00	2.3E-05	0.0E+00	2.3E-05	5.1E-04	0.0E+00	2.3E-05	5.3E-04
PS5	Oven #6	0.0E+00	1.5E-08	0.0E+00	2.0E-06	0.0E+00	4.7E-05	0.0E+00	2.0E-06	0.0E+00	2.0E-06	4.5E-05	0.0E+00	2.0E-06	4.7E-05
PS6	Oven #7	0.0E+00	1.1E-08	0.0E+00	1.5E-06	0.0E+00	3.5E-05	0.0E+00	1.5E-06	0.0E+00	1.5E-06	3.3E-05	0.0E+00	1.5E-06	3.5E-05
	Total	**0.0E+00**	**4.9E-05**	**0.0E+00**	**4.5E-03**	**0.0E+00**	**9.3E-04**	**0.0E+00**	**6.8E-03**	**0.0E+00**	**4.5E-03**	**9.0E-04**	**0.0E+00**	**2.6E-05**	**6.8E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 70
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEISR: Receptor #10942					
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach					
Chemical Name	**Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	1.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	9.8E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ammonia	6.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	3.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Crystalline Silica	3.2E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	1.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	4.5E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	2.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	3.8E-09	1.1E-09	3.6E-08	0.0E+00	5.9E-09
Lead	1.1E-14	3.5E-15	1.2E-13	0.0E+00	8.3E-14
Methanol	1.7E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Ethyl Ketone	3.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	1.2E-10	1.3E-10	1.1E-09	0.0E+00	4.3E-10
Polynuclear Aromatic Hydrocarbons (PAHs)	3.7E-12	1.6E-11	2.4E-12	0.0E+00	2.0E-11
Phosphoric Acid	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	7.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylenes	4.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cadmium	3.5E-09	1.0E-10	3.3E-08	0.0E+00	3.2E-08
Naphthalene	1.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Abbreviations:
d = day
kg = kilogram
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
mg = milligram
UTM = Universal Transverse Mercator

Table 71
Current Operations, Excess Cancer Risk Contribution by Substance at the Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk MEISR: Receptor #10942							
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach							
Chemical Name	**Excess Cancer Risk by Exposure Pathway**					**Total Excess Cancer Risk (number in one million)**	**Cancer Risk Contribution (%)**
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**		
Acetaldehyde	1.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Benzene	3.3E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethyl benzene	9.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Formaldehyde	2.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Hexavalent Chromium	1.9E-06	5.4E-10	1.8E-08	0.0E+00	3.0E-09	2.0	97%
Lead	4.7E-16	3.0E-17	9.9E-16	0.0E+00	7.0E-16	0.0	0%
Methanol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Nickel	1.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Polynuclear Aromatic Hydrocarbons (PAHs)	1.4E-11	1.9E-10	2.8E-11	0.0E+00	2.4E-10	0.0	0%
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Xylenes	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Cadmium	5.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.1	3%
Naphthalene	1.5E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0	0%
Total	**2.0E-06**	**7.3E-10**	**1.8E-08**	**0.0E+00**	**3.2E-09**	**2.0**	**100%**

Abbreviations:
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 72
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Cancer Risk MEISR
Hixson Metal Finishing
Newport Beach, California

Cancer Risk MEISR: Receptor #10942								
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach								
Source	Source Description	Cancer Risk by Exposure Pathway					Total Cancer Risk (number in one million)	Cancer Risk Contribution (%)
		Inhalation	Dermal	Soil Ingestion	Mother's Milk	Home-Grown Produce		
FS1	Building 4	2.4E-07	6.8E-11	2.2E-09	0.0E+00	3.7E-10	0.2	12%
FS2	Building 3	3.8E-07	1.1E-10	3.5E-09	0.0E+00	5.8E-10	0.4	19%
FS3	Building 2	1.7E-07	4.7E-11	1.6E-09	0.0E+00	2.6E-10	0.2	8%
FS4	Building 1	1.4E-07	3.8E-11	1.2E-09	0.0E+00	2.1E-10	0.1	7%
FS5	Between Buildings 3 and 4	4.3E-07	1.2E-10	3.9E-09	0.0E+00	6.5E-10	0.4	21%
FS6	Between Buildings 2 and 3	4.3E-07	1.2E-10	3.9E-09	0.0E+00	6.6E-10	0.4	22%
FS7	Between Buildings 1 and 2	1.5E-07	4.0E-11	1.3E-09	0.0E+00	2.2E-10	0.1	7%
FS8	Building 3 Plating	5.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.1	3%
PS1	SB #1	1.6E-09	3.7E-13	1.2E-11	0.0E+00	2.0E-12	0.0	0%
PS2	SB #2	2.9E-09	6.3E-13	2.1E-11	0.0E+00	3.4E-12	0.0	0%
PS3	Scrubber (Anodize Line, Tank 70)	1.9E-09	5.2E-13	1.7E-11	0.0E+00	2.8E-12	0.0	0%
PS4	Oven #3	3.2E-11	8.9E-11	1.3E-11	0.0E+00	1.1E-10	0.0	0%
PS5	Oven #6	1.8E-11	5.0E-11	7.5E-12	0.0E+00	6.4E-11	0.0	0%
PS6	Oven #7	1.8E-11	5.0E-11	7.5E-12	0.0E+00	6.3E-11	0.0	0%
	Total	**2.0E-06**	**7.3E-10**	**1.8E-08**	**0.0E+00**	**3.2E-09**	**2.0**	**100%**

Abbreviations:
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 73
Current Operations, Inhalation Concentration and Dose by Substance and Exposure Pathway at the Modeled Chronic HI MEISR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEISR: Receptor #10970					
UTM East (m): 413,974, UTM North (m): 3,721,750; Multiple medical offices, 1501 Superior Ave, Newport Beach					
Chemical Name	**Inhalation Concentration (µg/m^3) and Estimated Dose by Pathway (mg/kg/d)**				
	Inhalation	**Dermal**	**Soil Ingestion**	**Mother's Milk**	**Home-Grown Produce**
Acetaldehyde	6.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	3.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ammonia	2.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Crystalline Silica	1.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	3.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	4.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethylene Glycol Monomethyl Ether	2.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	8.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	1.2E-05	3.1E-09	3.5E-08	0.0E+00	2.1E-08
Lead	3.9E-11	9.7E-15	1.1E-13	0.0E+00	7.9E-14
Methanol	5.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Ethyl Ketone	1.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	4.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	6.5E-07	3.8E-09	1.8E-09	0.0E+00	2.6E-09
Polynuclear Aromatic Hydrocarbons (PAHs)	1.4E-08	1.6E-11	2.4E-12	0.0E+00	2.1E-11
Phosphoric Acid	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylenes	1.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cadmium	2.0E-05	5.0E-10	5.7E-08	0.0E+00	1.9E-07
Naphthalene	4.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Abbreviations:
µg = microgram
d = day
HI = Hazard Index
kg = kilogram
m = meter
m^3 = cubic meter
MEISR = Maximally Exposed Individual Sensitive Receptor
mg = milligram
UTM = Universal Transverse Mercator

Table 74
Current Operations, Chronic Health Quotients by Substance and Target Organ at the Modeled Chronic HI MEISR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEISR: Receptor #10970														
UTM East (m): 413,974, UTM North (m): 3,721,750; Multiple medical offices, 1501 Superior Ave, Newport Beach														
Chemical Name	**Chronic Hazard Quotients for Target Organs**													**Maximum Chronic HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-09	0.0E+00	0.0E+00	4.3E-09
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-06	0.0E+00	0.0E+00	1.1E-06
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-05	0.0E+00	0.0E+00	1.3E-05
Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-07	3.7E-07
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-11	0.0E+00	0.0E+00	5.6E-11
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	1.9E-07	1.9E-07	0.0E+00	1.9E-07	0.0E+00	1.9E-07	1.9E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-07
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-07	0.0E+00	0.0E+00	4.5E-07
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	3.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-05	0.0E+00	0.0E+00	0.0E+00	3.4E-05
Hexane	0.0E+00	1.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-10
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-05	0.0E+00	2.9E-06	6.2E-05
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	0.0E+00	0.0E+00	1.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-07	0.0E+00	0.0E+00	0.0E+00	1.4E-07
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	7.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E-07	4.7E-05	0.0E+00	4.7E-05	4.7E-05
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-06	0.0E+00	0.0E+00	5.4E-06
Toluene	0.0E+00	8.6E-06	0.0E+00	8.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-06	8.6E-06	0.0E+00	0.0E+00	8.6E-06
Xylenes	0.0E+00	2.7E-06	0.0E+00	0.0E+00	0.0E+00	2.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-06	0.0E+00	0.0E+00	2.7E-06
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-03	0.0E+00	1.0E-03	0.0E+00	0.0E+00	1.5E-03
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-09	0.0E+00	0.0E+00	4.6E-09
Total	**0.0E+00**	**1.1E-05**	**0.0E+00**	**4.4E-05**	**1.9E-07**	**2.7E-06**	**1.9E-07**	**0.0E+00**	**1.5E-03**	**4.4E-05**	**1.1E-03**	**0.0E+00**	**5.0E-05**	**1.5E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 75
Current Operations, Dose by Substance and Exposure Pathway at the Modeled Chronic HI MEISR
Hixson Metal Finishing
Newport Beach, California

Chronic HI MEISR: Receptor #10970															
UTM East (m): 413,974, UTM North (m): 3,721,750; Multiple medical offices, 1501 Superior Ave, Newport Beach															
Source	Source Description	Chronic Hazard Quotients for Target Organs													Maximum Chronic HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Repro-ductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-06	0.0E+00	2.0E-07	4.2E-06
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-05	0.0E+00	4.9E-07	1.0E-05
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.0E-06	0.0E+00	3.3E-07	7.0E-06
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-06	0.0E+00	3.7E-07	7.9E-06
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.4E-06	0.0E+00	4.4E-07	9.4E-06
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-05	0.0E+00	7.2E-07	1.5E-05
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-06	0.0E+00	3.7E-07	7.9E-06
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	7.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-03	7.4E-07	1.1E-03	0.0E+00	4.7E-05	1.5E-03
PS1	SB #1	0.0E+00	3.6E-06	0.0E+00	2.9E-05	8.5E-08	1.4E-06	8.5E-08	0.0E+00	8.5E-08	2.9E-05	4.0E-06	0.0E+00	3.4E-09	2.9E-05
PS2	SB #2	0.0E+00	7.7E-06	0.0E+00	1.5E-05	1.0E-07	1.3E-06	1.0E-07	0.0E+00	1.0E-07	1.5E-05	1.3E-05	0.0E+00	3.1E-09	1.5E-05
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-07	0.0E+00	5.8E-09	1.2E-07
PS4	Oven #3	0.0E+00	7.2E-09	0.0E+00	5.7E-09	2.1E-10	1.7E-09	2.1E-10	0.0E+00	2.1E-10	5.7E-09	4.5E-06	0.0E+00	1.2E-07	4.5E-06
PS5	Oven #6	0.0E+00	7.5E-09	0.0E+00	5.9E-09	2.2E-10	1.8E-09	2.2E-10	0.0E+00	2.2E-10	5.9E-09	4.6E-06	0.0E+00	1.2E-07	4.6E-06
PS6	Oven #7	0.0E+00	7.7E-09	0.0E+00	6.0E-09	2.3E-10	1.9E-09	2.3E-10	0.0E+00	2.3E-10	6.0E-09	4.8E-06	0.0E+00	1.3E-07	4.8E-06
	Total	**0.0E+00**	**1.1E-05**	**0.0E+00**	**4.4E-05**	**1.9E-07**	**2.7E-06**	**1.9E-07**	**0.0E+00**	**1.5E-03**	**4.4E-05**	**1.1E-03**	**0.0E+00**	**5.0E-05**	**1.5E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 76
Current Operations, Acute Health Quotients by Substance and Target Organ at the Modeled Acute HI MEISR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEISR: Receptor #10942														
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach														
Chemical Name	**Acute Hazard Quotients for Target Organs**													**Maximum Acute HI**
	Cardio-Vasuclar (CV)	**Central Nervous System (CNS)**	**Bone**	**Develop-mental System**	**Endocrine System**	**Eye**	**Gastro-Intestinal (GILV)**	**Immune System**	**Kidney**	**Repro-ductive System**	**Respiratory System**	**Skin**	**Blood**	
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-07	0.0E+00	0.0E+00	8.0E-07
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-05	0.0E+00	0.0E+00	9.5E-05
Ammonia	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-04	0.0E+00	0.0E+00	4.9E-04
Benzene	0.0E+00	0.0E+00	0.0E+00	2.6E-05	0.0E+00	0.0E+00	0.0E+00	2.6E-05	0.0E+00	2.6E-05	0.0E+00	0.0E+00	2.6E-05	2.6E-05
Crystalline Silica	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-05
Ethylene Glycol Monomethyl Ether	0.0E+00	0.0E+00	0.0E+00	4.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-03	0.0E+00	0.0E+00	0.0E+00	4.5E-03
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexavalent Chromium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Methanol	0.0E+00	7.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.0E-06
Methyl Ethyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-04	0.0E+00	0.0E+00	2.6E-04
Methyl Isobutyl Ketone	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-03
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Phosphoric Acid	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	0.0E+00	2.1E-05	0.0E+00	2.1E-05	0.0E+00	2.1E-05	0.0E+00	0.0E+00	0.0E+00	2.1E-05	2.1E-05	0.0E+00	0.0E+00	2.1E-05
Xylenes	0.0E+00	2.2E-05	0.0E+00	0.0E+00	0.0E+00	2.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-05	0.0E+00	0.0E+00	2.2E-05
Cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total	**0.0E+00**	**4.9E-05**	**0.0E+00**	**4.5E-03**	**0.0E+00**	**9.3E-04**	**0.0E+00**	**8.2E-03**	**0.0E+00**	**4.5E-03**	**9.0E-04**	**0.0E+00**	**2.6E-05**	**8.2E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 77
Current Operations, Acute Health Quotients by Source at the Modeled Acute HI MEISR
Hixson Metal Finishing
Newport Beach, California

Acute HI MEISR: Receptor #10942															
UTM East (m): 413,172, UTM North (m): 3,721,497; Allergy Immuno Technologies, 1527 Monrovia Avenue, Newport Beach															
Source	Source Description	Acute Hazard Quotients for Target Organs													Maximum Acute HI
		Cardio-Vasuclar (CV)	Central Nervous System (CNS)	Bone	Develop-mental System	Endocrine System	Eye	Gastro-Intestinal (GILV)	Immune System	Kidney	Reproductive System	Respiratory System	Skin	Blood	
FS1	Building 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS2	Building 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS3	Building 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS4	Building 1	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS5	Between Buildings 3 and 4	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS6	Between Buildings 2 and 3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS7	Between Buildings 1 and 2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FS8	Building 3 Plating	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-03
PS1	SB #1	0.0E+00	9.6E-06	0.0E+00	2.6E-03	0.0E+00	7.6E-05	0.0E+00	4.9E-09	0.0E+00	2.6E-03	7.1E-05	0.0E+00	0.0E+00	2.6E-03
PS2	SB #2	0.0E+00	4.0E-05	0.0E+00	1.8E-03	0.0E+00	2.4E-04	0.0E+00	2.0E-10	0.0E+00	1.8E-03	2.4E-04	0.0E+00	0.0E+00	1.8E-03
PS3	Scrubber (Anodize Line, Tank 70)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PS4	Oven #3	0.0E+00	1.7E-07	0.0E+00	2.3E-05	0.0E+00	5.3E-04	0.0E+00	2.3E-05	0.0E+00	2.3E-05	5.1E-04	0.0E+00	2.3E-05	5.3E-04
PS5	Oven #6	0.0E+00	1.5E-08	0.0E+00	2.0E-06	0.0E+00	4.7E-05	0.0E+00	2.0E-06	0.0E+00	2.0E-06	4.5E-05	0.0E+00	2.0E-06	4.7E-05
PS6	Oven #7	0.0E+00	1.1E-08	0.0E+00	1.5E-06	0.0E+00	3.5E-05	0.0E+00	1.5E-06	0.0E+00	1.5E-06	3.3E-05	0.0E+00	1.5E-06	3.5E-05
	Total	**0.0E+00**	**4.9E-05**	**0.0E+00**	**4.5E-03**	**0.0E+00**	**9.3E-04**	**0.0E+00**	**8.2E-03**	**0.0E+00**	**4.5E-03**	**9.0E-04**	**0.0E+00**	**2.6E-05**	**8.2E-03**

Abbreviations:
HI = Hazard Index
m = meter
MEISR = Maximally Exposed Individual Sensitive Receptor
UTM = Universal Transverse Mercator

Table 78
Population Exposure within 2013 Modeled Zone of Impact[1,2]
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk (number in one million)	Population
≥1 to <10	45,020
≥10 to <25	344
≥25 to <100	415
≥100 to <1000	344
≥1000	0
Total	**46,123**

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater (≥ 1.0×10^{-6}) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. Maximum Chronic and Acute HIs do not exceed 0.5, therefore corresponding population exposures are not applicable.

Abbreviations:

HI = Hazard Index

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Table 79
Cancer Burden within 2013 Modeled Zone of Impact[1]
Hixson Metal Finishing
Newport Beach, CA

Total Cancer Burden[2]
0.21

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater ($\geq 1.0 \times 10^{-6}$) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. As defined by ARB, cancer burden is the estimated potential increase in the occurrence of cancer cases in a population subject to an incremental cancer risk of greater than one in one million resulting from exposure to toxic air contaminants.

Abbreviations:

ARB = (California) Air Resources Board

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Table 80
Current Operations, Population Exposure within Modeled Zone of Impact[1,2]
Hixson Metal Finishing
Newport Beach, CA

Cancer Risk (number in one million)	Population
≥1 to <10	2,218
≥10 to <25	3
≥25 to <100	341
≥100	0
Total	**2,562**

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater (≥ 1.0×10^{-6}) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. Maximum Chronic and Acute HIs do not exceed 0.5, therefore corresponding population exposures are not applicable.

Abbreviations:
HI = Hazard Index

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Table 81
Current Operations, Cancer Burden within Modeled Zone of Impact[1]
Hixson Metal Finishing
Newport Beach, CA

Total Cancer Burden[2]
0.02

Notes:

1. The Zone of Impact is defined as the area subject to an added lifetime cancer risk (all pathways) of one in one million or greater ($\geq 1.0 \times 10^{-6}$) or a hazard index of greater than or equal to one half (≥ 0.5) (SCAQMD 2011).

2. As defined by ARB, cancer burden is the estimated potential increase in the occurrence of cancer cases in a population subject to an incremental cancer risk of greater than one in one million resulting from exposure to toxic air contaminants.

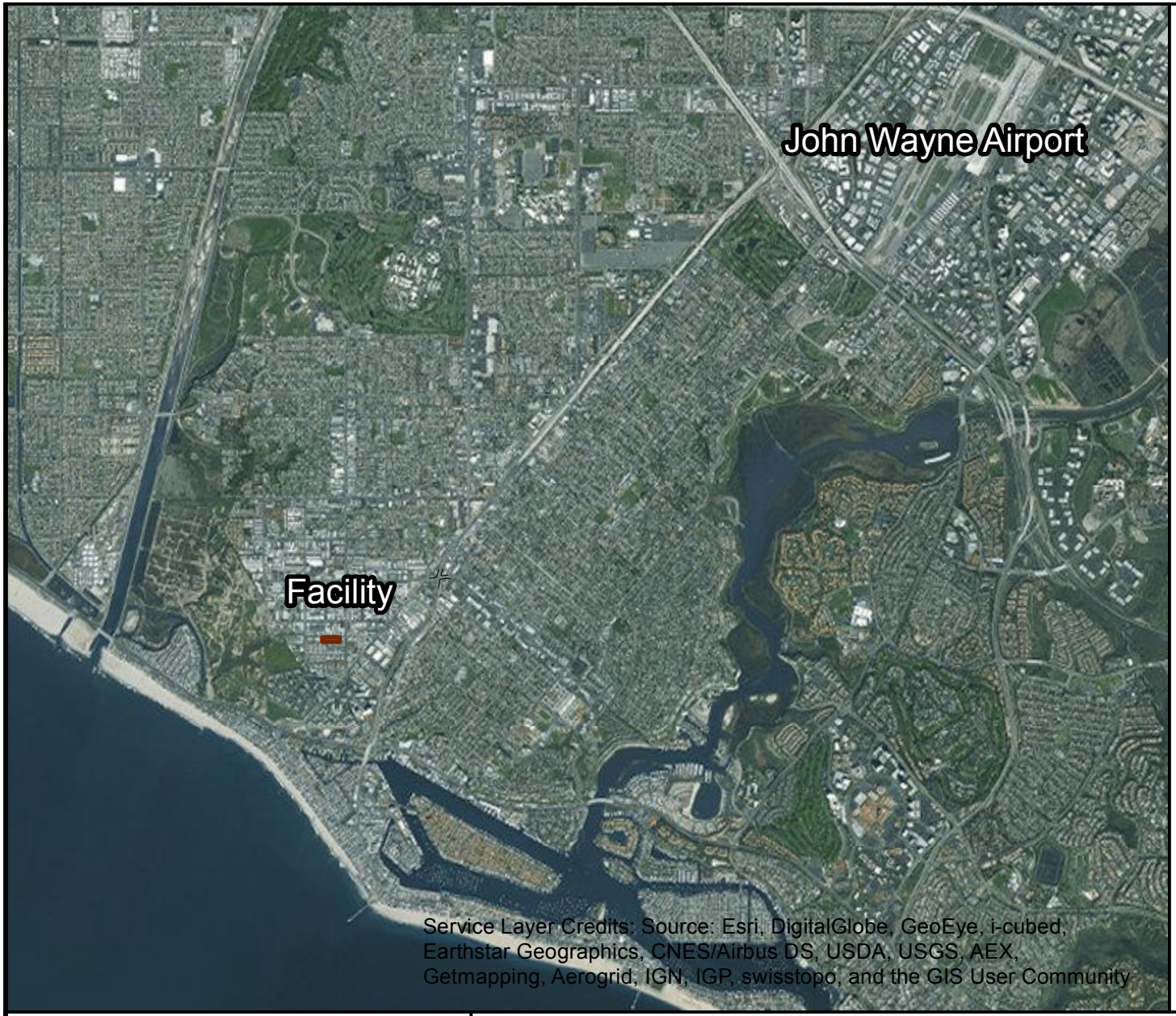
Abbreviations:

ARB = (California) Air Resources Board

References:

South Coast Air Quality Management District (SCAQMD). 2011. Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June.

Figures



Legend

Facility

0 0.5 1 Miles

0 1 2 Kilometers

ENVIRON

General Facility Location
Hixson Metal Finishing
Newport Beach, California

N

Figure
1

Legend

- Facility Boundary
- Onsite Sources
- Potential Fugitive Sources
- Buildings

SB = Spray Booth

0 50 100 Feet

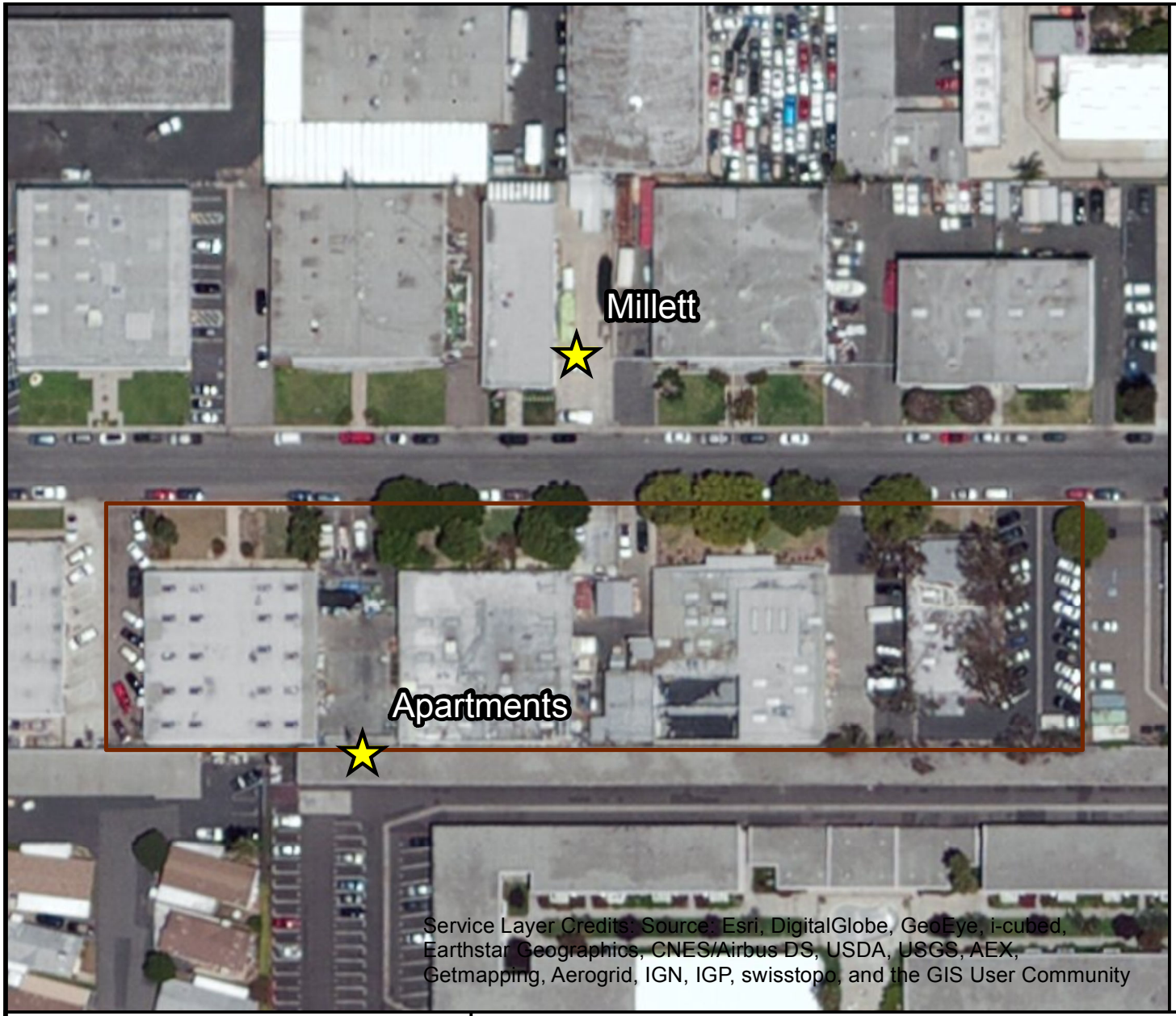
0 20 40 Meters

ENVIRON

Property Layout and Source Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
2



Legend

Monitors

Facility Boundary

0 50 100 Feet

0 10 20 Meters

ENVIRON

Locations of Offsite Monitors
Hixson Metal Finishing
Newport Beach, California

N

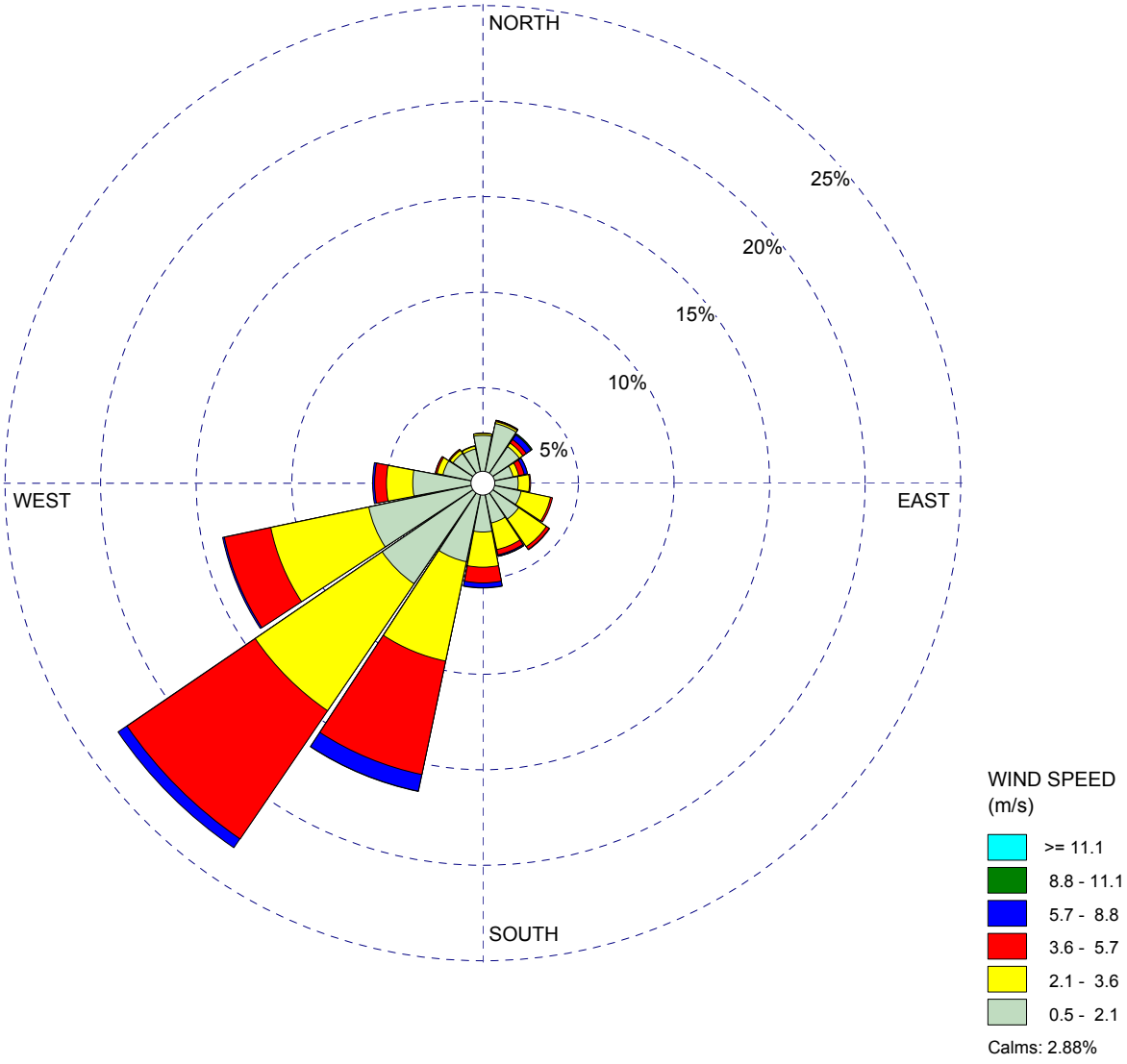
Figure
3

WIND ROSE PLOT:

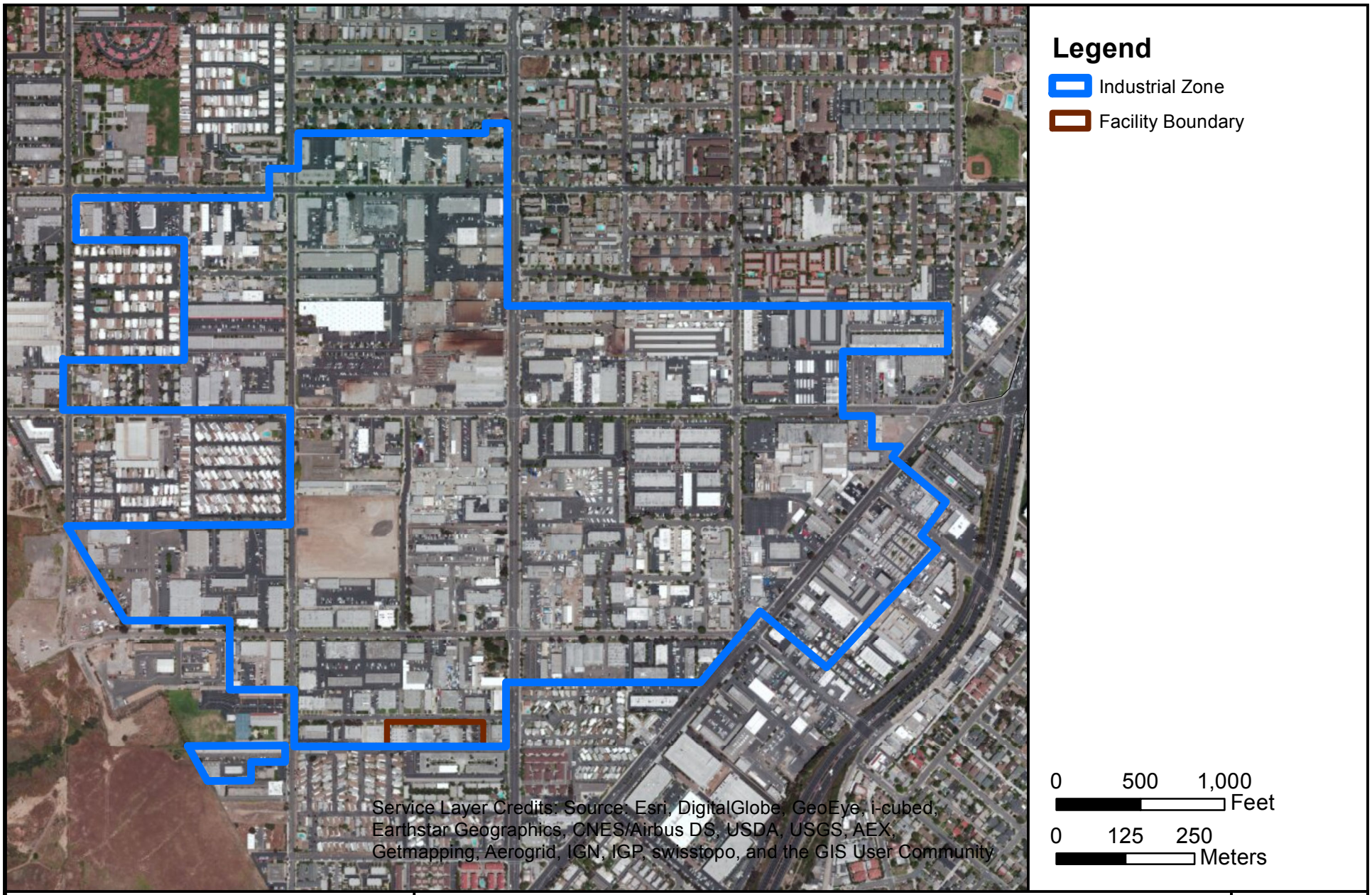
Figure 4: Five-Year Wind Rose for John Wayne Airport 2009-2013

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2009 - 00:00** **End Date: 12/31/2013 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **2.88%**	TOTAL COUNT: **43588 hrs.**	
	AVG. WIND SPEED: **2.43 m/s**	DATE: **10/24/2014**	PROJECT NO.:



ENVIRON

Nearby Industrial Zoning
Hixson Metal Finishing
Newport Beach, California

N

Figure
5

Legend

- PMI Location
- Facility Boundary

0 100 200 Feet

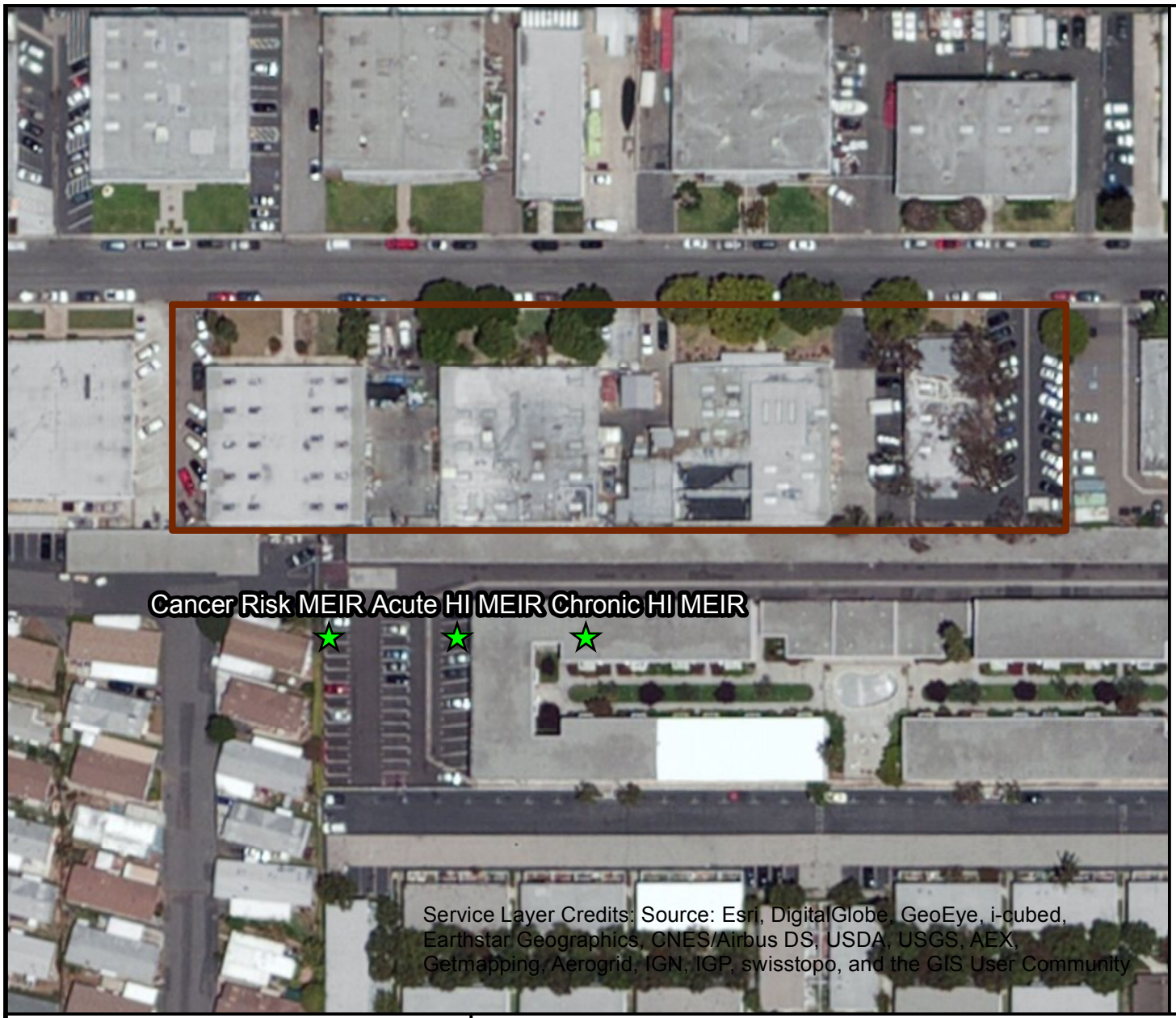
0 25 50 Meters

ENVIRON

2013 Modeled PMI Location
Hixson Metal Finishing
Newport Beach, California

N

Figure
6



Legend

- MEIR Locations
- Facility Boundary

0 50 100 Feet

0 25 50 Meters

ENVIRON

2013 Modeled MEIR Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
7

Legend

- MEIW Locations
- Facility Boundary

0 50 100 Feet

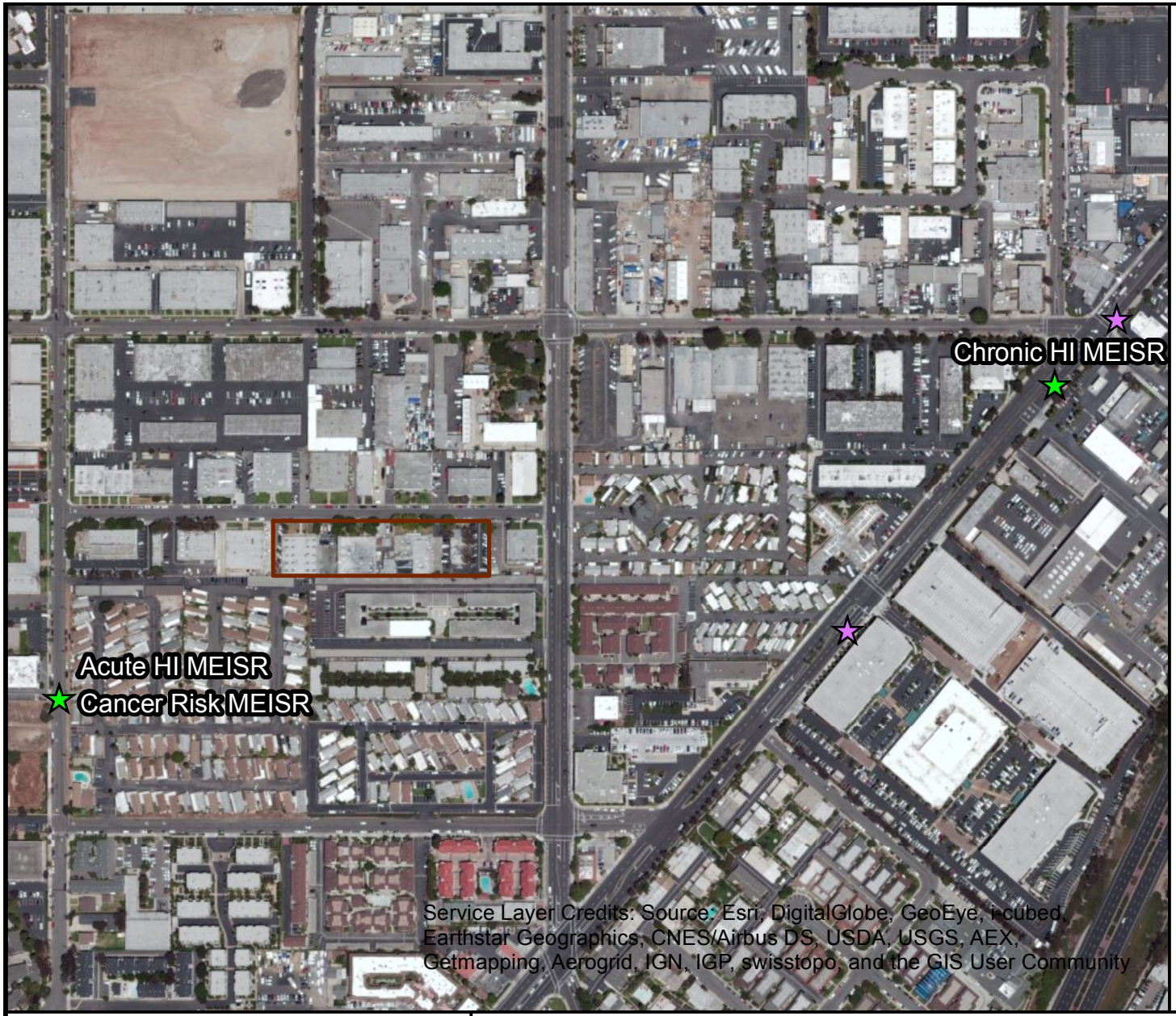
0 25 50 Meters

ENVIRON

2013 Modeled MEIW Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
8



Legend

- MEISR Locations
- Sensitive Receptors, ≥10 in one million cancer risk
- Facility Boundary

0 250 500 Feet

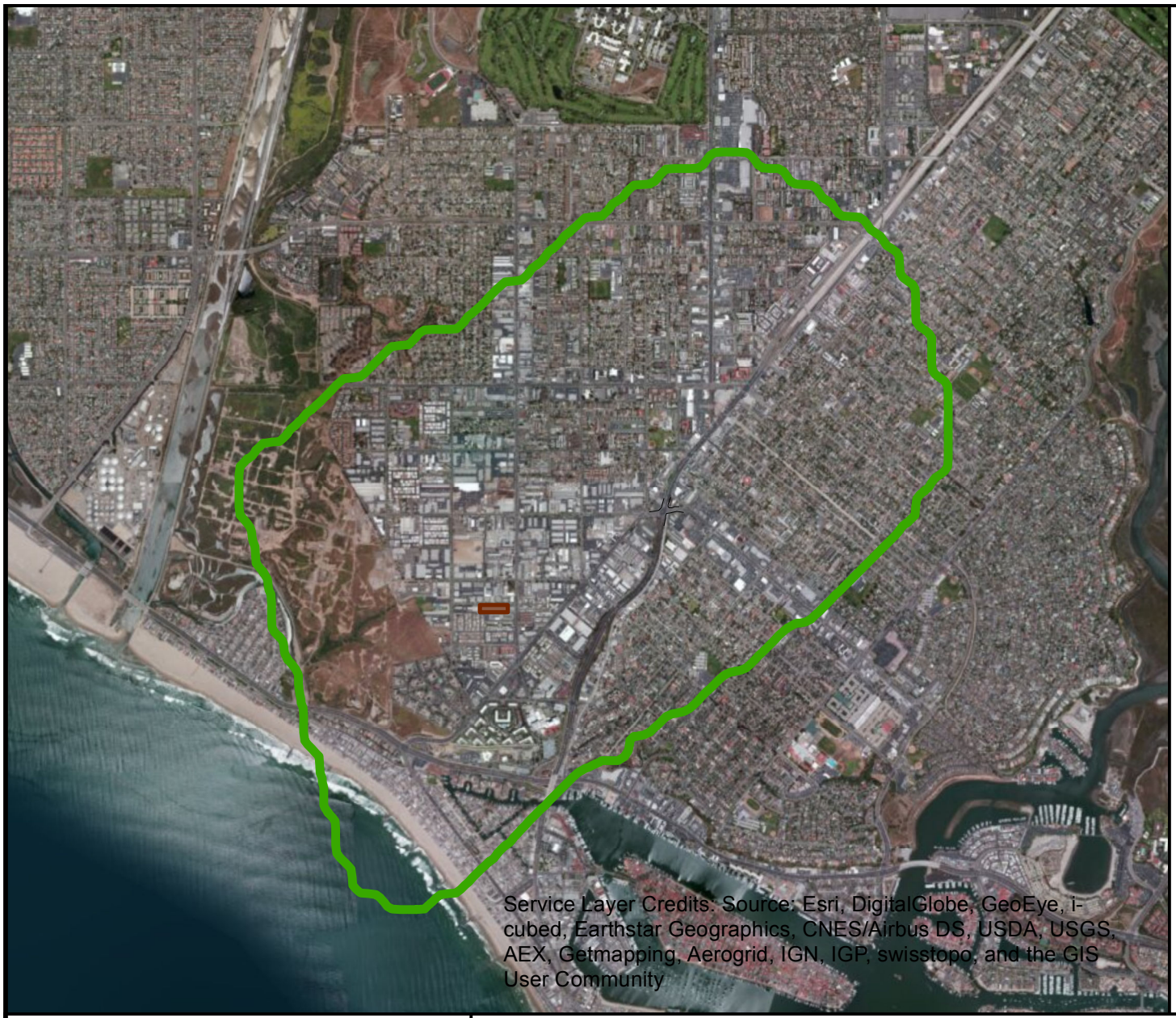
0 100 200 Meters

ENVIRON

2013 Modeled Sensitive Receptor Locations (including MEISR)
Sensitive Receptors with Cancer Risk ≥ 10 in one million
Hixson Metal Finishing
Newport Beach, California

N

Figure
9



Legend

Facility Boundary

Zone of Impact = Cancer Risk ≥ 1 in a million or HI ≥ 0.5

The maximum chronic and acute HIs are <0.5, therefore the Zone of Impact is determined by Cancer Risks only.

The Zone of Impact is determined based on residential exposure assumptions.

0 0.5 1 Miles

0 0.5 1 Kilometers

ENVIRON

2013 Modeled Zone of Impact
Hixson Metal Finishing
Newport Beach, California

N

Figure
10

Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- 100.0 in one million
- Facility Boundary

Note: Since the maximum chronic and acute HIs are <0.5, contours for chronic and acute HIs at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

0 0.5 1 Miles

0 0.5 1 Kilometers

ENVIRON

2013 Modeled 1, 10, 25, and 100 in One Million Risk Contours
Assuming all Receptors are Residential
Hixson Metal Finishing
Newport Beach, California

N

Figure
11

Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- 100.0 in one million
- Facility Boundary

Worker exposure assumptions are only used in the industrial zone identified in Figure 5. All other areas assume residential exposure. Therefore, if workers are present in areas outside of the industrial zone identified in Figure 5, risks shown in this Figure are not applicable.

0 0.5 1 Miles

0 0.5 1 Kilometers

ENVIRON

2013 Modeled 1, 10, 25, and 100 in One Million Risk Contours Using Worker Exposure for Industrial Areas
Hixson Metal Finishing
Newport Beach, California

N

Figure
12

Legend

- PMI Location
- Facility Boundary

0 100 200 Feet

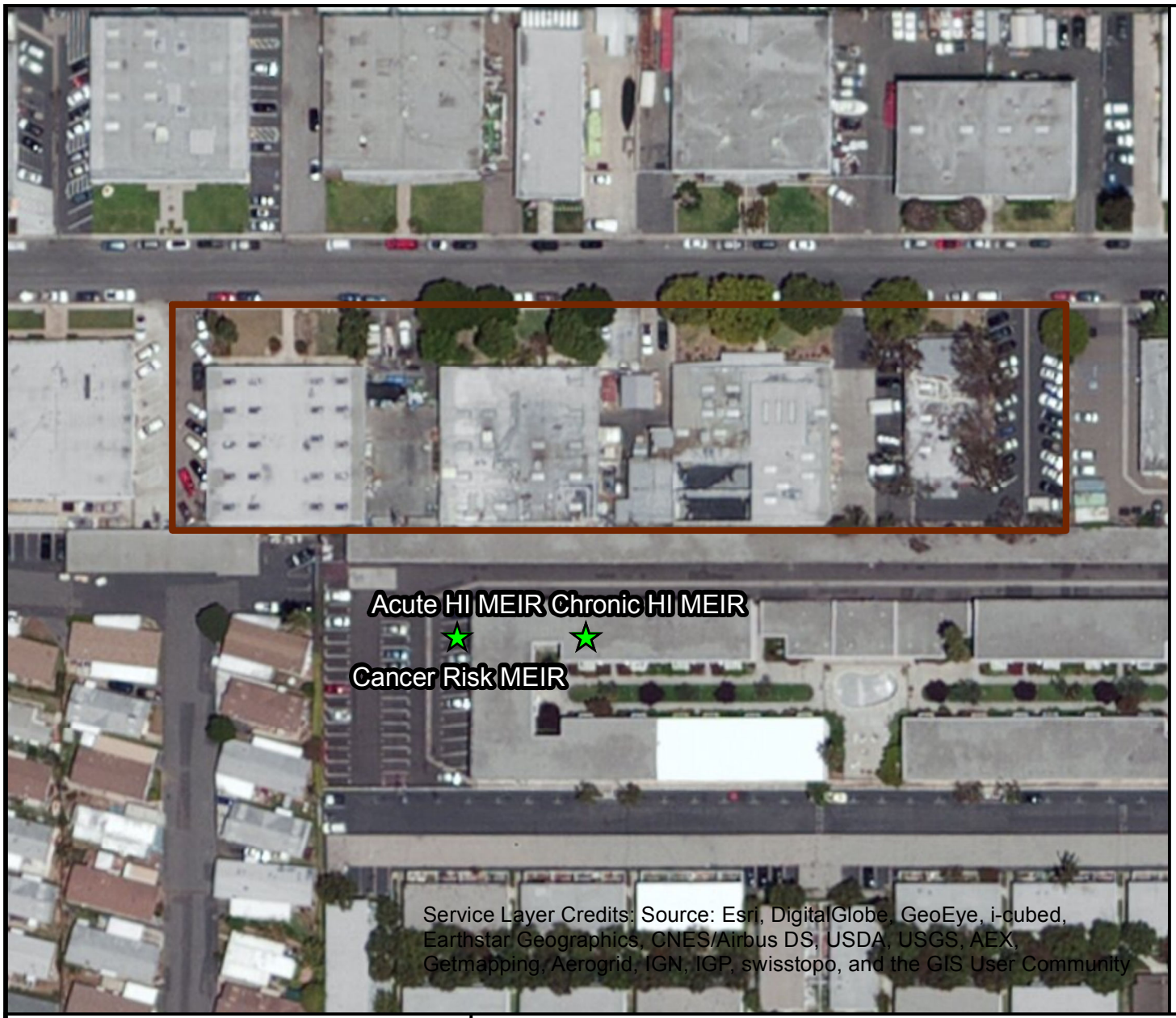
0 25 50 Meters

ENVIRON

Current Operations, Modeled PMI Location
Hixson Metal Finishing
Newport Beach, California

N

Figure
13



Legend

- MEIR Locations
- Facility Boundary

0 50 100 Feet

0 25 50 Meters

ENVIRON

Current Operations, Modeled MEIR Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
14

Legend

- MEIW Locations
- Facility Boundary

0 50 100 Feet

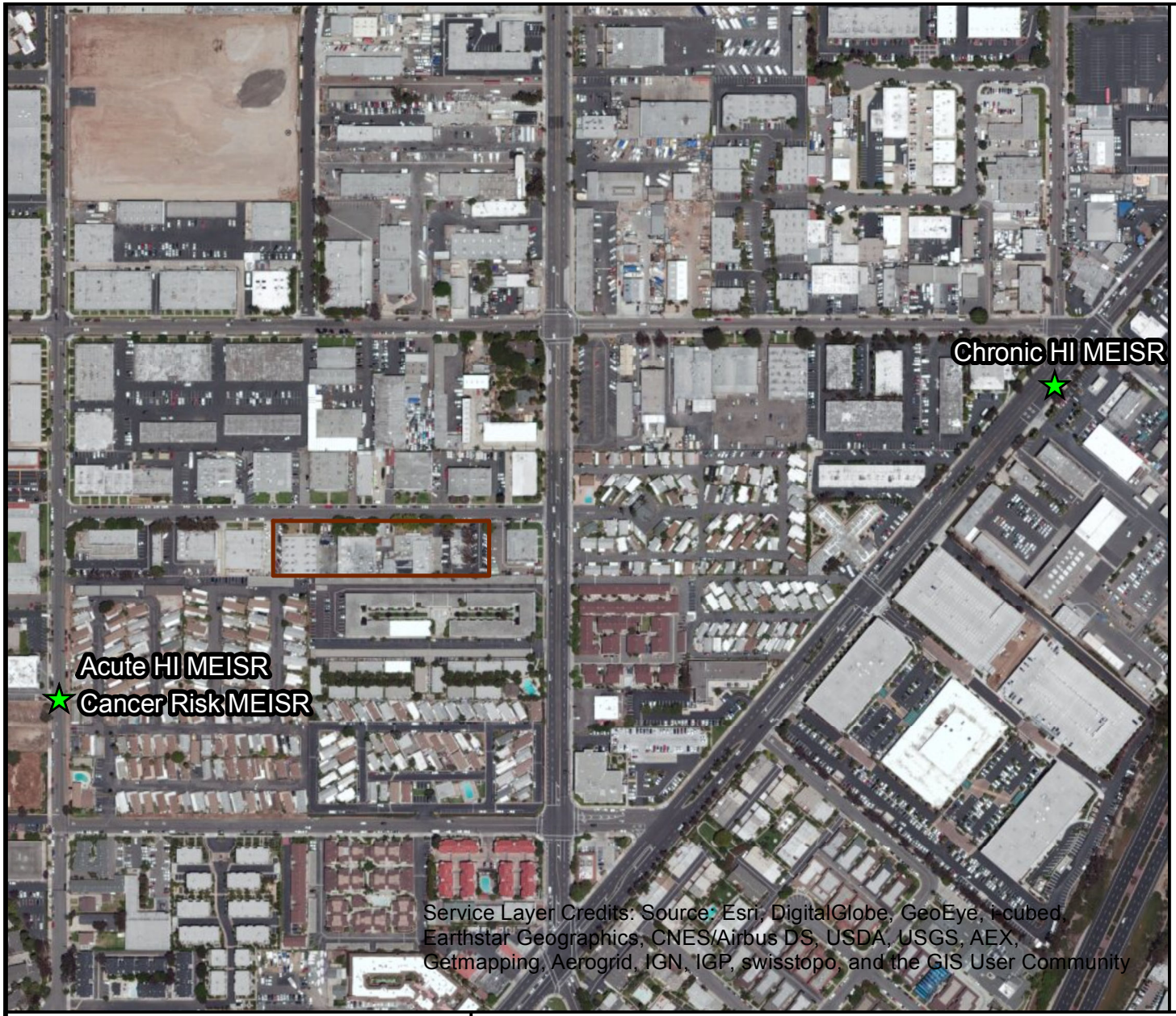
0 25 50 Meters

ENVIRON

Current Operations, Modeled MEIW Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
15



Legend

- MEISR Locations
- Facility Boundary

Note: No sensitive receptors have a cancer risk ≥10 in one million.

0 250 500 Feet

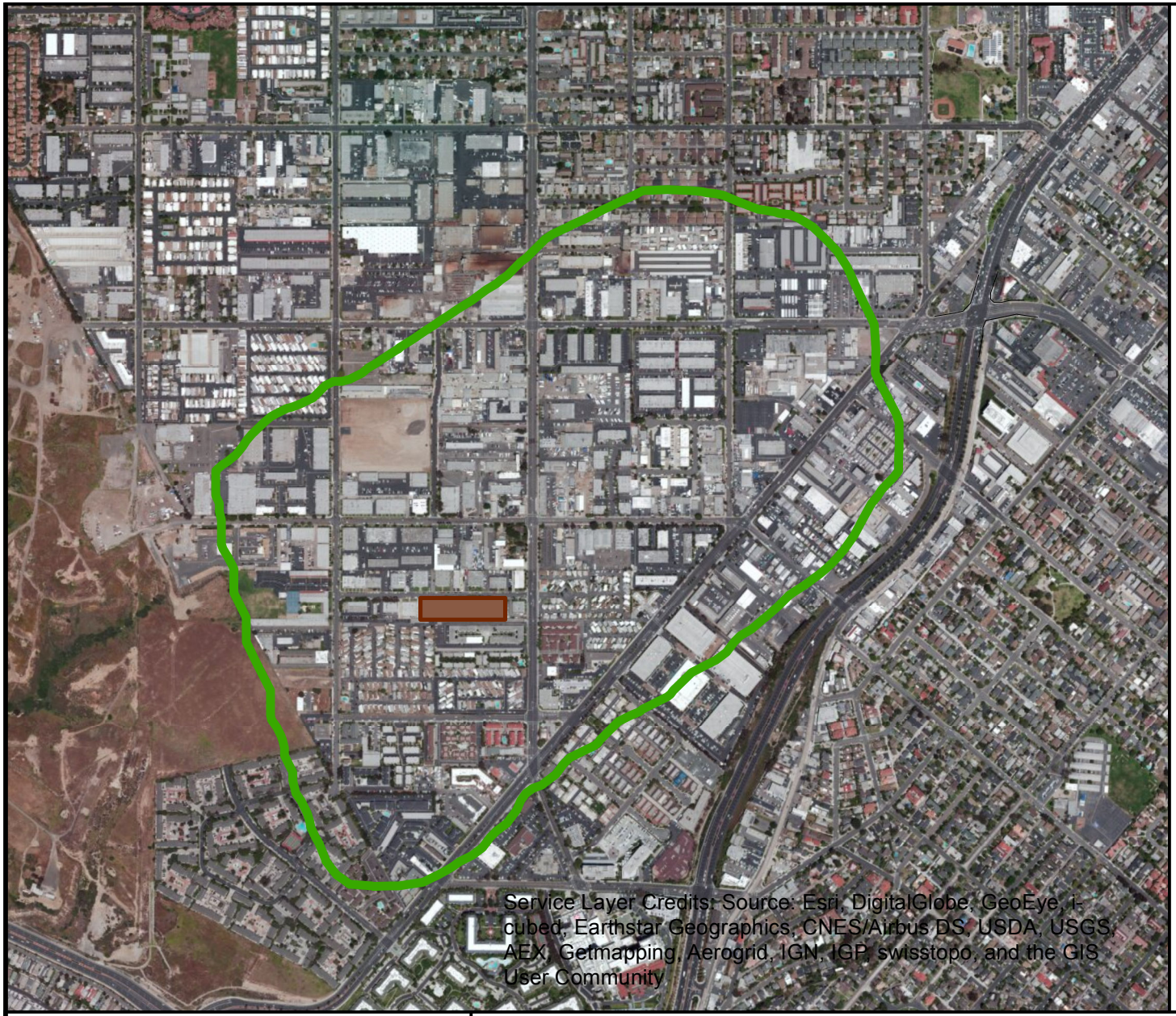
0 100 200 Meters

ENVIRON

Current Operations, Modeled MEISR Locations
Hixson Metal Finishing
Newport Beach, California

N

Figure
16



Legend

Facility Boundary

Zone of Impact = Cancer Risk ≥ 1 in a million or HI ≥ 0.5

The maximum chronic and acute HIs are <0.5, therefore the Zone of Impact is determined by Cancer Risks only.

The Zone of Impact is determined based on residential exposure assumptions.

0 500 1,000 Feet

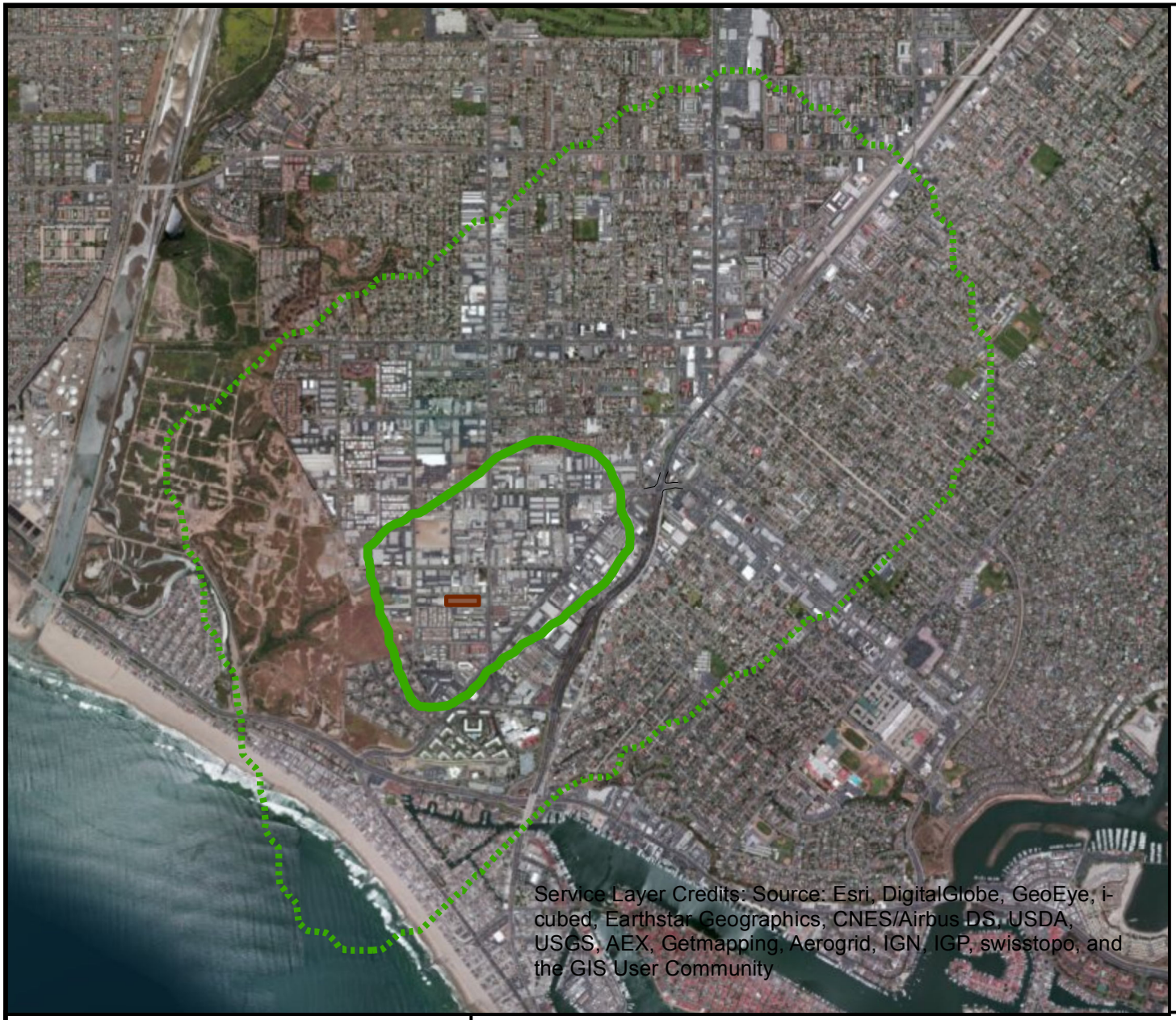
0 250 500 Meters

ENVIRON

Current Operations, Modeled Zone of Impact
Hixson Metal Finishing
Newport Beach, California

N

Figure
17



Legend

- Current Operations
- 2013 Operations
- Facility Boundary

Zone of Impact = Cancer Risk ≥ 1 in a million or HI ≥ 0.5

The Zone of Impact is determined based on residential exposure assumptions.

0 0.5 1 Miles

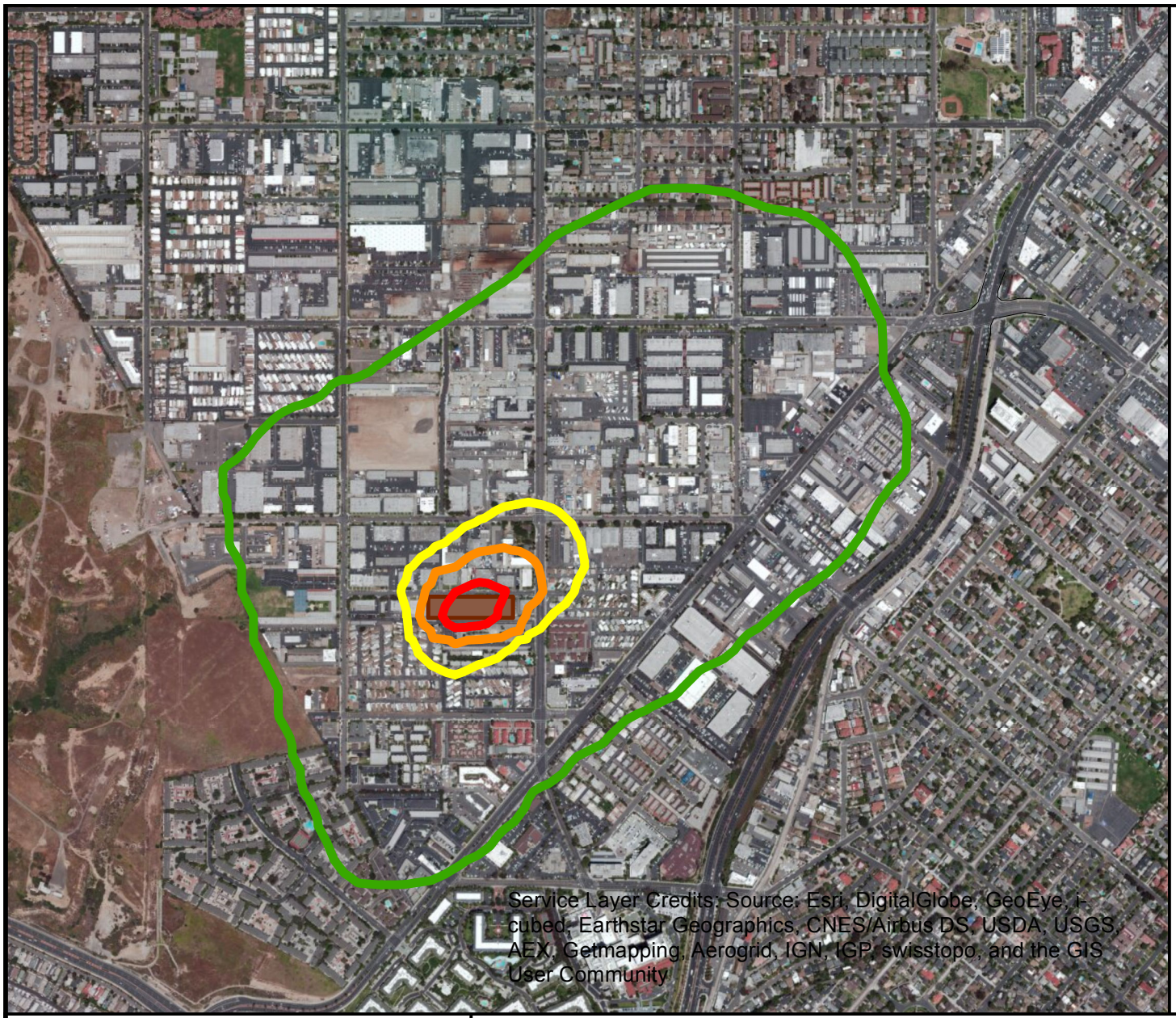
0 0.5 1 Kilometers

ENVIRON

Modeled Zone of Impact
Current Operations v 2013 Operations
Hixson Metal Finishing
Newport Beach, California

N

Figure
18



Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- 100.0 in one million
- Facility Boundary

Note: Since the maximum chronic and acute HIs are <0.5, contours for chronic and acute HI at levels of 0.5, 1.0, 3.0, and 5.0 cannot be created.

0 500 1,000 Feet

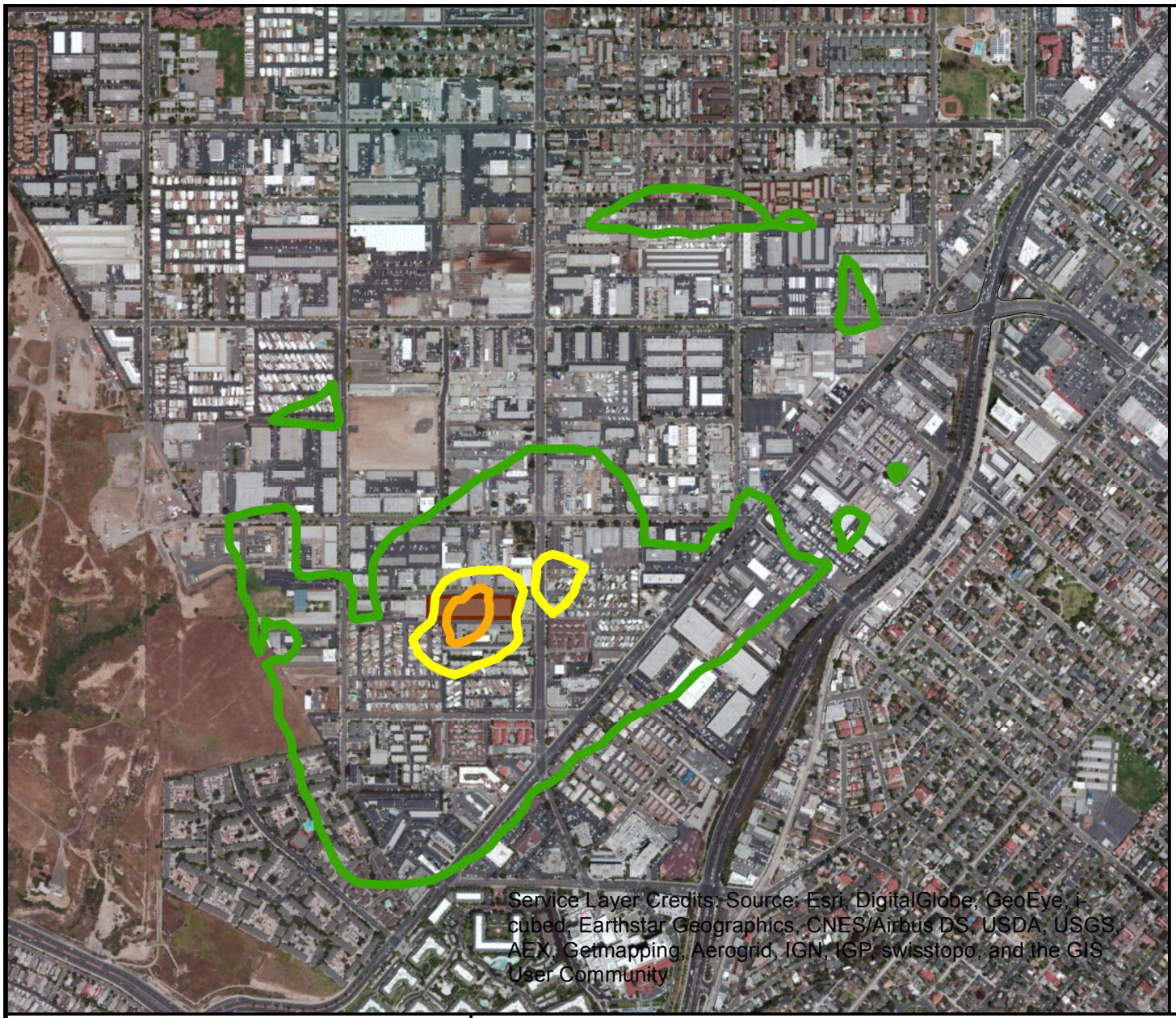
0 250 500 Meters

ENVIRON

Current Operations, Modeled 1, 10, 25, and 100 in One Million Risk Contours
Assuming all Receptors are Residential
Hixson Metal Finishing
Newport Beach, California

N

Figure
19



Legend

- 1.0 in one million
- 10.0 in one million
- 25.0 in one million
- Facility Boundary

Worker exposure assumptions are only used in the industrial zone identified in Figure 5. All other areas assume residential exposure. Therefore, if workers are present in areas outside of the industrial zone identified in Figure 5, risks shown in this Figure are not applicable.

0 500 1,000 Feet

0 250 500 Meters

ENVIRON

Current Operations, Modeled 1, 10, and 25 in One Million Risk Contours Using Worker Exposure for Industrial Areas
Hixson Metal Finishing
Newport Beach, California

N

Figure
20

Appendix A

Potential Fugitive Cr(VI) Emissions Determination

1 2013 Potential Fugitive Cr(VI) Emissions Determination

As part of the AB2588 letter from Ms. Susan Nakamura of the SCAQMD on April 3, 2014, the 2013 HRA is to "reconcile the facility's Cr(VI) [hexavalent chromium] emissions and subsequent dispersion model results with the observed ambient Cr(VI) concentrations measured in 2013."

ENVIRON performed an hourly air dispersion model using 2013 John Wayne Airport meteorological data to reconcile with the daily Cr(VI) monitoring results. ENVIRON used AERMOD with X/Q emissions to model Cr(VI) emissions in the 2013 calendar year, as described in Section 6.The model included seven potential fugitive sources representing each of four buildings and the breezeways between buildings, as well as three point sources: the paint spray booths and the anodize line. Due to the uncertainty surrounding the origins of the Facility's Cr(VI) emissions, potential fugitive sources were set up to cover all areas of Facility operations. Source parameters for the point and potential fugitive area sources are in Tables A-1 and A-2.

The model set-up for the reconciliation analysis paralleled that discussed in Section 6 above with the following differences:

- Only 2013 John Wayne Airport meteorological data was used, to match the reconciliation period directed by SCAQMD. A wind rose for the 2013 reconciliation period is provided in Figure A-2;
- Only Cr(VI) sources were modeled, including the seven potential fugitive sources and three point sources;
- 1-hr average post files were generated, so that appropriate 24-hr averages could be calculated to match actual sample run times in 2013; and
- Only two receptors were included to represent the Millet and Apartments monitors, as discussed below.

The two modeled receptors included in the model represented the two monitors running in 2013, Apartments (UTM coordinates 413,390.1 m East and 3,721,595.3 m North) and Millet (UTM coordinates 413,428.2 m East and 3,721,666.3 m North). Locations of these monitors are shown in Figure A-1. Flagpole heights were used to represent the locations of the monitor air intakes (2.7 meters for the Millet monitor, and 4.0 meters for the Apartments monitor).

In 2013, the monitors collected continuous 24 hour samples of Cr(VI) on filters at a frequency of every three days for Millet and every six days for Apartments. There are a total of 119 days with valid Cr(VI) samples from the Millet monitor and 58 days with valid Cr(VI) samples from the Apartments monitor. The days do not overlap perfectly, so there are 122 days with monitoring data for at least one monitor. Both monitors have valid Cr(VI) data for 55 of these days. From January 1, 2013 through June 3, 2013, samples were collected from 6 am to 6 am the next day. Through the remainder of 2013, samples were collected from 12 am to 12 am (that is, midnight to midnight). To accurately compare model results with the 24-hr samples, 1-hr average dispersion factors were computed for every hour in 2013, and 24-hr averages were calculated to

match the 2013 sampling schedule described. When calculating 24-hr averages, AERMOD regulatory default methods were employed, including the treatment of calms and missing meteorological data. A summary of valid sampling data collected in 2013 is included in Table A-3. The sample taken at the Millet monitor on July 24, 2013 was flagged as "filter was damp"; however this sample was conservatively included in the reconciliation analysis.

Using the data for the 122 days of valid sampling data, of which 55 days have data at both monitors, a least squares optimization approach was used to determine the reconciled emission rates of each potential fugitive source (7 independent emission rates). The minimization was done using the Generalized Reduced Gradient (GRG) algorithm in the Solver package in Microsoft Excel, assuming default Solver settings with the exception of turning off the automatic scaling function. The automatic scaling function forces Solver to internally rescale the values of the variables, constraints, and objectives to similar magnitudes. However, there is no reason to believe that each potential fugitive source contributes in an equal manner to the monitor results, therefore this function was not used. Before running Solver, the calculated point source contribution at each monitor was subtracted from the monitoring results, therefore the remaining concentration was assumed to be entirely due to potential fugitive Cr(VI) emissions. Point source contributions were determined based on the appropriate dispersion factors and actual 2013 emission rates, as presented in the 2013 AER.[43] A summary of the monitor concentrations minus the modeled point source contributions is included in Table A-4. Modeled 24-hr average dispersion factors for each potential fugitive source on the valid sample days are included in Table A-5.

Select sample days during 2013 see monitored concentrations that are of a similar magnitude to background Cr(VI) concentrations, as reported in the draft Multiple Air Toxics Exposure Study IV (MATES IV) study (SCAQMD, 2014a). The MATES IV study measured ambient Cr(VI) at ten sites in the South Coast Air Basin from 2012 to 2013 and found background annual average Cr(VI) concentrations ranging from 0.03 ng/m^3 to 0.11 ng/m^3. The closest MATES IV monitors to the Facility are to the north, in Long Beach. In North Long Beach the sampled annual average Cr(VI) concentration was 0.04 ng/m^3 and in West Long Beach the sampled annual average Cr(VI) concentration was 0.03 ng/m^3. These coastal sites might reasonably be expected to represent the background Cr(VI) concentration in Newport Beach, and at the Facility. To account for background concentrations, in addition to subtracting the point source contributions, 0.03 ng/m^3 was subtracted from each monitor concentration. Subtracting a background concentration of 0.03 ng/m^3 is a conservative approach as the North Long Beach and West Long Beach monitors saw maximum background concentrations of 0.20 ng/m^3 and 0.14 ng/m^3, respectively, with standard deviations of 0.04 ng/m^3 and 0.03 ng/m^3, respectively.

For the sample days with valid samples at only one monitor, Solver was used to minimize the difference between the modeled concentration and the monitored concentration (minus point source and background contribution) at the given monitor. For sample days with valid samples at both monitors, Solver was used to minimize the difference between the modeled

[43] Any applicable corrections to the emissions submitted under the 2013 AER are discussed in Section 5.1.

concentrations and the monitored concentrations (minus point source and background contribution) at both monitors simultaneously. To avoid having the solution biased towards only one monitoring result, given how the concentrations at the Millet monitor were often much higher than the concentrations at the Apartments monitor, a normalized least squares approach was taken, where the difference between each modeled concentration and monitored concentration was normalized by the corresponding monitored concentration. Using this method, 122 individual sets of solutions were computed, for each of the valid sample days in 2013. Resulting emission rates for each day where then averaged to determine the reconciled 2013 potential fugitive Cr(VI) emission rates used in the 2013 HRA. Table A-6 presents the reconciled Cr(VI) emission rates for each of the seven potential fugitive sources modeled for each valid sample day, as well as the overall average emission rates applied in the 2013 HRA. To demonstrate the fit of the reconciled Cr(VI) emission rates to the monitored Cr(VI) concentrations, results of each daily reconciliation performed are plotted against the monitored concentration (minus point source and background contribution) in Figures A-3 and A-4 for the Millet and Apartments monitors, respectively. The Millet monitor sees a slightly better overall fit, with an R-squared value of 0.71, as compared to 0.58 at the Apartments monitor.

As indicated by SCAQMD, any permanent and enforceable changes made by Hixson since 2013 can be accounted for in the 2013 HRA. In May, 2014 Hixson submitted a permit application for the modification of the existing Tank 70 scrubber hood to include an enclosure around the work area, in an effort to capture and control potential fugitive Cr(VI) emissions from this process. A permit to construct was issued on May 29, 2014 and the enclosure was completed and operational on June 6, 2014. To account for this permanent and enforceable change, a reduction factor of 25% was applied to the Building 2 potential fugitive emission rate, as determined per the reconciliation above. The 25% reduction is based on ENVIRON's engineering judgment and should conservatively account for (i.e. underestimate) the actual reduction seen from this modification. The adjusted emission rate for Building 2 is also presented in Table A-6.

As discussed in Section 9, air dispersion models introduce a source of uncertainty in the estimation of exposure concentrations; therefore the resulting reconciled emissions are also subject to the uncertainty introduced through the model. Further, the results of the reconciliation analysis place a significant portion of the source contribution on and between Buildings 3 and 4. This may in part due to the proximity of these buildings to the monitors and the resulting wind patterns seen in the 2013 John Wayne Airport meteorological data, and may not accurately reflect the true location of potential fugitive Cr(VI) emissions at the Facility.

2 Current Operations, Potential Fugitive Cr(VI) Emissions Determination

To accurately reflect current Facility operations, a reconciliation was performed the 30-day period of August 2, 2014 to August 31, 2014 to determine current potential fugitive Cr(VI) emissions, for use in the Supplemental HRA. The model set-up for this reconciliation analysis parallels that discussed for the 2013 HRA above with the following differences:

- To account for the recent shutdown of roof fans on Building 3, the release height of fugitive Cr(VI) emissions from Building 3 was updated to ½ of the building height, consistent with what was done for the Supplemental HRA, discussed in Section 6. Area source modeling parameters used in this reconciliation are presented in Table A-7.
- Onsite meteorological data were used when available. The Facility's onsite station began operation on June 27, 2014. When onsite data were not available, meteorological data from the John Wayne Airport were substituted.[44] Similar to the five-year meteorological data set prepared for the 2013 HRA, upper-air meteorological data from San Diego Miramar (WBAN # 03190, KNKX) were used. Further, to match the procedures used by SCAQMD when processing data for the SCAQMD Costa Mesa meteorological station, solar radiation data from the CIMIS Long Beach station were used. A summary of stations used for each primary meteorological data parameter is shown in Table A-8.
- AERSURFACE input parameters and final surface characteristics for the Facility onsite station are presented in Table A-9. Final profile and surface files used in AERMOD are provided in Appendix B. A wind rose for the 30-day period is provided in Figure A-5.

To present an accurate comparison to the 2013 HRA, the two modeled receptors included in the August, 2014 reconciliation model represent the two monitors running in both 2013 and 2014, Apartments and Millet. Similar to 2013, flagpole heights were used to represent the locations of the monitor air intakes (2.7 meters for the Millet monitor, and 4.0 meters for the Apartments monitor).

During this period, the monitors collected continuous 24-hr samples of Cr(VI) on filters at a daily frequency. All 30 days in the reconciled period had valid Cr(VI) samples from both the Millet and Apartments monitors. Once daily sampling began on April 17, 2014, samples were collected from 8 am to 8 am. To accurately compare model results with the 24-hr samples, 1-hr average dispersion factors were computed for every hour from August 2, 2014 to September 1, 2014, and 24-hr averages were calculated to match the daily sampling schedule described. The sample on August 9, 2014 was flagged as "*Shorter "Sample Elapsed Time" (varying)". Per District communication[45], this flag was added because the technician was late getting to the site, therefore the samples only ran for 1199 minutes. Therefore, instead of calculating a typical

[44] Onsite meteorological data were unavailable from August 20, 2014 after 3 pm through September 6, 2014 until 6 pm.

[45] Email from Rudy Eden on October 16, 2014.

24-hr average for the August 9, 2014 sample, a 20-hr average was calculated starting at 12 pm instead of 8 am. When calculating 24-hr averages, AERMOD regulatory default methods were employed, including the treatment of calms and missing meteorological data. A summary of valid sampling data collected during this 30-day period is included in Table A-10.

Using the 30 days of valid sampling data, of which all days have data at both monitors, a least squares optimization approach was used to determine the reconciled emission rates of each potential fugitive source (7 independent emission rates). The minimization was done using the Generalized Reduced Gradient (GRG) algorithm in the Solver package in Microsoft Excel, assuming default Solver settings with the exception of turning off the automatic scaling function. The automatic scaling function forces Solver to internally rescale the values of the variables, constraints, and objectives to similar magnitudes. However, there is no reason to believe that each potential fugitive source contributes in an equal manner to the monitor results; therefore, this function was not used. Before running Solver, the calculated point source contribution at each monitor was subtracted from the monitoring results. Point source contributions were determined based on the appropriate dispersion factors and August, 2014 emission rates. Point source Cr(VI) emissions were estimated using the same methods as presented in the 2013 AER, with the following update:

- To account for the installation of the ULPA filtration system on both spray booths, a 99.999% control efficiency was applied to Cr(VI) emissions[46] instead of the 99.997% control efficiency of the prior filters used in 2013.

Point source emission rates used in this reconciliation are summarized in Table A-11.

Due to the significant reductions seen in Cr(VI) monitored concentrations, several sample days within this 30-day period see results that are at the same magnitude or lower than background Cr(VI) concentrations, as reported in the draft SCAQMD MATES IV study. The MATES IV study measured ambient Cr(VI) at ten sites in the South Coast Air Basin from 2012 to 2013 and found background annual average Cr(VI) concentrations ranging from 0.03 ng/m^3 to 0.11 ng/m^3. The closest MATES IV monitors to the Facility are to the north, in Long Beach. In North Long Beach the sampled annual average Cr(VI) concentration was 0.04 ng/m^3 and in West Long Beach the sampled annual average Cr(VI) concentration was 0.03 ng/m^3. These coastal sites might reasonably be expected to represent the background Cr(VI) concentration in Newport Beach, and at the Facility. To account for background concentrations, in addition to subtracting the point source contributions, 0.03 ng/m^3 was subtracted from each monitor concentration. If this resulted in a negative concentration, the concentration was then set to zero before running Solver. Subtracting a background concentration of 0.03 ng/m^3 is a conservative approach as the North Long Beach and West Long Beach monitors saw maximum background concentrations of 0.20 ng/m^3 and 0.14 ng/m^3, respectively, with standard deviations of 0.04 ng/m^3 and 0.03 ng/m^3, respectively.

[46] The upgraded filter control efficiency was still applied after the 65% spray gun transfer efficiency.

A summary of the monitor concentrations minus the modeled point source and background contributions is included in Table A-12. Modeled 24-hr average dispersion factors for each point and potential fugitive source on the valid sample days are included in Table A-13.

Since all 30 sample days have valid samples at both monitors, Solver was used to minimize the difference between the modeled concentrations and the monitored concentrations (minus point source and background contributions) at both monitors simultaneously. The normalized least squares approach used in the 2013 reconciliation resulted in a solution significantly biased towards the Millet monitor when run for this 30 day period. Therefore, a regular least squares approach was taken here, allowing for results that are more balanced between the two monitors.[47] Using this method, 30 individual sets of solutions were computed, for each day in the August 2, 2014 to August 31, 2014 period. Resulting emission rates for each day were then averaged to determine the current reconciled potential fugitive Cr(VI) emission rates used in the Supplemental HRA. Table A-14 presents the reconciled Cr(VI) emission rates for each of the seven potential fugitive sources modeled for each valid sample day, as well as the overall average emission rates applied in the Supplemental HRA. To demonstrate the fit of the reconciled Cr(VI) emission rates to the monitored Cr(VI) concentrations, results of each daily reconciliation performed are plotted against the monitored concentration (minus point source and background contributions) in Figures A-6 and A-7 for the Millet and Apartments monitors, respectively. The Apartment monitor sees a slightly better all fit, with an R-squared value of 0.65, as compared to 0.49 at the Millet monitor.

As discussed in Section 9, air dispersion models introduce a source of uncertainty in the estimation of exposure concentrations; therefore the resulting reconciled emissions are also subject to the uncertainty introduced through the model. Further, the results of the reconciliation analysis place a significant portion of the source contribution on and around Building 3. This is in part due to the proximity of this building to the monitors and the resulting wind patterns seen in this 30-day period both onsite and at the John Wayne Airport, and may not accurately reflect the true location of potential fugitive Cr(VI) emissions at the Facility.

[47] The difference in correlation results between the two methods seen here, as compared to 2013, are likely due to the lower absolute difference between the Millet and Apartment monitor, the higher correlation between the two monitors, and the all lower value of the monitored concentrations during this 30 day period as compared to the sample days in 2013.

Appendix A Tables

Table A-1
Reconciliation, Point Source Modeling Parameters
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	UTM East (m)	UTM North (m)	Base Elevation (m)	Modeled Emission Rate (g/s)	Stack Height (m)	Stack Diameter (m)	Stack Temperature (K)	Exhaust Flow Rate (acfm)	Exhaust Velocity (m/s)
PS1	SB #1	413,411.30	3,721,600.93	33.02	1	6.8	0.61	304.8	10,649	18.5
PS2	SB #2	413,371.50	3,721,612.79	32.83	1	6.8	0.76	300.5	11,374	12.4
PS3	Scrubber (Anodize Line, Tank 70)	413,465.76	3,721,610.29	32.74	1	7.6	0.46	304.8	3,564	10.8

Abbreviations:
acfm = actual cubic feet per minute
K = Kelvin
m = meter
m/s = meters per second
SB = Spray Booth
UTM = Universal Transverse Mercator

Table A-2
2013 Reconciliation, Area Source Modeling Parameters
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	UTM East (m)[1]	UTM North (m)[1]	Base Elevation (m)	Area (m^2)	Modeled Emission Rate[2] (g/ ($s-m^2$))	Release Height[3] (m)	Initial Vertical Dimension[4] (m)
FS1	Building 4	413,382.1	3,721,628.0	32.77	969.2	0.00103	2.3	2.13
FS2	Building 3	413,396.5	3,721,627.4	32.67	969.2	0.00103	4.6	2.13
FS3	Building 2	413,442.0	3,721,628.0	32.52	998.9	0.00100	4.6	2.13
FS4	Building 1	413,487.0	3,721,604.8	32.59	458.0	0.00218	2.8	2.62
FS5	Between Buildings 3 and 4	413,382.1	3,721,596.7	32.67	457.5	0.00219	0	-
FS6	Between Buildings 2 and 3	413,427.4	3,721,628.0	32.63	463.5	0.00216	0	-
FS7	Between Buildings 1 and 2	413,472.9	3,721,633.3	32.51	515.5	0.00194	0	-

Notes:

1. Represents the coordinates of the first vertex as it appears in the modeling files.
2. Modeled emission rates were derived using unit emission rates of 1 g/s and corresponding areas.
3. Due to the strong pull from the roof vents/fans on Buildings 2 and 3, the release heights of these fugitive sources have been set to the building height. The release height for Buildings 1 and 4 have been set to 1/2 of the building height.
4. The initial vertical dimension for Building sources represents the building height divided by 2.15, per model guidance.

Abbreviations:

K = Kelvin
m = meter
g/ ($s-m^2$) = grams per second per meter squared
UTM = Universal Transverse Mercator

Table A-3
2013 Valid Sampling Data at Offsite Monitors
Hixson Metal Finishing
Newport Beach, CA

Date	Cr(VI) Concentration[1] (ng/m^3)	
	Millet	Apartments
1/1/2013	2.71	NRD
1/4/2013	1.50	INV
1/7/2013	2.35	NRD
1/10/2013	0.06	2.53
1/13/2013	1.76	NRD
1/16/2013	6.66	6.70
1/19/2013	1.17	NRD
1/22/2013	2.46	8.16
1/25/2013	0.57	NRD
1/28/2013	0.57	3.12
1/31/2013	1.98	NRD
2/3/2013	2.50	8.42
2/6/2013	0.37	NRD
2/9/2013	0.79	8.44
2/12/2013	0.57	NRD
2/15/2013	8.00	INV
2/18/2013	5.26	NRD
2/21/2013	4.21	INV
2/24/2013	10.16	2.03
2/27/2013	1.97	3.50
3/2/2013	0.28	NRD
3/5/2013	1.55	0.93
3/8/2013	0.97	NRD
3/11/2013	2.18	0.52
3/14/2013	3.20	NRD
3/17/2013	5.30	0.14
3/20/2013	5.11	NRD
3/23/2013	2.58	0.67
3/26/2013	3.16	NRD
3/29/2013	1.19	3.40
4/1/2013	0.27	NRD
4/4/2013	INV	4.65
4/7/2013	7.10	NRD
4/10/2013	0.96	2.26
4/13/2013	2.39	NRD
4/16/2013	0.17	0.60
4/19/2013	0.99	NRD
4/22/2013	7.53	0.09
4/25/2013	0.42	NRD
4/28/2013	5.91	0.16
5/1/2013	2.64	NRD
5/5/2013	4.25	0.09
5/7/2013	0.89	NRD
5/10/2013	0.36	0.62
5/13/2013	0.25	NRD
5/16/2013	1.88	1.33
5/19/2013	1.97	NRD
5/22/2013	3.93	0.20

Date	Cr(VI) Concentration[1] (ng/m^3)	
	Millet	Apartments
5/25/2013	0.21	NRD
5/28/2013	3.38	0.31
5/31/2013	0.43	NRD
6/3/2013	9.50	1.49
6/6/2013	0.59	NRD
6/9/2013	0.08	0.22
6/12/2013	1.69	NRD
6/15/2013	0.15	0.20
6/18/2013	3.30	NRD
6/21/2013	10.62	4.53
6/24/2013	0.15	NRD
6/27/2013	23.50	0.84
6/30/2013	4.56	NRD
7/3/2013	0.49	1.35
7/6/2013	0.23	NRD
7/9/2013	1.33	0.79
7/12/2013	1.47	NRD
7/15/2013	1.66	0.88
7/18/2013	0.37	NRD
7/21/2013	0.70	0.06
7/24/2013	17.94	NRD
7/27/2013	0.57	0.52
7/30/2013	0.42	NRD
8/2/2013	2.64	0.39
8/5/2013	0.35	NRD
8/8/2013	1.36	0.44
8/11/2013	0.13	NRD
8/14/2013	8.41	6.17
8/17/2013	0.04	NRD
8/20/2013	0.15	0.57
8/23/2013	0.98	NRD
8/26/2013	INV	2.13
8/29/2013	0.27	NRD
9/1/2013	0.26	1.12
9/4/2013	2.66	NRD
9/7/2013	0.24	1.15
9/10/2013	0.62	NRD
9/13/2013	5.93	1.73
9/16/2013	0.85	NRD
9/19/2013	4.29	0.60
9/22/2013	0.53	NRD
9/25/2013	6.54	0.35
9/28/2013	0.26	NRD
10/1/2013	11.69	0.89
10/4/2013	1.91	NRD
10/7/2013	5.06	4.93
10/10/2013	0.66	NRD
10/13/2013	0.57	6.50
10/16/2013	5.34	NRD
10/19/2013	0.06	0.48
10/22/2013	0.07	NRD
10/25/2013	0.15	2.44
10/28/2013	0.66	NRD

Date	Cr(VI) Concentration[1] (ng/m^3)	
	Millet	Apartments
10/31/2013	3.04	1.67
11/3/2013	8.19	NRD
11/6/2013	0.20	4.91
11/9/2013	1.01	NRD
11/12/2013	0.59	3.17
11/15/2013	16.21	NRD
11/18/2013	0.26	NS
11/21/2013	1.68	4.51
11/24/2013	0.24	1.19
11/27/2013	5.23	NRD
11/30/2013	INV	4.17
12/3/2013	15.17	NRD
12/6/2013	5.81	2.92
12/9/2013	0.37	NRD
12/12/2013	3.03	2.60
12/15/2013	0.99	NRD
12/18/2013	9.81	3.92
12/21/2013	6.26	NRD
12/24/2013	32.80	5.51
12/27/2013	17.82	NRD
12/30/2013	23.35	NS

Notes:

1. From January 1, 2013 through June 3, 2013, samples were collected for a 24-hour period from 6 am to 6 am the next day. Through the remainder of 2013, samples were collected for a 24-hour period from 12 am to 12 am (that is, midnight to midnight).

Abbreviations:

Cr(VI) = hexavalent chromium
INV = Invalid sample
ng/m^3 = nanograms per cubic meter
NRD = Non-run Day
NS = No Sample

Table A-4
Monitor Minus Point Source and Background Concentrations for 2013 Valid Sample Days
Hixson Metal Finishing
Newport Beach, CA

Date	Monitor Cr(VI) Concentrations Minus Point Source and Background Contribution[1] (µg/m^3)	
	Millet	Apartments
1/1/2013	0.0027	-
1/4/2013	0.0015	-
1/7/2013	0.0023	-
1/10/2013	2.5E-05	0.0025
1/13/2013	0.0017	-
1/16/2013	0.0066	0.0067
1/19/2013	0.0011	-
1/22/2013	0.0024	0.0081
1/25/2013	5.4E-04	-
1/28/2013	5.4E-04	0.0031
1/31/2013	0.0019	-
2/3/2013	0.0025	0.0084
2/6/2013	3.4E-04	-
2/9/2013	7.6E-04	0.0084
2/12/2013	5.4E-04	-
2/15/2013	0.0080	-
2/18/2013	0.0052	-
2/21/2013	0.0042	-
2/24/2013	0.010	0.0020
2/27/2013	0.0019	0.0035
3/2/2013	2.5E-04	-
3/5/2013	0.0015	9.0E-04
3/8/2013	9.4E-04	-
3/11/2013	0.0022	4.9E-04
3/14/2013	0.0032	-
3/17/2013	0.0053	1.1E-04
3/20/2013	0.0051	-
3/23/2013	0.0026	6.4E-04
3/26/2013	0.0031	-
3/29/2013	0.0012	0.0034
4/1/2013	2.4E-04	-
4/4/2013	-	0.0046
4/7/2013	0.0071	-
4/10/2013	9.3E-04	0.0022
4/13/2013	0.0024	-
4/16/2013	1.4E-04	5.7E-04
4/19/2013	0.0010	-
4/22/2013	0.0075	6.0E-05
4/25/2013	3.9E-04	-
4/28/2013	0.0059	1.3E-04
5/1/2013	0.0026	-
5/5/2013	0.0042	6.1E-05
5/7/2013	8.5E-04	-
5/10/2013	3.3E-04	5.9E-04
5/13/2013	2.1E-04	-
5/16/2013	0.0018	0.0013

Date	Monitor Cr(VI) Concentrations Minus Point Source and Background Contribution[1] (µg/m^3)	
	Millet	Apartments
5/19/2013	0.0019	-
5/22/2013	0.0039	1.7E-04
5/25/2013	1.8E-04	-
5/28/2013	0.0034	2.8E-04
5/31/2013	4.0E-04	-
6/3/2013	0.0095	0.0015
6/6/2013	5.6E-04	-
6/9/2013	5.3E-05	1.9E-04
6/12/2013	0.0017	-
6/15/2013	1.2E-04	1.7E-04
6/18/2013	0.0033	-
6/21/2013	0.011	0.0045
6/24/2013	1.1E-04	-
6/27/2013	0.023	8.1E-04
6/30/2013	0.0045	-
7/3/2013	4.6E-04	0.0013
7/6/2013	2.0E-04	-
7/9/2013	0.0013	7.6E-04
7/12/2013	0.0014	-
7/15/2013	0.0016	8.5E-04
7/18/2013	3.4E-04	-
7/21/2013	6.7E-04	3.4E-05
7/24/2013	0.018	-
7/27/2013	5.4E-04	4.9E-04
7/30/2013	3.8E-04	-
8/2/2013	0.0026	3.6E-04
8/5/2013	3.2E-04	-
8/8/2013	0.0013	4.1E-04
8/11/2013	1.0E-04	-
8/14/2013	0.0084	0.0061
8/17/2013	1.5E-05	-
8/20/2013	1.2E-04	5.4E-04
8/23/2013	9.5E-04	-
8/26/2013	-	0.0021
8/29/2013	2.4E-04	-
9/1/2013	2.3E-04	0.0011
9/4/2013	0.0026	-
9/7/2013	2.1E-04	0.0011
9/10/2013	5.9E-04	-
9/13/2013	0.0059	0.0017
9/16/2013	8.2E-04	-
9/19/2013	0.0043	5.7E-04
9/22/2013	5.0E-04	-
9/25/2013	0.0065	3.2E-04
9/28/2013	2.3E-04	-
10/1/2013	0.012	8.6E-04
10/4/2013	0.0019	-
10/7/2013	0.0050	0.0049
10/10/2013	6.3E-04	-
10/13/2013	5.4E-04	0.0065
10/16/2013	0.0053	-

Date	Monitor Cr(VI) Concentrations Minus Point Source and Background Contribution[1] (µg/m^3)	
	Millet	Apartments
10/19/2013	2.6E-05	4.5E-04
10/22/2013	3.6E-05	-
10/25/2013	1.2E-04	0.0024
10/28/2013	6.3E-04	-
10/31/2013	0.0030	0.0016
11/3/2013	0.0082	-
11/6/2013	1.7E-04	0.0049
11/9/2013	0.0010	-
11/12/2013	5.6E-04	0.0031
11/15/2013	0.016	-
11/18/2013	2.3E-04	-
11/21/2013	0.0017	0.0045
11/24/2013	2.1E-04	0.0012
11/27/2013	0.0052	-
11/30/2013	-	0.0041
12/3/2013	0.015	-
12/6/2013	0.0058	0.0029
12/9/2013	3.4E-04	-
12/12/2013	0.0030	0.0026
12/15/2013	0.0010	-
12/18/2013	0.010	0.0039
12/21/2013	0.0062	-
12/24/2013	0.033	0.0055
12/27/2013	0.018	-
12/30/2013	0.023	-

Notes:

1. A background concentration of 0.03 ng/m^3 was subtracted from the monitor concentrations. This concentration represents the annual average found at the West Long Beach monitor in the draft Multiple Air Toxics Exposure Study IV (MATES IV), and is the low end of the average annual concentrations found throughout the South Coast Air Basin.

Abbreviations:

Cr(VI) = hexavalent chromium

µg/m^3 = micrograms per cubic meter

References:

South Coast Air Quality Management District (SCAQMD). 2014. MATES IV Multiple Air Toxics Exposure Study. October 3. Available online at: http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv.

Table A-5
24-hr Dispersion Factors for each Point and Potential Fugitive Source for 2013 Valid Sample Days
Hixson Metal Finishing
Newport Beach, CA

Monitor	Date	24-hr Dispersion Factors (µg/m^3 per g/s)									
		PS1	PS2	PS3	FS1	FS2	FS3	FS4	FS5	FS6	FS7
Millet	1/1/2013	7.3	25	6.4	264	125	58	61	163	157	23
	1/4/2013	4.8	23	8.6	218	132	43	0.034	93	264	0
	1/7/2013	1.5	8.0	3.0	87	158	35	88	188	9.1	87
	1/10/2013	1.1	21	1.1	72	19	0	0	74	0	0
	1/13/2013	2.4	0	0	99	11	17	73	51	0.52	37
	1/16/2013	12	67	3.7	379	162	89	22	300	245	55
	1/19/2013	5.0	0	0	528	430	5.0	3.1	869	15	0
	1/22/2013	5.6	38	8.4	293	417	42	89	595	37	87
	1/25/2013	7.3	29	7.1	296	361	61	26	413	264	12
	1/28/2013	2.1	12	2.1	184	197	3.0	0	456	17	0
	1/31/2013	8.0	51	7.9	707	325	5.3	10	887	14	4.6
	2/3/2013	10	0	0	294	521	186	41	654	472	100
	2/6/2013	8.4	52	21	279	93	99	92	158	43	166
	2/9/2013	10	0	0	177	89	117	236	226	21	276
	2/12/2013	10	35	6.6	82	31	0.43	5.6	73	6.2	0
	2/15/2013	4.1	31	21	351	282	74	71	536	37	107
	2/18/2013	19	28	3.2	53	240	188	171	157	459	196
	2/21/2013	7.8	39	5.4	105	122	26	67	234	31	44
	2/24/2013	0.27	0	0	0.036	63	108	74	0.0094	263	145
	2/27/2013	15	58	4.4	316	159	68	21	273	225	1.1
	3/2/2013	3.5	0	0	479	482	125	5.5	970	355	9.4
	3/5/2013	11	90	4.8	452	223	22	27	425	40	28
	3/8/2013	12	104	30	377	143	83	53	403	61	97
	3/11/2013	26	107	6.4	388	492	35	2.6	822	189	0.27
	3/14/2013	17	102	2.4	313	315	40	0.064	406	260	0.017
	3/17/2013	15	0	0	88	339	268	100	210	704	174
	3/20/2013	15	71	6.9	218	443	204	161	377	457	191
	3/23/2013	8.7	0	0	146	354	159	61	298	590	83
	3/26/2013	21	79	13	304	438	248	116	670	511	139
	3/29/2013	15	87	3.3	227	248	26	64	438	66	52
	4/1/2013	6.4	59	2.9	348	380	121	1.4	593	497	0.85
	4/7/2013	7.8	0	0	73	318	313	242	219	473	378
	4/10/2013	3.2	37	4.3	192	320	86	71	372	355	42
	4/13/2013	14	0	0	59	312	289	146	200	493	292
	4/16/2013	14	63	11	112	98	86	122	175	93	102
	4/19/2013	9.1	66	4.8	267	246	28	0.87	409	188	0.019
	4/22/2013	27	34	9.0	57	289	333	192	171	506	375
	4/25/2013	15	37	3.5	138	119	5.1	2.6	151	43	0.41
	4/28/2013	15	0	0	217	369	177	105	559	249	172
	5/1/2013	28	128	1.8	422	465	43	0.0025	660	298	0
	5/5/2013	11	0	0	8.1	197	300	223	37	494	420
	5/7/2013	10	79	7.6	305	616	208	92	518	540	61
	5/10/2013	17	121	3.2	496	625	28	11	695	164	4.3
	5/13/2013	29	96	6.0	242	478	38	1.0	568	273	0.91
	5/16/2013	22	69	23	215	332	162	55	420	433	85
	5/19/2013	16	0	0	227	389	108	67	576	89	124
	5/22/2013	26	68	33	145	357	260	26	309	795	59
	5/25/2013	14	0	0	202	120	176	290	228	116	346

Monitor	Date	24-hr Dispersion Factors (μg/m^3 per g/s)									
		PS1	PS2	PS3	FS1	FS2	FS3	FS4	FS5	FS6	FS7
Millet	5/28/2013	26	63	13	112	306	182	239	297	293	255
	5/31/2013	16	86	4.0	285	319	141	106	489	326	148
	6/3/2013	21	43	24	64	235	320	235	186	414	407
	6/6/2013	9.0	103	2.0	380	149	0.048	0	376	5.6	0
	6/9/2013	10	0	0	185	698	236	30	557	856	52
	6/12/2013	19	68	16	135	187	247	130	218	421	243
	6/15/2013	7.2	0.092	0	225	71	114	144	159	45	171
	6/18/2013	33	68	8.8	215	430	53	83	564	202	25
	6/21/2013	23	69	12	241	434	163	150	594	356	207
	6/24/2013	17	57	16	320	379	169	83	411	415	182
	6/27/2013	49	117	5.8	341	483	178	29	767	345	62
	6/30/2013	18	0	0	545	328	1.8	0	690	36	2.8E-04
	7/3/2013	33	154	3.5	423	392	53	29	815	69	66
	7/6/2013	19	8.1	0	311	556	203	78	736	505	158
	7/9/2013	31	155	3.3	491	563	106	0.84	1,069	477	0.42
	7/12/2013	36	147	4.1	417	491	14	0	936	103	0
	7/15/2013	16	98	7.5	279	226	254	162	285	272	306
	7/18/2013	28	178	3.2	788	395	0.63	0	1,093	7.3	0
	7/21/2013	18	0	0	491	518	142	5.0	865	403	7.5
	7/24/2013	4.6	92	3.6	347	62	0	0	218	0.043	0
	7/27/2013	12	35	0	603	250	0.20	0	713	2.8	0
	7/30/2013	15	108	4.9	459	462	20	1.1	632	80	0.55
	8/2/2013	17	88	6.7	241	376	233	87	489	414	191
	8/5/2013	11	107	4.3	272	174	111	36	364	188	28
	8/8/2013	15	153	4.0	706	232	3.1	0	648	20	0
	8/11/2013	18	0	0	349	489	172	49	576	368	111
	8/14/2013	21	71	8.0	198	618	250	95	598	440	197
	8/17/2013	6.6	11	0	410	250	2.7	0	555	29	0
	8/20/2013	8.6	85	4.4	306	88	0.044	0	290	0.19	0
	8/23/2013	22	154	6.3	562	514	11	0	948	65	0
	8/29/2013	34	144	2.5	440	500	3.0	0	991	38	0.016
	9/1/2013	7.9	0	0	497	312	17	0	475	72	6.8E-04
	9/4/2013	31	154	6.9	565	328	0.80	0	832	12	0
	9/7/2013	9.2	42	0	527	607	6.0	0	1,296	66	4.0E-04
	9/10/2013	36	139	2.6	512	443	19	0	893	146	0
	9/13/2013	27	135	3.6	493	714	69	0.10	1,087	413	0.017
	9/16/2013	15	71	6.8	398	591	46	49	740	125	21
	9/19/2013	22	63	7.5	172	398	198	162	493	427	256
	9/22/2013	9.5	0	0	259	447	261	16	413	1,099	29
	9/25/2013	20	26	24	106	235	182	122	257	314	162
	9/28/2013	4.4	0.010	0	220	412	15	0.72	447	64	0
	10/1/2013	30	53	26	78	170	271	100	165	360	171
	10/4/2013	3.6	33	15	62	119	106	74	119	123	42
	10/7/2013	15	94	6.1	243	478	219	27	474	497	31
	10/10/2013	12	44	6.1	126	74	13	57	113	22	34
	10/13/2013	8.0	0	0	224	271	234	363	387	166	411
	10/16/2013	10	70	5.2	486	381	46	77	730	198	8.6
	10/19/2013	11	0.25	0	518	571	118	32	881	200	8.4
	10/22/2013	4.8	38	6.0	189	138	7.4	0.093	91	33	0
	10/25/2013	1.6	23	3.8	188	20	0	0	54	0	0
	10/28/2013	12	80	1.2	473	139	0.25	5.0	377	1.7	0.0037
	10/31/2013	11	77	6.0	544	375	17	7.8	674	44	6.6
	11/3/2013	12	0	0	135	241	218	170	356	219	275

Monitor	Date	24-hr Dispersion Factors (µg/m^3 per g/s)									
		PS1	PS2	PS3	FS1	FS2	FS3	FS4	FS5	FS6	FS7
Millet	11/6/2013	13	82	2.8	267	405	8.2	0	590	31	0
	11/9/2013	9.3	0.012	0	229	323	137	152	378	20	278
	11/12/2013	6.2	27	13	268	164	137	133	298	22	260
	11/15/2013	7.3	4.4	81	37	372	423	185	131	1,064	295
	11/18/2013	0.28	9.1	1.1	64	2.0	0	0	14	0	0
	11/21/2013	9.2	70	1.4	261	92	12	83	315	0.23	32
	11/24/2013	4.4	0	0	116	36	29	93	128	0.19	68
	11/27/2013	12	47	5.0	282	293	301	143	326	393	227
	12/3/2013	15	15	33	77	203	69	34	164	222	57
	12/6/2013	12	14	29	24	126	173	294	77	190	320
	12/9/2013	2.1	0.60	1.1	13	22	6.8	0.76	2.5	38	0.039
	12/12/2013	18	55	3.7	194	396	163	50	575	539	31
	12/15/2013	6.7	0	0	568	416	68	1.6	784	281	0.20
	12/18/2013	11	58	5.0	298	212	60	60	233	259	37
	12/21/2013	6.0	0.0012	0	79	241	164	172	220	251	151
	12/24/2013	21	69	6.2	387	533	153	2.9	608	598	1.8
	12/27/2013	12	30	5.9	294	371	131	148	316	417	151
	12/30/2013	6.6	58	6.4	344	177	18	106	483	2.9	25
Apartments	1/10/2013	0.053	161	1.3	909	82	0.10	0	293	0.0034	0
	1/16/2013	3.4	54	5.6	1,050	255	25	10	177	72	14
	1/22/2013	5.0	10	8.9	511	953	113	69	1,638	239	116
	1/28/2013	0.16	49	2.2	829	857	77	30	2,007	197	26
	2/3/2013	5.0	0	0	283	527	40	10	1,206	101	3.0
	2/9/2013	2.5	0	0	31	841	211	121	788	345	164
	2/24/2013	30	0	0	1,067	773	146	70	884	433	79
	2/27/2013	3.5	5.9	3.8	514	732	143	78	1,424	283	101
	3/5/2013	21	10	8.7	381	100	52	33	0.80	95	53
	3/11/2013	4.7	5.7	6.1	305	636	106	61	730	267	94
	3/17/2013	22	0	0	3.0	96	48	31	5.6E-05	88	50
	3/23/2013	1.6	0	0	28	971	215	102	538	492	119
	3/29/2013	1.7	41	3.0	496	184	24	5.8	323	40	1.1
	4/4/2013	0.54	13	2.7	321	0	0	0	20	0	0
	4/10/2013	2.8	50	7.6	421	580	126	74	457	282	126
	4/16/2013	15	8.4	2.4	246	909	234	128	605	501	180
	4/22/2013	1.4	1.2	6.3	0.011	66	19	7.6	2.0	39	12
	4/28/2013	2.7	0	0	0.12	76	23	10	1.8	50	15
	5/5/2013	0.024	0	0	0	22	14	7.4	0	10	5.3
	5/10/2013	6.5	0.55	5.0	70	61	7.7	3.1	465	13	3.0
	5/16/2013	8.3	0.66	7.3	52	26	14	6.9	3.0E-04	26	9.2
	5/22/2013	0.11	0.31	1.6	0.32	0	0	0	0	0	0
	5/28/2013	14	0.47	1.9	8.7	297	130	80	214	197	113
	6/3/2013	0.11	0.27	1.5	0	14	6.8	1.4	0	2.3	0.44
	6/9/2013	0.32	0	0	0.034	0.16	0.059	0.0039	0	0.072	0
	6/15/2013	37	0.0053	0	125	251	111	63	9.2	192	89
	6/21/2013	1.6	2.6	3.4	16	21	8.4	1.3	0.0051	2.8	0.15
	6/27/2013	2.1	3.6	4.0	6.1	0	0	0	0.0055	0	0
	7/3/2013	4.5	5.3	3.1	68	153	26	8.9	233	64	3.5
	7/9/2013	1.3	1.6	3.0	19	0	0	0	0.057	0	0
	7/15/2013	2.6	2.5	4.4	81	16	8.4	2.5	0.20	2.4	0.57
	7/21/2013	0.49	0	0	98	0	0	0	0.77	0	0
	7/27/2013	2.2	0.083	0	141	0	0	0	2.8	0	0
	8/2/2013	0.31	21	2.6	203	0.43	0.11	0.0034	42	3.4E-05	0
	8/8/2013	1.2	1.9	3.5	180	0	0	0	0.63	0	0

Monitor	Date	24-hr Dispersion Factors (µg/m^3 per g/s)									
		PS1	PS2	PS3	FS1	FS2	FS3	FS4	FS5	FS6	FS7
Apartments	8/14/2013	2.5	3.8	4.4	5.9	7.4	2.6	0.67	0.0016	3.1	0.62
	8/20/2013	1.1	66	3.9	898	22	0	0	596	0	0
	8/26/2013	2.1	4.7	6.0	733	0	0	0	93	0	0
	9/1/2013	2.6	0	0	226	0	0	0	0.86	0	0
	9/7/2013	2.4	0.15	0	63	0	0	0	0.53	0	0
	9/13/2013	0.82	1.0	3.4	37	0	0	0	0.065	0	0
	9/19/2013	0.87	1.4	3.4	21	596	159	75	444	343	73
	9/25/2013	45	0.34	1.5	3.4	610	173	96	35	353	130
	10/1/2013	23	3.8	5.3	25	570	177	95	467	330	99
	10/7/2013	2.6	1.2	6.3	262	696	146	81	374	348	126
	10/13/2013	0.13	0	0	100	172	94	48	1.2	101	57
	10/19/2013	3.4	0.0082	0	200	223	35	15	1,066	25	9.1
	10/25/2013	0.50	113	3.6	1,079	89	0	0	958	0.0086	0
	10/31/2013	3.4	5.4	6.7	573	337	22	7.8	430	57	11
	11/6/2013	0.39	0.42	4.1	435	1,029	75	32	1,542	184	33
	11/12/2013	13	45	14	1,106	561	31	11	1,492	68	18
	11/21/2013	47	4.2	17	254	258	133	86	0.21	227	112
	11/24/2013	3.6	0	0	485	1,202	55	12	2,332	86	11
	11/30/2013	16	14	0	434	1,133	259	130	937	636	172
	12/6/2013	45	0.17	2.3	2.1	795	215	112	113	409	132
	12/12/2013	18	3.5	3.7	254	1,000	282	163	298	605	220
	12/18/2013	24	24	12	362	312	97	53	216	232	67
	12/24/2013	5.2	7.1	5.5	571	732	218	136	747	541	203

Abbreviations:

g/s = gram per second

µg/m^3 = micrograms per cubic meter

Table A-6
2013 Reconciled Cr(VI) Fugitive Source Emission Rates
Hixson Metal Finishing
Newport Beach, CA

Date	2013 Estimated Emission Rates by Potential Fugitive Source (g/s)						
	FS1	FS2	FS3	FS4	FS5	FS6	FS7
1/1/2013	4.9E-06	2.4E-06	1.1E-06	1.2E-06	3.1E-06	2.9E-06	4.4E-07
1/4/2013	2.2E-06	1.4E-06	4.7E-07	3.8E-10	9.9E-07	2.6E-06	0
1/7/2013	2.4E-06	4.3E-06	9.7E-07	2.4E-06	5.1E-06	2.6E-07	2.4E-06
1/10/2013	0.0E+00	1.4E-06	1.1E-10	0	0.0E+00	3.8E-12	0
1/13/2013	8.7E-06	1.0E-06	1.5E-06	6.4E-06	4.6E-06	4.7E-08	3.3E-06
1/16/2013	3.2E-06	4.4E-06	5.6E-07	1.6E-07	9.1E-06	7.8E-06	3.4E-07
1/19/2013	5.6E-07	4.8E-07	6.9E-09	4.2E-09	7.4E-07	2.1E-08	0
1/22/2013	1.2E-06	1.8E-06	2.1E-07	3.0E-07	2.6E-06	2.9E-07	3.3E-07
1/25/2013	3.7E-07	4.2E-07	1.0E-07	4.5E-08	4.4E-07	3.5E-07	2.1E-08
1/28/2013	5.0E-07	5.2E-07	8.0E-07	4.1E-07	8.9E-07	9.6E-07	3.6E-07
1/31/2013	1.0E-06	5.2E-07	9.2E-09	1.7E-08	1.2E-06	2.5E-08	8.1E-09
2/3/2013	8.4E-07	1.3E-06	4.4E-07	1.0E-07	2.0E-06	9.2E-07	2.3E-07
2/6/2013	5.0E-07	2.4E-07	2.6E-07	2.4E-07	3.7E-07	1.2E-07	3.8E-07
2/9/2013	5.9E-07	0	4.7E-07	7.8E-07	0	1.4E-05	8.9E-07
2/12/2013	3.3E-06	1.3E-06	1.9E-08	2.4E-07	3.0E-06	2.7E-07	0
2/15/2013	5.5E-06	4.4E-06	1.2E-06	1.1E-06	8.3E-06	5.9E-07	1.7E-06
2/18/2013	7.2E-07	3.2E-06	2.5E-06	2.3E-06	2.1E-06	5.9E-06	2.6E-06
2/21/2013	5.0E-06	5.8E-06	1.2E-06	3.2E-06	1.1E-05	1.5E-06	2.1E-06
2/24/2013	7.4E-07	6.0E-07	2.6E-07	0	6.5E-07	4.1E-07	7.5E-06
2/27/2013	4.5E-06	1.0E-06	2.9E-07	1.3E-07	0	7.3E-07	1.1E-07
3/2/2013	7.4E-08	6.2E-08	3.6E-07	2.1E-08	0	3.9E-07	3.5E-08
3/5/2013	2.0E-06	8.2E-07	2.4E-07	1.9E-07	8.3E-07	4.3E-07	2.6E-07
3/8/2013	1.0E-06	4.4E-07	2.6E-07	1.7E-07	1.1E-06	2.0E-07	3.1E-07
3/11/2013	2.6E-07	2.9E-07	9.3E-08	5.2E-08	3.1E-07	2.1E-07	7.7E-08
3/14/2013	2.3E-06	2.3E-06	3.0E-07	4.9E-10	2.9E-06	1.9E-06	1.3E-10
3/17/2013	0	4.5E-07	3.1E-07	2.1E-07	2.2E-05	4.9E-07	3.1E-07
3/20/2013	1.6E-06	3.2E-06	1.5E-06	1.2E-06	2.7E-06	3.3E-06	1.4E-06
3/23/2013	7.8E-06	2.9E-07	2.0E-07	9.9E-08	3.5E-07	3.9E-07	1.2E-07
3/26/2013	9.1E-07	1.3E-06	7.4E-07	3.6E-07	1.9E-06	1.5E-06	4.3E-07
3/29/2013	5.6E-06	0	1.3E-07	2.4E-07	0	3.0E-07	2.0E-07
4/1/2013	3.1E-07	2.5E-07	3.0E-07	4.6E-09	0	0.0E+00	2.8E-09
4/4/2013	1.4E-05	0	0	0	9.3E-07	0	0
4/7/2013	7.8E-07	3.3E-06	3.3E-06	2.5E-06	2.3E-06	4.9E-06	3.9E-06
4/10/2013	6.5E-07	9.4E-07	2.6E-07	2.0E-07	9.3E-07	7.8E-07	2.0E-06
4/13/2013	2.6E-07	1.3E-06	1.2E-06	6.3E-07	8.5E-07	2.0E-06	1.2E-06
4/16/2013	1.9E-07	1.8E-07	1.7E-07	1.6E-07	2.2E-07	2.1E-07	1.7E-07
4/19/2013	7.9E-07	7.4E-07	9.6E-08	3.0E-09	1.1E-06	5.9E-07	6.4E-11
4/22/2013	1.1E-04	5.2E-07	3.1E-07	4.8E-07	0	5.0E-07	8.9E-07
4/25/2013	9.3E-07	8.3E-07	4.1E-08	2.1E-08	1.0E-06	3.3E-07	3.3E-09
4/28/2013	2.3E-05	9.4E-07	8.4E-07	9.6E-07	0.0E+00	0	0.0E+00
5/1/2013	1.2E-06	1.3E-06	1.3E-07	8.0E-12	1.8E-06	8.8E-07	0
5/5/2013	8.6E-09	0	0.0E+00	7.4E-07	3.9E-08	3.9E-06	3.6E-06
5/7/2013	2.8E-07	4.5E-07	2.1E-07	9.8E-08	4.1E-07	4.2E-07	6.6E-08
5/10/2013	2.7E-07	1.1E-07	5.1E-08	2.0E-08	2.0E-07	2.2E-07	9.9E-09
5/13/2013	4.2E-07	0.0E+00	1.4E-07	4.1E-09	0	3.9E-07	3.6E-09
5/16/2013	9.4E-06	0	6.4E-07	2.3E-07	0	0	3.5E-07
5/19/2013	8.2E-07	1.3E-06	4.0E-07	2.5E-07	1.9E-06	3.3E-07	4.6E-07
5/22/2013	6.7E-07	1.5E-06	1.1E-06	1.2E-07	1.3E-06	3.2E-06	2.6E-07
5/25/2013	1.7E-07	1.5E-07	1.7E-07	1.2E-07	1.6E-07	1.5E-07	3.8E-08
5/28/2013	1.2E-05	3.4E-07	2.4E-07	1.8E-07	3.3E-07	3.2E-07	2.3E-07
5/31/2013	2.3E-07	2.5E-07	1.5E-07	1.2E-07	2.4E-07	2.5E-07	1.5E-07
6/3/2013	3.9E-07	4.7E-05	0	9.1E-07	4.0E-07	0	0
6/6/2013	6.8E-07	3.5E-07	1.3E-10	0	6.7E-07	1.5E-08	0
6/9/2013	0	0	0	5.7E-07	0	0	7.0E-07
6/12/2013	5.7E-07	7.7E-07	1.0E-06	5.5E-07	9.0E-07	1.6E-06	9.9E-07
6/15/2013	1.3E-07	1.6E-07	1.9E-07	1.6E-07	1.1E-07	1.6E-07	1.7E-07
6/18/2013	1.2E-06	2.3E-06	3.1E-07	4.8E-07	3.0E-06	1.1E-06	1.5E-07
6/21/2013	4.7E-05	0	0	8.7E-07	9.5E-07	0	2.4E-07
6/24/2013	0	0	2.7E-07	3.3E-07	0	0	2.3E-07
6/27/2013	8.1E-05	7.5E-07	5.8E-07	6.4E-07	0	8.0E-07	2.4E-07
6/30/2013	2.8E-06	1.7E-06	1.0E-08	0	3.5E-06	2.0E-07	1.5E-12

Date	2013 Estimated Emission Rates by Potential Fugitive Source (g/s)						
	FS1	FS2	FS3	FS4	FS5	FS6	FS7
7/3/2013	3.5E-07	3.8E-07	8.2E-08	4.2E-08	2.3E-07	1.3E-06	8.6E-08
7/6/2013	2.2E-07	0	3.2E-07	2.0E-07	0	0	3.1E-07
7/9/2013	4.3E-07	4.4E-07	1.0E-07	8.3E-10	6.2E-07	3.8E-07	4.1E-10
7/12/2013	5.4E-07	6.1E-07	2.1E-08	0	9.5E-07	1.5E-07	0
7/15/2013	3.9E-06	9.1E-07	9.5E-07	6.0E-07	9.9E-07	9.6E-07	0
7/18/2013	0	8.6E-07	3.3E-09	0	0	3.8E-08	0
7/21/2013	0.0E+00	3.7E-07	1.5E-07	5.8E-09	3.8E-07	3.3E-07	8.7E-09
7/24/2013	3.6E-05	6.5E-06	0	0	2.3E-05	4.5E-09	0
7/27/2013	5.2E-07	2.5E-07	2.7E-10	0	3.1E-07	3.6E-09	0
7/30/2013	2.9E-07	2.9E-07	3.1E-08	1.7E-09	1.7E-07	1.1E-07	8.5E-10
8/2/2013	1.0E-06	5.3E-07	3.3E-07	1.3E-07	3.6E-06	5.7E-07	2.8E-07
8/5/2013	3.2E-07	2.6E-07	1.9E-07	6.9E-08	3.2E-07	2.7E-07	5.5E-08
8/8/2013	1.5E-06	3.2E-07	4.6E-09	0	7.4E-07	2.9E-08	0
8/11/2013	0	0	2.3E-07	3.1E-07	0	0	4.3E-07
8/14/2013	7.0E-06	5.1E-06	4.8E-06	7.6E-07	0	4.6E-06	3.0E-06
8/17/2013	0	0	0.0E+00	0	0	0.0E+00	0
8/20/2013	0.0E+00	1.0E-06	8.4E-10	0	1.3E-07	3.5E-09	0
8/23/2013	4.3E-07	4.1E-07	1.2E-08	0	5.2E-07	6.8E-08	0
8/26/2013	2.8E-06	0	0	0	4.2E-07	0	0
8/29/2013	4.9E-07	0.0E+00	4.9E-08	0	0	5.7E-07	2.6E-10
9/1/2013	2.8E-08	6.1E-07	1.0E-07	0	0.0E+00	3.6E-07	4.1E-12
9/4/2013	1.4E-06	8.4E-07	2.2E-09	0	1.9E-06	3.3E-08	0
9/7/2013	0	0	3.4E-07	0	0	3.2E-06	2.3E-11
9/10/2013	3.5E-07	3.4E-07	2.3E-08	0	2.7E-07	1.6E-07	0
9/13/2013	1.4E-05	0	2.1E-07	2.9E-10	0	0	5.1E-11
9/16/2013	3.7E-07	4.7E-07	5.6E-08	5.9E-08	5.0E-07	1.4E-07	2.5E-08
9/19/2013	9.6E-06	4.4E-07	2.1E-07	5.1E-07	4.4E-07	3.8E-07	0
9/22/2013	3.1E-07	4.0E-07	3.1E-07	2.5E-08	3.9E-07	0	4.5E-08
9/25/2013	4.1E-05	1.1E-07	3.4E-07	2.2E-07	0.0E+00	4.3E-07	2.8E-07
9/28/2013	5.2E-07	1.9E-07	6.7E-08	3.3E-09	4.4E-08	2.5E-07	0
10/1/2013	3.4E-06	6.5E-07	3.0E-07	1.6E-07	5.8E-07	4.9E-07	8.2E-07
10/4/2013	1.8E-06	3.4E-06	3.0E-06	2.1E-06	3.4E-06	3.5E-06	1.2E-06
10/7/2013	2.0E-06	2.8E-06	1.7E-06	3.5E-07	2.9E-06	2.9E-06	5.0E-07
10/10/2013	2.0E-06	1.2E-06	2.3E-07	9.6E-07	1.8E-06	3.8E-07	5.9E-07
10/13/2013	2.2E-07	2.6E-07	2.3E-07	2.9E-07	2.9E-07	1.8E-07	3.1E-07
10/16/2013	2.7E-06	2.1E-06	2.7E-07	4.5E-07	4.0E-06	1.1E-06	5.0E-08
10/19/2013	0	0	0	0.0E+00	0	0	0.0E+00
10/22/2013	0	0	3.8E-07	5.3E-09	0.0E+00	1.0E-06	0
10/25/2013	5.9E-07	1.6E-07	0	0	5.7E-07	3.1E-12	0
10/28/2013	7.2E-07	3.0E-07	6.2E-10	1.2E-08	6.5E-07	4.1E-09	9.1E-12
10/31/2013	0	2.0E-06	6.6E-08	2.5E-08	2.6E-06	1.7E-07	3.1E-08
11/3/2013	2.8E-06	4.9E-06	4.4E-06	3.5E-06	7.2E-06	4.4E-06	5.6E-06
11/6/2013	6.3E-07	0.0E+00	0	6.9E-07	0	6.9E-07	7.0E-07
11/9/2013	5.6E-07	7.5E-07	3.5E-07	3.9E-07	8.5E-07	5.4E-08	6.6E-07
11/12/2013	6.9E-07	4.4E-07	2.4E-07	2.3E-07	8.0E-07	6.4E-08	3.8E-07
11/15/2013	3.9E-07	3.8E-06	4.4E-06	1.9E-06	1.4E-06	1.1E-05	3.1E-06
11/18/2013	3.3E-06	1.2E-07	0	0	8.3E-07	0	0
11/21/2013	3.4E-06	6.4E-06	3.1E-06	6.5E-07	0	5.3E-06	2.5E-06
11/24/2013	4.7E-07	4.3E-07	3.1E-07	6.0E-07	2.6E-07	4.7E-08	5.9E-07
11/27/2013	2.5E-06	2.6E-06	2.7E-06	1.3E-06	2.9E-06	3.4E-06	2.0E-06
11/30/2013	6.7E-07	1.6E-06	4.1E-07	2.1E-07	1.3E-06	9.5E-07	2.7E-07
12/3/2013	8.8E-06	2.3E-05	7.9E-06	3.9E-06	1.9E-05	2.5E-05	6.5E-06
12/6/2013	5.1E-08	0	3.2E-06	7.6E-06	5.4E-07	2.1E-07	9.1E-06
12/9/2013	2.1E-06	3.6E-06	1.1E-06	1.3E-07	4.1E-07	6.0E-06	6.4E-09
12/12/2013	5.5E-07	0	5.5E-07	2.7E-07	9.9E-07	3.3E-06	3.2E-07
12/15/2013	4.8E-07	3.9E-07	7.9E-08	2.0E-09	5.6E-07	2.9E-07	2.5E-10
12/18/2013	0	0	4.5E-07	8.0E-07	0	2.0E-05	8.5E-07
12/21/2013	1.9E-06	5.9E-06	4.0E-06	4.2E-06	5.4E-06	6.1E-06	3.7E-06
12/24/2013	8.6E-07	0	7.5E-07	4.2E-07	1.6E-06	7.5E-06	6.2E-07
12/27/2013	9.3E-06	1.2E-05	4.2E-06	4.7E-06	1.0E-05	1.3E-05	4.8E-06
12/30/2013	2.0E-05	1.0E-05	1.1E-06	6.3E-06	2.8E-05	1.7E-07	1.5E-06
Average	**4.7E-06**	**1.8E-06**	**6.9E-07**	**6.4E-07**	**2.0E-06**	**1.7E-06**	**7.6E-07**
Average after Reduction[1]	**4.7E-06**	**1.8E-06**	**5.2E-07**	**6.4E-07**	**2.0E-06**	**1.7E-06**	**7.6E-07**

Notes:

1. A 25% reduction is applied to the potential fugitive emission rate at FS3 (Building 2) to account for the Tank 70 enclosure.

Abbreviations:

Cr(VI) = hexavalent chromium
g/s = gram per second

Table A-7
Current Operations Reconciliation, Area Source Modeling Parameters
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	UTM East (m)[1]	UTM North (m)[1]	Base Elevation (m)	Area (m^2)	Modeled Emission Rate[2] (g/ ($s-m^2$))	Release Height[3] (m)	Initial Vertical Dimension[4] (m)
FS1	Building 4	413,382.1	3,721,628.0	32.77	969.2	0.00103	2.3	2.13
FS2	Building 3	413,396.5	3,721,627.4	32.67	969.2	0.00103	2.3	2.13
FS3	Building 2	413,442.0	3,721,628.0	32.52	998.9	0.00100	4.6	2.13
FS4	Building 1	413,487.0	3,721,604.8	32.59	458.0	0.00218	2.8	2.62
FS5	Between Buildings 3 and 4	413,382.1	3,721,596.7	32.67	457.5	0.00219	0	-
FS6	Between Buildings 2 and 3	413,427.4	3,721,628.0	32.63	463.5	0.00216	0	-
FS7	Between Buildings 1 and 2	413,472.9	3,721,633.3	32.51	515.5	0.00194	0	-

Notes:

1. Represents the coordinates of the first vertex as it appears in the modeling files.
2. Modeled emission rates were derived using unit emission rates of 1 g/s and corresponding areas.
3. Due to the strong pull from the roof vents/fans on Building 2, the release height for this fugitive source has been set to the building height. The release height for Buildings 1, 3, and 4 have been set to 1/2 of the building height. The release height for Building 3 was modified in the current operations reconciliation to account for the recent shutdown of roof fans on Building 3.
4. The initial vertical dimension for Building sources represents the building height divided by 2.15, per model guidance.

Abbreviations:

K = Kelvin
m = meter
g/ ($s-m^2$) = grams per second per meter squared
UTM = Universal Transverse Mercator

Table A-8
Current Operations Reconciliation, Meteorological Data Processing, Station Summary
Hixson Metal Finishing
Newport Beach, CA

Parameter	Primary Station	Secondary Station[1]
Wind Speed	Hixson	John Wayne Airport
Wind Direction	Hixson	John Wayne Airport
Cloud Cover	John Wayne Airport	-
Temperature	Hixson	John Wayne Airport
Pressure	Hixson	John Wayne Airport
Relative Humidity	Hixson	John Wayne Airport
Solar Radiation	CIMIS Long Beach	John Wayne Airport
Upper Air	Miramar	-

Notes:
1. Secondary Station data was used when Primary Station data was missing.

Table A-9
AERSURFACE Inputs and Resulting Surface Characteristics,
Facility Meteorological Station
Hixson Metal Finishing
Newport Beach, California

AERSURFACE Input	Hixson
Study Radius	1 km
Sectors	1
Temporal Resolution	Annual
Month/Season Assignments	Default
Airport?	N
Continuous Snow Cover?	N
Arid?	Y
Surface Moisture	Average
AERSURFACE Output	
Albedo	0.15
Bowen Ratio	0.56
Surface Roughness	0.508

Table A-10
Current Operations Reconciliation, Valid Sampling Data at Offsite Monitors
Hixson Metal Finishing
Newport Beach, CA

Date	Cr(VI) Concentration[1] (ng/m^3)	
	Millet	Apartments
8/2/2014	0.29	0.08
8/3/2014	0.56	0.02
8/4/2014	0.43	0.39
8/5/2014	0.09	0.30
8/6/2014	0.18	0.44
8/7/2014	0.89	0.10
8/8/2014	0.25	0.11
8/9/2014[2]	0.02	0.09
8/10/2014	0.04	0.06
8/11/2014	0.11	0.27
8/12/2014	0.05	0.39
8/13/2014	0.05	0.37
8/14/2014	0.05	0.37
8/15/2014	0.06	0.58
8/16/2014	0.15	0.31
8/17/2014	0.08	0.10
8/18/2014	0.43	0.04
8/19/2014	0.58	0.07
8/20/2014	0.30	0.23
8/21/2014	0.13	1.11
8/22/2014	0.08	0.19
8/23/2014	0.06	0.14
8/24/2014	0.02	0.36
8/25/2014	0.03	0.94
8/26/2014	0.06	0.71
8/27/2014	0.09	0.52
8/28/2014	0.15	1.27
8/29/2014	0.10	0.23
8/30/2014	0.12	0.03
8/31/2014	0.05	0.02

Notes:

1. All samples except 8/9/2014 were collected for a 24-hour period from 8:00 am to 8:00 am the next day.

2. The samples on this day were collected for a 20-hour period from 12:00 pm to 8:00 am the next day.

Abbreviations:

Cr(VI) = hexavalent chromium

ng/m^3 = nanograms per cubic meter

Table A-11
Current Operations Reconciliation, Point Source Emission Rates
Hixson Metal Finishing
Newport Beach, California

Source Number	Source	8/2/14 - 8/31/14 Emissions (lbs)	8/2/14 - 8/31/14 Emissions (g/s)[1]	Weekday Operating Hours (hrs)	Weekend Operating Hours (hrs)	Operating Hours/Period in Consideration (hrs)
PS1	SB #1	3.09E-05	6.95E-09	24	8	560
PS2	SB #2	1.87E-05	4.92E-09	24	0	480
PS3	Scrubber (Anodize Line, Tank 70)	3.54E-05	1.39E-08	16	0	320

Notes:

1. Since variable emission rates were modeled with '0' in periods of no operation and '1' in periods of operation, corresponding g/s emission rates were derived by dividing the total emissions from 8/2/14-8/31/14 by the operating hours within that period.

Abbreviations:

g = gram
hrs = hours
lbs = pounds
SB = Spray Booth
s = second

Table A-12
Current Operations Reconciliation, Monitor Minus Point Source and Background Concentrations for Valid Sample Days
Hixson Metal Finishing
Newport Beach, CA

Date	Monitor Cr(VI) Concentrations Minus Point Source and Background Contribution[1] (µg/m^3)	
	Millet	Apartments
8/2/2014	2.6E-04	5.3E-05
8/3/2014	5.3E-04	0
8/4/2014	4.0E-04	3.6E-04
8/5/2014	5.8E-05	2.7E-04
8/6/2014	1.5E-04	4.1E-04
8/7/2014	8.6E-04	6.8E-05
8/8/2014	2.2E-04	7.9E-05
8/9/2014	0	6.4E-05
8/10/2014	9.2E-06	3.5E-05
8/11/2014	7.7E-05	2.4E-04
8/12/2014	2.0E-05	3.6E-04
8/13/2014	2.1E-05	3.4E-04
8/14/2014	1.7E-05	3.4E-04
8/15/2014	3.5E-05	5.5E-04
8/16/2014	1.2E-04	2.8E-04
8/17/2014	5.2E-05	7.5E-05
8/18/2014	4.0E-04	9.7E-06
8/19/2014	5.5E-04	4.0E-05
8/20/2014	2.7E-04	2.0E-04
8/21/2014	9.7E-05	0.0011
8/22/2014	5.2E-05	1.6E-04
8/23/2014	3.1E-05	1.1E-04
8/24/2014	0	3.3E-04
8/25/2014	1.7E-06	9.1E-04
8/26/2014	2.9E-05	6.8E-04
8/27/2014	5.4E-05	4.9E-04
8/28/2014	1.2E-04	0.0012
8/29/2014	7.0E-05	2.0E-04
8/30/2014	9.1E-05	1.2E-06
8/31/2014	2.4E-05	0

Notes:

1. A background concentration of 0.03 ng/m^3 was subtracted from the monitor concentrations. This concentration represents the annual average found at the West Long Beach monitor in the draft Multiple Air Toxics Exposure Study IV (MATES IV), and is the low end of the average annual concentrations found throughout the South Coast Air Basin.

Abbreviations:

Cr(VI) = hexavalent chromium

µg/m^3 = micrograms per cubic meter

References:

South Coast Air Quality Management District (SCAQMD). 2014. MATES IV Multiple Air Toxics Exposure Study. October 3. Available online at: http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv.

Table A-13
Current Operations Reconciliation, 24-hr Dispersion Factors for each Point and Potential Fugitive Source for Valid Sample Days
Hixson Metal Finishing
Newport Beach, CA

Monitor	Date	24-hr Dispersion Factors (µg/m^3 per g/s)									
		PS1	PS2	PS3	FS1	FS2	FS3	FS4	FS5	FS6	FS7
Millet	8/2/2014	12	0	0	231	178	69	23	174	141	44
	8/3/2014	15	1.3	5.6	261	453	465	209	501	712	380
	8/4/2014	15	40	14	88	92	26	2.9	90	78	3.8
	8/5/2014	5.2	27	8.4	231	78	0.0037	0	121	3.6	0
	8/6/2014	10	33	10	233	293	55	41	257	183	64
	8/7/2014	23	63	12	389	493	241	131	564	301	205
	8/8/2014	29	81	8.8	366	505	335	144	541	370	284
	8/9/2014[1]	3.3	0	0	353	126	0	0	202	1.8	0
	8/10/2014	6.0	2.4	3.3	376	184	0.045	0	299	2.6	0
	8/11/2014	13	46	11	182	91	1.1	0	114	32	0
	8/12/2014	6.2	32	11	178	54	0.21	2.0	78	7.0	0.89
	8/13/2014	4.6	33	8.7	149	30	0	0	54	0.25	0
	8/14/2014	5.2	45	8.6	161	49	0	0	82	0.55	0
	8/15/2014	4.5	13	5.7	248	111	0.094	0	251	0.074	0
	8/16/2014	2.4	0	0	229	350	197	78	365	277	153
	8/17/2014	8.1	1.9	3.9	360	539	92	12	618	296	20
	8/18/2014	19	56	32	92	360	406	249	181	606	418
	8/19/2014	21	31	55	50	272	524	386	100	532	540
	8/20/2014	18	75	11	331	114	39	17	216	61	30
	8/21/2014	8.5	138	2.9	571	414	6.2	0	727	40	0
	8/22/2014	18	147	1.8	521	320	1.4	0	725	6.8	0
	8/23/2014	7.0	0	0	453	124	31	11	283	63	21
	8/24/2014	7.3	1.3	2.4	236	70	19	3.6	172	35	5.1
	8/25/2014	8.8	105	3.9	355	106	1.4	0	275	14	0
	8/26/2014	15	147	5.8	559	592	12	0	920	77	0
	8/27/2014	10	115	6.4	329	393	103	2.9	394	223	2.7
	8/28/2014	15	107	8.1	543	291	153	45	433	54	110
	8/29/2014	25	100	2.1	294	696	234	81	702	670	177
	8/30/2014	18	0	0	299	567	95	136	623	376	77
	8/31/2014	14	0.29	27	68	276	295	269	190	350	472

Monitor	Date	24-hr Dispersion Factors (µg/m^3 per g/s)									
		PS1	PS2	PS3	FS1	FS2	FS3	FS4	FS5	FS6	FS7
Apartments	8/2/2014	4.2	0	0	1,748	27	2.4	0.52	617	7.4	0.74
	8/3/2014	2.9	1.8	2.1	65	52	12	3.1	6.4	13	1.7
	8/4/2014	7.9	31	9.4	1,779	128	8.5	2.4	908	20	1.0
	8/5/2014	6.7	14	6.4	1,172	10	0	0	274	0	0
	8/6/2014	4.7	7.8	7.8	1,084	2.4	1.6	0.27	177	0.15	0.015
	8/7/2014	2.9	4.9	10	351	327	86	43	86	189	62
	8/8/2014	1.7	2.0	6.5	353	19	6.6	0.59	20	0.25	0.011
	8/9/2014[1]	1.1	0	0	1,533	41	0.076	0	365	0.55	0
	8/10/2014	5.5	4.7	2.5	972	0	0	0	106	0	0
	8/11/2014	7.6	9.3	8.3	1,491	0	0	0	241	0	0
	8/12/2014	4.8	6.4	8.4	1,252	334	20	5.4	485	54	8.8
	8/13/2014	3.3	41	6.7	1,493	0.028	0	0	218	0	0
	8/14/2014	6.6	23	6.8	1,836	37	0	0	720	1.3E-04	0
	8/15/2014	4.4	9.4	4.4	1,193	26	3.6E-05	0	293	0.018	0
	8/16/2014	2.0	0	0	654	4.8	1.6	0.029	58	4.6E-05	0
	8/17/2014	3.7	3.5	2.4	528	17	1.9	0.39	15	4.5	0.10
	8/18/2014	4.7	7.8	9.2	23	166	45	15	23	48	11
	8/19/2014	1.2	2.0	7.9	25	598	175	80	383	236	83
	8/20/2014	1.0	30	5.6	793	20	2.2	0.54	86	7.5	0.23
	8/21/2014	0.28	0.34	2.8	457	0.020	0	0	113	0	0
	8/22/2014	0.29	3.7	2.0	214	0	0	0	0.52	0	0
	8/23/2014	0.46	0	0	503	1.6	0.23	0.023	1.1	0.23	0.0030
	8/24/2014	1.6	13	1.9	1,368	2.9	0	0	415	0	0
	8/25/2014	1.0	37	3.6	810	12	0	0	474	0	0
	8/26/2014	2.4	5.3	4.9	704	6.8	0	0	181	0	0
	8/27/2014	9.4	4.3	8.5	530	502	82	37	356	210	40
	8/28/2014	4.6	6.9	6.1	389	0.036	0	0	18	0	0
	8/29/2014	0.70	0.91	2.1	10	2.6	0.44	0.055	6.2E-05	0.41	0.10
	8/30/2014	2.6	0	0	4.9	380	156	100	10	314	159
	8/31/2014	1.5	0.20	0.46	19	18	13	4.6	0.40	5.2	1.8

Notes:

1. Dispersion factors were determined for a 20-hour period from 12:00 pm to 8:00 am the next day to match the sampling period.

Abbreviations:

g/s = gram per second

µg/m^3 = micrograms per cubic meter

Table A-14
Current Operations, Reconciled Cr(VI) Potential Fugitive Source Emission Rates
Hixson Metal Finishing
Newport Beach, CA

Date	Current Operations, Estimated Emission Rates by Potential Fugitive Source (g/s)						
	FS1	FS2	FS3	FS4	FS5	FS6	FS7
8/2/2014	0	7.5E-07	3.8E-07	1.4E-07	0	6.5E-07	2.5E-07
8/3/2014	1.4E-07	1.9E-07	1.9E-07	1.2E-07	1.9E-07	1.7E-07	1.8E-07
8/4/2014	0	2.5E-06	5.1E-07	7.9E-08	0	2.0E-06	7.2E-08
8/5/2014	0	1.0E-07	5.3E-12	0	8.7E-07	5.0E-09	0
8/6/2014	0	2.9E-08	1.1E-07	8.0E-08	9.1E-07	1.6E-07	1.1E-07
8/7/2014	2.9E-07	3.5E-07	2.4E-07	1.4E-07	4.3E-07	2.7E-07	2.1E-07
8/8/2014	0	0	2.0E-07	2.3E-07	0	1.5E-07	2.4E-07
8/9/2014	0	0	0	0	0	0	0
8/10/2014	0	0	0	0	0	0	0
8/11/2014	0	8.4E-08	2.5E-09	0	9.1E-07	5.8E-08	0
8/12/2014	0	4.6E-07	5.0E-08	1.4E-08	4.0E-07	1.3E-07	2.2E-08
8/13/2014	0	5.3E-09	0	0	1.5E-06	1.5E-10	0
8/14/2014	0	3.5E-06	0	0	0	2.8E-09	0
8/15/2014	0	1.3E-07	3.7E-11	0	1.1E-06	1.4E-10	0
8/16/2014	0	0	2.1E-07	3.2E-07	0	0	3.3E-07
8/17/2014	0	0	4.1E-07	3.5E-07	0	0	5.3E-07
8/18/2014	8.2E-08	1.7E-07	2.0E-07	1.7E-07	1.4E-07	1.5E-07	2.0E-07
8/19/2014	5.0E-08	0	2.6E-07	2.5E-07	0	2.4E-07	2.8E-07
8/20/2014	0	5.6E-07	2.0E-07	9.1E-08	9.6E-07	3.2E-07	1.5E-07
8/21/2014	1.0E-06	0	2.1E-09	0	0	1.1E-08	0
8/22/2014	0	0	1.6E-06	0	0	7.4E-06	0
8/23/2014	0	0	5.6E-07	3.1E-07	0	7.0E-09	4.9E-07
8/24/2014	0	0	0	0	6.8E-07	0	0
8/25/2014	6.2E-07	9.9E-09	2.7E-12	0	5.0E-07	0	0
8/26/2014	6.1E-07	0	1.8E-09	0	0	0	0
8/27/2014	2.3E-07	1.8E-07	1.0E-07	1.9E-06	1.5E-07	1.9E-07	2.2E-06
8/28/2014	1.2E-06	0	2.7E-08	1.7E-08	0	1.9E-08	2.8E-08
8/29/2014	0	0	0	8.8E-07	0	0	0
8/30/2014	0	0	0	0	0	0	0
8/31/2014	0	0	0	0	0	0	0
Average	**1.4E-07**	**3.0E-07**	**1.8E-07**	**1.7E-07**	**2.9E-07**	**4.0E-07**	**1.7E-07**

Abbreviations:
Cr(VI) = hexavalent chromium
g/s = gram per second

Appendix A Figures

Legend

Monitors

Facility Boundary

0 50 100 Feet

0 10 20 Meters

ENVIRON

Locations of Offsite Monitors
Hixson Metal Finishing
Newport Beach, California

N

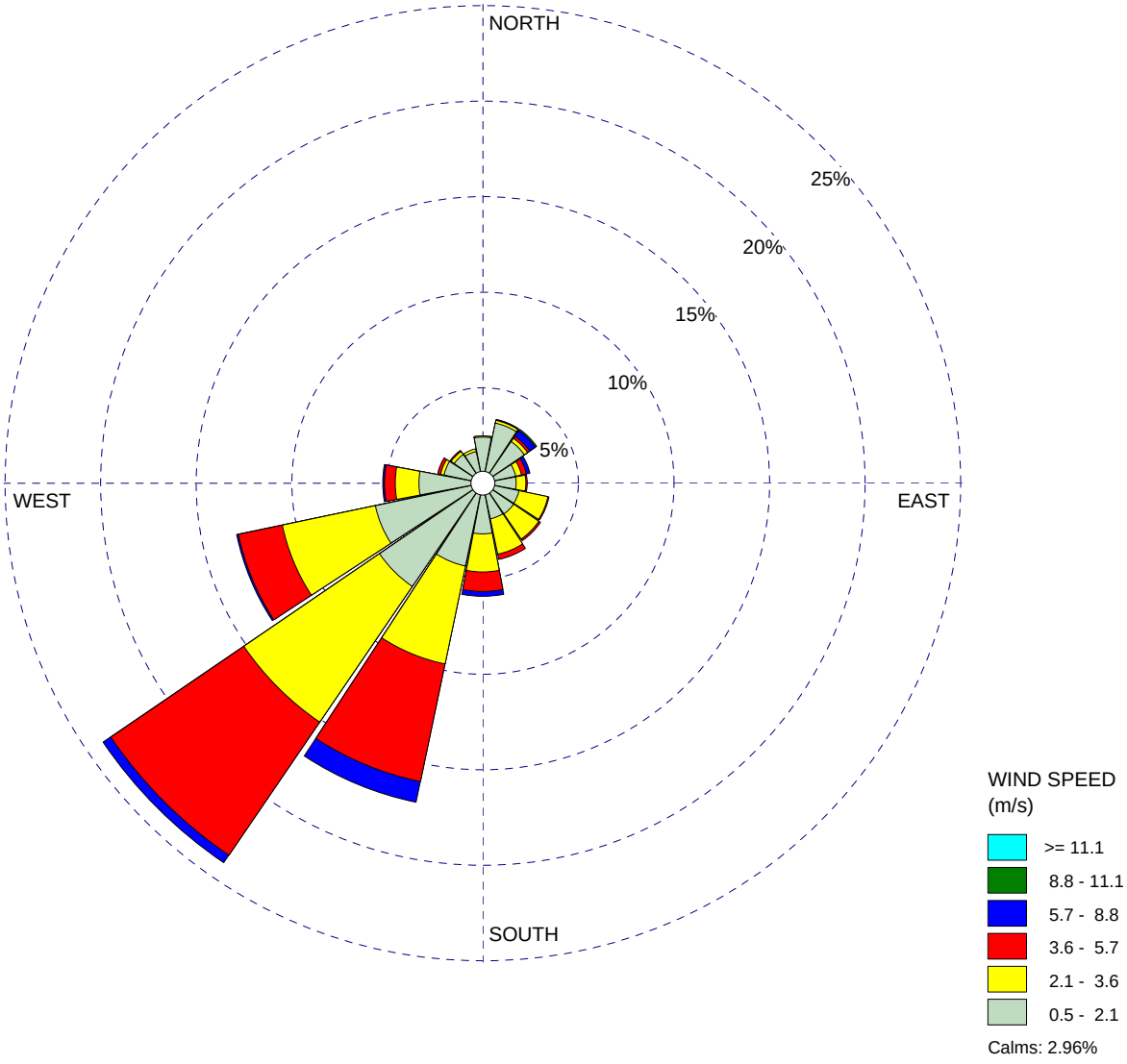
Figure
A-1

WIND ROSE PLOT:

Figure A-2: Wind Rose for John Wayne Airport 2013

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2013 - 00:00** **End Date: 12/31/2013 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **2.96%**	TOTAL COUNT: **8723 hrs.**	
	AVG. WIND SPEED: **2.45 m/s**	DATE: **10/24/2014**	PROJECT NO.:

Figure A-3. 2013 Millet Monitor v Reconciled Concentrations

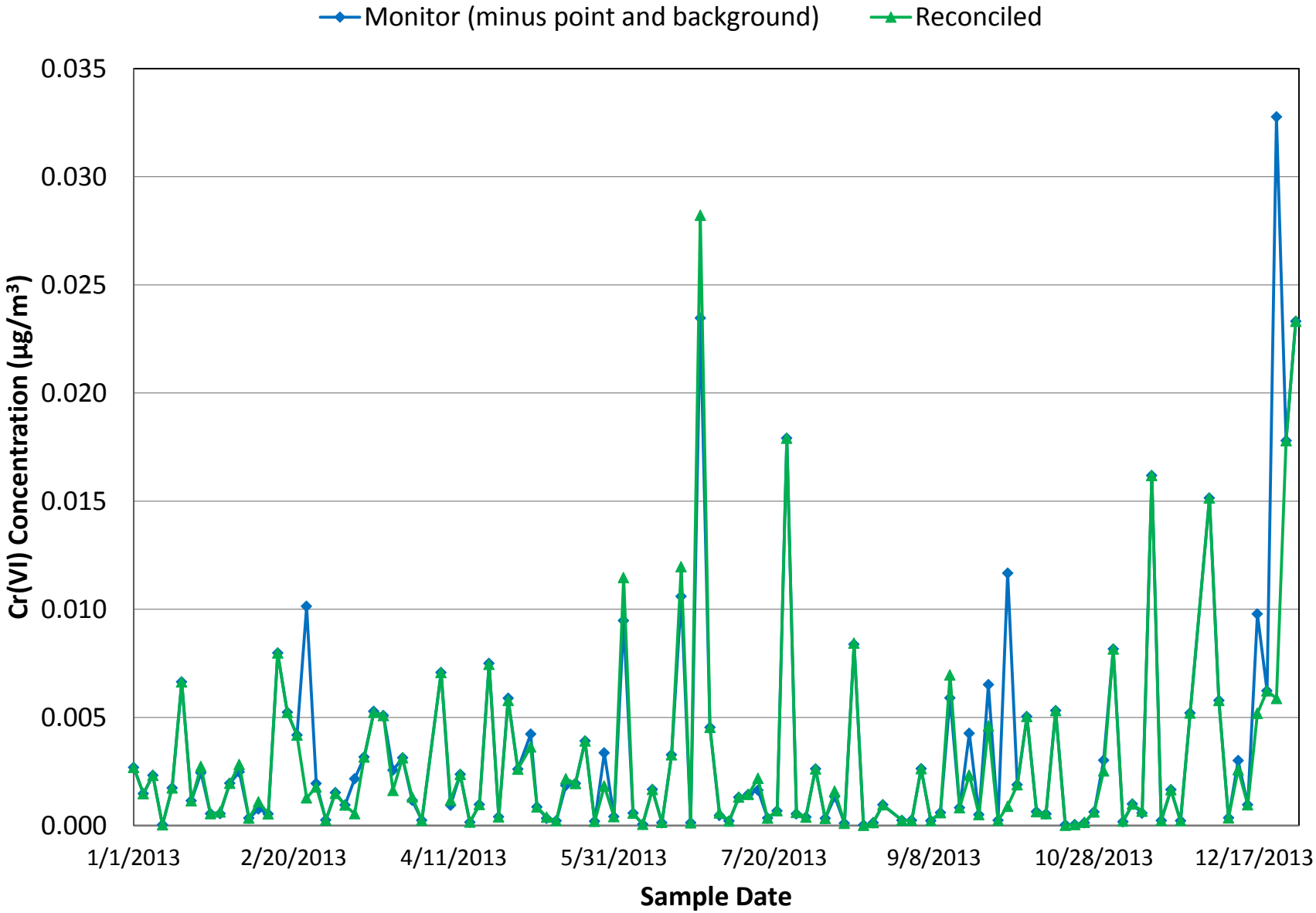
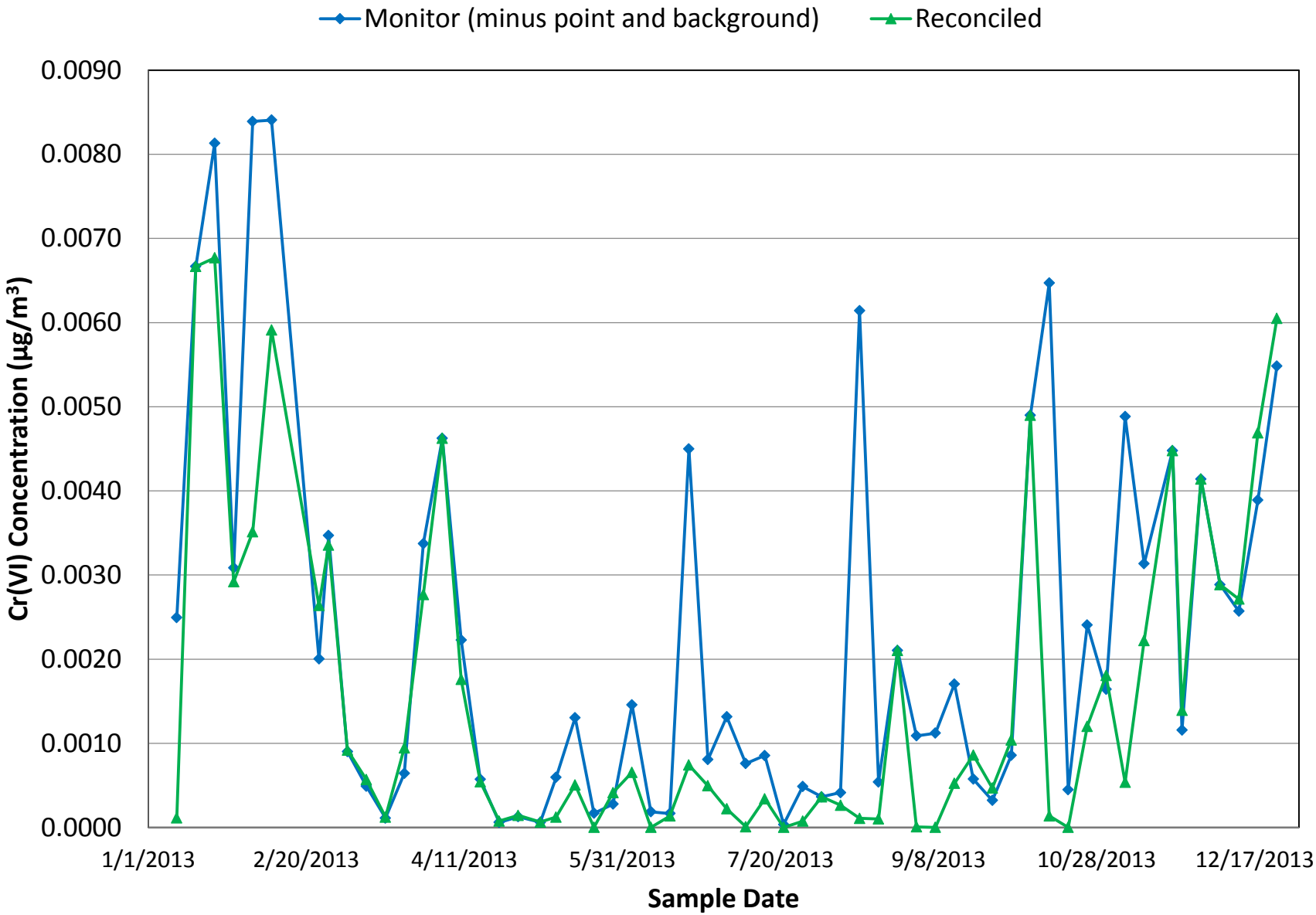


Figure A-4. 2013 Apartments Monitor v Reconciled Concentrations

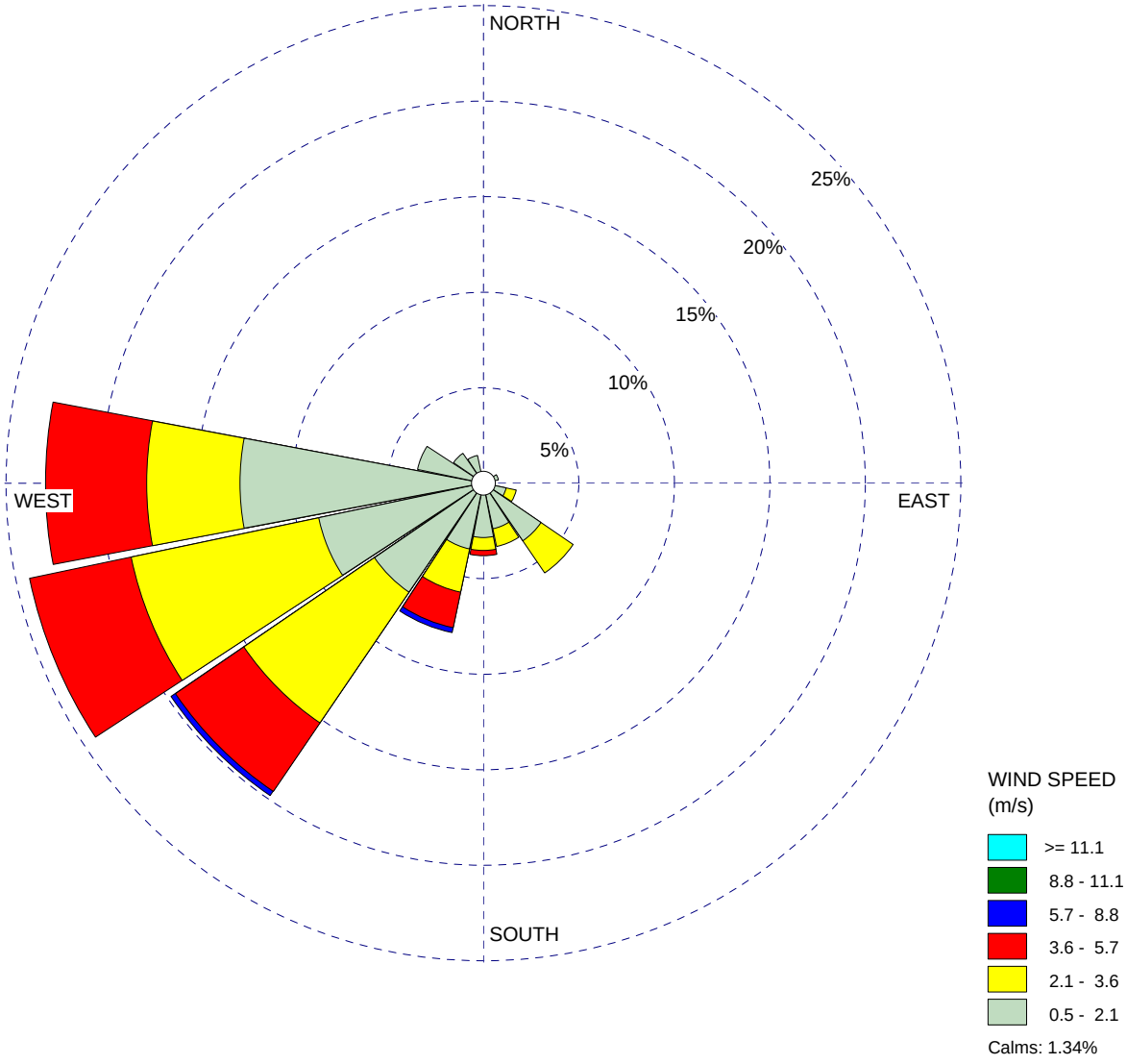


WIND ROSE PLOT:

Figure A-5: Facility Wind Rose
August 2, 2014 through September 1, 2014

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 8/2/2014 - 00:00** **End Date: 9/1/2014 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **1.34%**	TOTAL COUNT: **739 hrs.**	
	AVG. WIND SPEED: **2.25 m/s**	DATE: **10/24/2014**	PROJECT NO.:

Figure A-6. Current Operations, Millet Monitor v Reconciled Concentrations

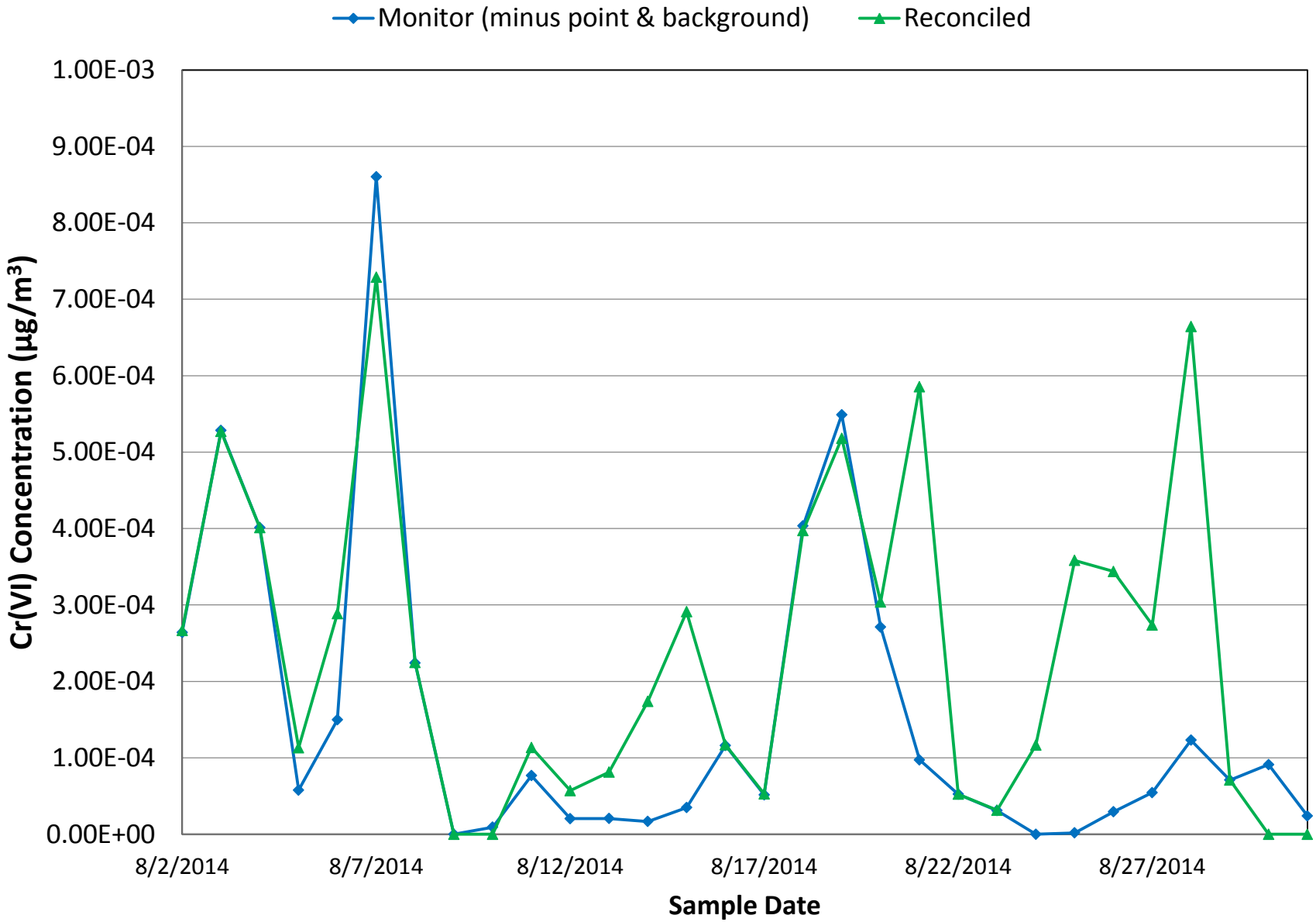
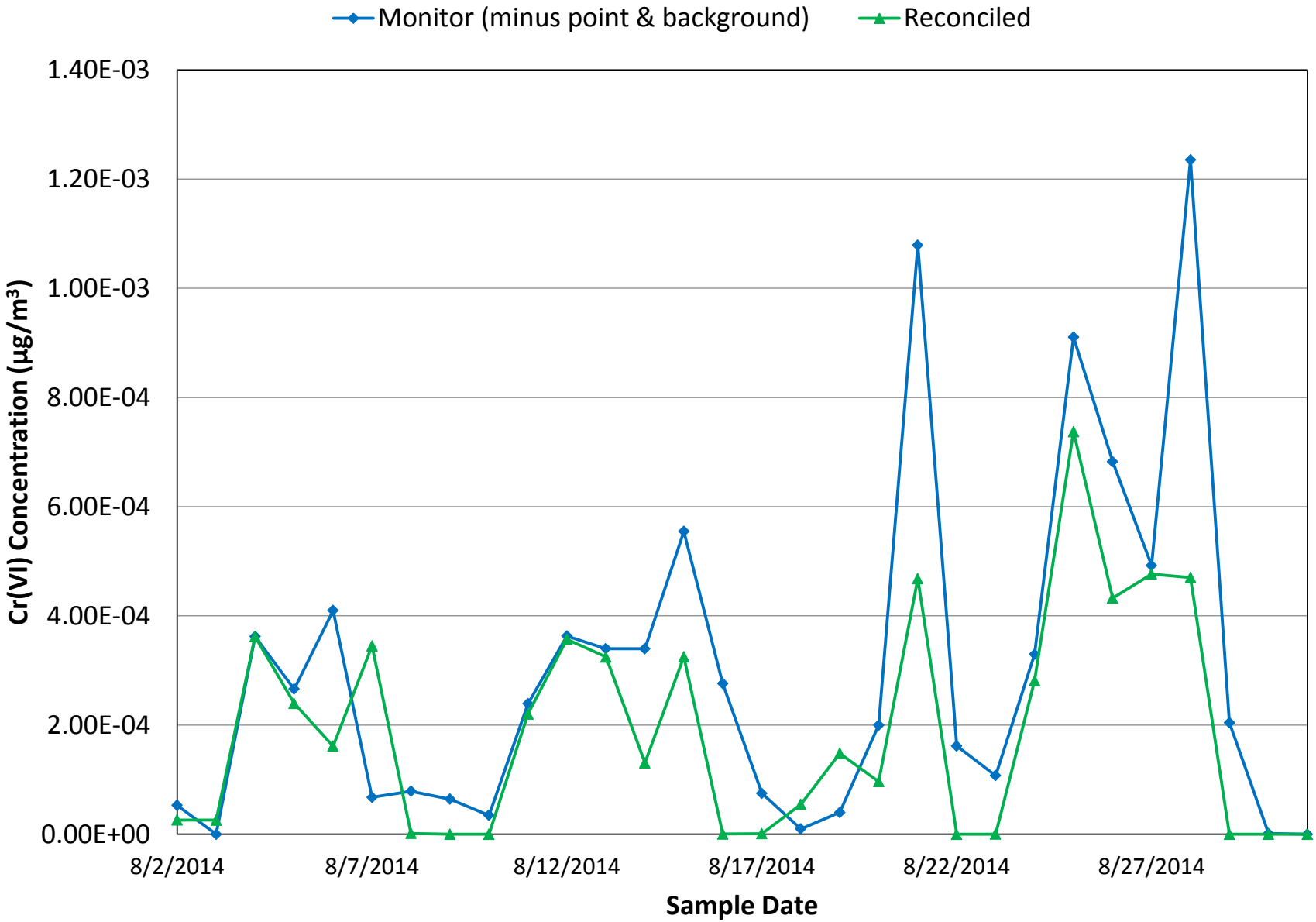


Figure A-7. Current Operations, Apartments Monitor v Reconciled Concentrations



Appendix B

Meteorological Data
[Provided Electronically]

1 2013 and Supplemental HRA Meteorological Data Files[48]

1.1 AERMINUTE

File Name	File Description
*.INP	AERMINUTE Input Files, Years 2009-2013 (5 total)
*.DAT	AERMINUTE Output Files, Years 2009-2013 (5 total)

1.2 AERSURFACE

File Name	File Description
AERSURFACE.INP	AERSURFACE Input File
SURF_PARAMS.OUT	AERSURFACE Output File

1.3 AERMET

File Name	File Description
*in1	AERMET Stage 1 Input Files, Years 2009-2013 (5 total)
*in2	AERMET Stage 2 Input Files, Years 2009-2013 (5 total)
*in3	AERMET Stage 3 Input Files, Years 2009-2013 (5 total)
*OU1	AERMET Stage 1 Output Files, Years 2009-2013 (5 total)
*OU2	AERMET Stage 2 Output Files, Years 2009-2013 (5 total)
*OU3	AERMET Stage 3 Output Files, Years 2009-2013 (5 total)

1.4 Final Meteorological Files

File Name	File Description
KSNA.5Y.PFL	John Wayne Airport Profile File, Years 2009-2013
KSNA.5Y.SFC	John Wayne Airport Surface File, Years 2009-2013

[48] The same meteorological files were also used for the 2013 reconciliation effort.

2 Current Operations Reconciliation Meteorological Data Files

2.1 AERMINUTE

File Name	File Description
AERMINUTE.KSNA.2014.INP	AERMINUTE Input File
KSNA.1MIN.2014.DAT	AERMINUTE Output File

2.2 AERSURFACE

File Name	File Description
OS.AERSURFACE.INP	AERSURFACE Input File for Facility Onsite Station
OS.SURF_PARAMS.OUT	AERSURFACE Output File for Facility Onsite Station
SFC.AERSURFACE.INP	AERSURFACE Input File for John Wayne Airport
SFC.SURF_PARAMS.OUT	AERSURFACE Output File for John Wayne Airport

2.3 AERMET

File Name	File Description
HXSN.2014.in1	AERMET Stage 1 Input File
HXSN.2014.in2	AERMET Stage 2 Input File
HXSN.2014.in3	AERMET Stage 3 Input File
HXSN.2014.OU1	AERMET Stage 1 Output File
HXSN.2014.OU2	AERMET Stage 2 Output File
HXSN.2014.OU3	AERMET Stage 3 Output File

2.4 Final Meteorological Files

File Name	File Description
HXSN.2014.PFL	Facility Onsite Station Profile File, Year 2014[49]
HXSN.2014.SFC	Facility Onsite Station Surface File, Year 2014

[49] Data processed from June 27, 2014 through September 25, 2014.

Appendix C

EDR Offsite Receptor Report
[Provided Electronically]

Appendix D

AERMOD / HARP On-Ramp Dispersion Modeling Files
[Provided Electronically]

1 2013 Operations (2013 HRA), AERMOD / HARP On-Ramp Dispersion Modeling Files

1.1 2013 Reconciliation Model

File Name	File Description
Reconciliation_Model_2013.inp	AERMOD Input File, 2013 Reconciliation run
Reconciliation_Model_2013.out	AERMOD Output File, 2013 Reconciliation run
ERRORS.LST	AERMOD Error File, 2013 Reconciliation run
SUMMARYFILE.SUM	AERMOD Summary File, 2013 Reconciliation run

1.1.1 Post Files

File Name	File Description
*.PST	1-hr post files for three Cr(VI) point sources and seven potential Cr(VI) fugitive sources (10 total)

1.2 2013 HRA Model, Cancer, Chronic Run[50]

File Name	File Description
HRA_Model_2013_Chronic.inp	AERMOD Input File, Cancer and Chronic HI run
HRA_Model_2013_Chronic.out	AERMOD Output File, Cancer and Chronic HI run
ERRORS.LST	AERMOD Error File, Cancer and Chronic HI run
SUMMARYFILE.SUM	AERMOD Summary File, Cancer and Chronic HI run

1.2.1 Plot Files

File Name	File Description
*.PLT	Period average plot files for six point sources and eight fugitive sources (14 total), Cancer and Chronic HI run

[50] Since variable emission rates were used, separate runs were performed for cancer risks/chronic HI and acute HI analyses. In the cancer risks/chronic HI run, which depends on annual emissions, variable emission rate scalars were adjusted such that the annual emissions sum to 31,536 kg/yr (i.e. the variable emission rate scalars sum to 8760 hours per year). In the acute HI run, which depends on maximum hourly emissions, variable emission rates were entered such that a 1 g/s emission rate was applied when emissions are on and a 0 g/s emission rate was applied when emissions are off (i.e. the variable emission rate scalars sum to the actual hours of operation per year).

1.2.2 HARP On-Ramp Files

File Name	File Description
Hixson_Chronic.SRC	Source-receptor file for HARP v. 1.4f, Cancer and Chronic HI run
Hixson_Chronic.XOQ	AERMOD X/Q output file processed through HARP On-Ramp for HARP v. 1.4f, Cancer and Chronic HI run

1.3 2013 HRA Model, Acute Run[51]

File Name	File Description
HRA_Model_2013_Acute.inp	AERMOD Input File, Acute HI run
HRA_Model_2013_Acute.out	AERMOD Output File, Acute HI run
ERRORS.LST	AERMOD Error File, Acute HI run
SUMMARYFILE.SUM	AERMOD Summary File, Acute HI run

1.3.1 Plot Files

File Name	File Description
*.PLT	1st high, 1-hr plot files for six point sources and eight fugitive sources (14 total), Acute HI run

1.3.2 HARP On-Ramp Files

File Name	File Description
Hixson_acute.SRC	Source-receptor file for HARP v. 1.4f, Acute HI run
Hixson_acute.XOQ	AERMOD X/Q output file processed through HARP On-Ramp for HARP v. 1.4f, Acute HI run

1.4 NED Files

File Name	File Description

[51] Since variable emission rates were used, separate runs were performed for cancer risks/chronic HI and acute HI analyses. In the cancer risks/chronic HI run, which depends on annual emissions, variable emission rate scalars were adjusted such that the annual emissions sum to 31,536 kg/yr (i.e. the variable emission rate scalars sum to 8760 hours per year). In the acute HI run, which depends on maximum hourly emissions, variable emission rates were entered such that a 1 g/s emission rate was applied when emissions are on and a 0 g/s emission rate was applied when emissions are off (i.e. the variable emission rate scalars sum to the actual hours of operation per year).

n34W118.tif	National Elevation Dataset, 1º by 1º Terrain Tile for Latitude 33º to 34º and Longitude -118º to -117º
n34W119.tif	National Elevation Dataset, 1º by 1º Terrain Tile for Latitude 33º to 34º and Longitude -119º to -118º

1.5 AERMAP Files

File Name	File Description
Aermap input file.txt	AERMAP Input File, for full HRA model (all sources, buildings, and receptors)[52]
Aermap output file.txt	AERMAP Output File, for full HRA model (all sources, buildings, and receptors)
Aermap receptor file.txt	AERMAP Receptor File, elevations and hill heights for all receptors
Aermap source file.txt	AERMAP Source File, elevations for all sources and buildings

1.6 BPIP PRIME Files

File Name	**File Description**
Bpip input file.txt	BPIP PRIME Input File
Bpip output file.txt	BPIP PRIME Output File
Bpip summary file.txt	BPIP PRIME Summary File

2 Current Operations (Supplemental HRA) AERMOD / HARP On-Ramp Dispersion Modeling Files

2.1 Current Operations (Supplemental HRA) Reconciliation Model

File Name	**File Description**
Reconciliation_Model_CurrentOperations.inp	AERMOD Input File, Current Operations run
Reconciliation_Model_CurrentOperations.out	AERMOD Output File, Current Operations run
ERRORS.LST	AERMOD Error File, Current Operations run

[52] The sources, buildings, and receptors required for the 2013 and current operations reconciliation models are included in this AERMAP run.

SUMMARYFILE.SUM	AERMOD Summary File, Current Operations run

2.1.1 Post Files

File Name	File Description
*.PST	1-hr post files for three Cr(VI) point sources and seven potential Cr(VI) fugitive sources (10 total)

2.2 Current Operations (Supplemental HRA) Model, Cancer, Chronic Run[53]

File Name	File Description
HRA_Model_CurrentOperations_Chronic.inp	AERMOD Input File, Cancer and Chronic HI run
HRA_Model_ CurrentOperations _Chronic.out	AERMOD Output File, Cancer and Chronic HI run
ERRORS.LST	AERMOD Error File, Cancer and Chronic HI run
SUMMARYFILE.SUM	AERMOD Summary File, Cancer and Chronic HI run

2.2.1 Plot Files

File Name	File Description
*.PLT	Period average plot files for six point sources and eight fugitive sources (14 total), Cancer and Chronic HI run

2.2.2 HARP On-Ramp Files

File Name	File Description
Hixson_Chronic.SRC	Source-receptor file for HARP v. 1.4f, Cancer and Chronic HI run

[53] Since variable emission rates were used, separate runs were performed for cancer risks/chronic HI and acute HI analyses. In the cancer risks/chronic HI run, which depends on annual emissions, variable emission rate scalars were adjusted such that the annual emissions sum to 31,536 kg/yr (i.e. the variable emission rate scalars sum to 8760 hours per year). In the acute HI run, which depends on maximum hourly emissions, variable emission rates were entered such that a 1 g/s emission rate was applied when emissions are on and a 0 g/s emission rate was applied when emissions are off (i.e. the variable emission rate scalars sum to the actual hours of operation per year).

Hixson_Chronic.XOQ	AERMOD X/Q output file processed through HARP On-Ramp for HARP v. 1.4f, Cancer and Chronic HI run

2.3 Current Operations (Supplemental HRA) Model, Acute Run[54]

File Name	File Description
HRA_Model_CurrentOperations_Acute.inp	AERMOD Input File, Acute HI run
HRA_Model_CurrentOperations_Acute.out	AERMOD Output File, Acute HI run
ERRORS.LST	AERMOD Error File, Acute HI run
SUMMARYFILE.SUM	AERMOD Summary File, Acute HI run

2.3.1 Plot Files

File Name	File Description
*.PLT	1st high, 1-hr plot files for six point sources and eight fugitive sources (14 total), Acute HI run

2.3.2 HARP On-Ramp Files

File Name	File Description
Hixson_acute.SRC	Source-receptor file for HARP v. 1.4f, Acute HI run
Hixson_acute.XOQ	AERMOD X/Q output file processed through HARP On-Ramp for HARP v. 1.4f, Acute HI run

2.4 NED Files

See 1.4 above.

2.5 AERMAP Files

See 1.5 above.

2.6 BPIP PRIME Files

See 1.6 above.

[54] Since variable emission rates were used, separate runs were performed for cancer risks/chronic HI and acute HI analyses. In the cancer risks/chronic HI run, which depends on annual emissions, variable emission rate scalars were adjusted such that the annual emissions sum to 31,536 kg/yr (i.e. the variable emission rate scalars sum to 8760 hours per year). In the acute HI run, which depends on maximum hourly emissions, variable emission rates were entered such that a 1 g/s emission rate was applied when emissions are on and a 0 g/s emission rate was applied when emissions are off (i.e. the variable emission rate scalars sum to the actual hours of operation per year).

Appendix E

HARP Emissions File
[Provided Electronically]

2013 Operations (2013 HRA), HARP Emissions File

File Name	File Description
emissions_2013.ems	HARP emissions file

Current Operations (Supplemental HRA), HARP Emissions File

File Name	File Description
emissions_CurrentOperations.ems	HARP emissions file

Appendix F

HARP Standard Report Sets
[Provided Electronically]

1 2013 Operations (2013 HRA), HARP Standard Report Set

1.1 Report 1: Rep01_Can_70yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
Include site-specific parameter report
Include UTM coordinates

1.2 Report 2: Rep02_Can_70yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include site-specific parameter report
Include UTM coordinates

1.3 Report 3: Rep03_Can_70yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.4 Report 4: Rep04_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
Include site-specific parameter report
Include UTM coordinates

1.5 Report 5: Rep05_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include site-specific parameter report
Include UTM coordinates

1.6 Report 6: Rep06_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_DosePath_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.7 Report 7: Rep07_Acu_AllRec_AllSrc_AllCh_ByRec_ UTM.txt

Health effect: Acute HI Simple (Concurrent Max.)
Analysis method: Point Estimate
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
Include UTM coordinates
Generated report using acute model run to account for variable emission rates

1.8 Report 8: Rep08_Acu_AllRec_AllSrc_AllCh_ByRec_ByChem_ UTM.txt

Health effect: Acute HI Simple (Concurrent Max.)
Analysis method: Point Estimate
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include UTM coordinates
Generated report using acute model run to account for variable emission rates

1.9 Report 9: Rep09_Can_70yr_AllOEH_Rec12_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor number: 12 (Receptor number is chosen automatically)
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.10 Report 10: Rep10_Chr_Res_DerOEH_Rec3_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor number: 3 (Receptor number is chosen automatically)
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.11 Report 11: Rep11_Acu_Rec14_AllSrc_AllCh_ByRec_ByChem_ UTM.txt

Health effect: Acute HI Simple (Concurrent Max.)
Analysis method: Point Estimate
Receptor number: 14 (Receptor number is chosen by user)
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include UTM coordinates
Generated report using acute model run to account for variable emission rates

1.12 Report 12: Rep12_Can_WRK_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 40 year (worker)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates
Generated report using worker site parameters and exposure pathways

1.13 Report 13: Rep13_Chr_Wrk_PtEst_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: worker
Analysis method: Point estimate
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates
Generated report using worker site parameters and exposure pathways

1.14 Report 14: Rep14_Can_30yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 30 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.15 Report 15: Rep15_Can_9yrA_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 9 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.16 Report 16: Rep16_Can_9yrC_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 9 year (child resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.17 Report 17: Rep17_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Derived (Adjusted) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.18 Report 18: Rep18_Can_70yr_Inh_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: 80th Percentile Point Estimate (inhalation pathway only)
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.19 Report 19: Rep19_Can_70yr_AllAdj_AllRec_AllSrc_AllCh_ByRec_ByChem_DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, Adjusted (inhalation)/High-end, and Derived (Adjusted) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

1.20 Report 20: REP20_PMI_70yr.txt

Receptors with highest cancer risk
Receptors with highest Chronic Hazard Index

1.21 Report 20: REP20acute_PMI.txt

Receptors with highest Acute Hazard Index

1.22 Report 21: Rep21_ExceptionReport.txt

Lists all non-default changes that are made to the network

2 Current Operations (Supplemental HRA), HARP Standard Report Set

2.1 Report 1: Rep01_Can_70yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
Include site-specific parameter report
Include UTM coordinates

2.2 Report 2: Rep02_Can_70yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include site-specific parameter report
Include UTM coordinates

2.3 Report 3: Rep03_Can_70yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.4 Report 4: Rep04_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
Include site-specific parameter report
Include UTM coordinates

2.5 Report 5: Rep05_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include site-specific parameter report
Include UTM coordinates

2.6 Report 6: Rep06_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_DosePath_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.7 Report 7: Rep07_Acu_AllRec_AllSrc_AllCh_ByRec_ UTM.txt

Health effect: Acute HI Simple (Concurrent Max.)
Analysis method: Point Estimate
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
Include UTM coordinates
Generated report using acute model run to account for variable emission rates

2.8 Report 8: Rep08_Acu_AllRec_AllSrc_AllCh_ByRec_ByChem_ UTM.txt

Health effect: Acute HI Simple (Concurrent Max.)
Analysis method: Point Estimate
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include UTM coordinates
Generated report using acute model run to account for variable emission rates

2.9 Report 9: Rep09_Can_70yr_AllOEH_Rec12_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor number: 12 (Receptor number is chosen automatically)
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.10 Report 10: Rep10_Chr_Res_DerOEH_Rec4_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: resident
Analysis method: Derived (OEHHA) Method
Receptor number: 4 (Receptor number is chosen automatically)
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.11 Report 11: Rep11_Acu_Rec14_AllSrc_AllCh_ByRec_ByChem_UTM.txt

Health effect: Acute HI Simple (Concurrent Max.)
Analysis method: Point Estimate
Receptor number: 14 (Receptor number is chosen by user)
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Include UTM coordinates
Generated report using acute model run to account for variable emission rates

2.12 Report 12: Rep12_Can_WRK_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 40 year (worker)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates
Generated report using worker site parameters and exposure pathways

2.13 Report 13: Rep13_Chr_Wrk_PtEst_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Chronic HI
Exposure duration: worker
Analysis method: Point estimate
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates
Generated report using worker site parameters and exposure pathways

2.14 Report 14: Rep14_Can_30yr_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 30 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.15 Report 15: Rep15_Can_9yrA_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 9 year (adult resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.16 Report 16: Rep16_Can_9yrC_AllOEH_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 9 year (child resident)
Analysis method: Average, High-end and Derived (OEHHA) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.17 Report 17: Rep17_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Derived (Adjusted) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.18 Report 18: Rep18_Can_70yr_Inh_AllRec_AllSrc_AllCh_ByRec_ByChem_ DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: 80th Percentile Point Estimate (inhalation pathway only)
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.19 Report 19: Rep19_Can_70yr_AllAdj_AllRec_AllSrc_AllCh_ByRec_ByChem_DosePath_Site_UTM.txt

Health effect: Cancer Risk
Exposure duration: 70 year (adult resident)
Analysis method: Average, Adjusted (inhalation)/High-end, and Derived (Adjusted) Method
Receptor(s): All
Sources(s): All
Chemicals(s): All
Report: By Receptor
By Chemical
Dose by Pathway
Include site-specific parameter report
Include UTM coordinates

2.20 Report 20: REP20_PMI_70yr.txt

Receptors with highest cancer risk
Receptors with highest Chronic Hazard Index

2.21 Report 20: REP20acute_PMI.txt

Receptors with highest Acute Hazard Index

2.22 Report 21: Rep21_ExceptionReport.txt

Lists all non-default changes that are made to the network

Appendix G

HARP Risk Analysis Files
[Provided Electronically]

1 2013 Operations (2013 HRA), HARP Risk Analysis Files

1.1 HARP Output Files for Residential Cancer and Chronic Health Impacts

File Name **File Description**

Cancer_Population_Exposure.txt

Cancer population exposure within $1x10^{-6}$ risk isopleth

Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Residential Cancer Risk Report, 70-year Exposure, Derived (Adjusted) Analysis, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Can_70yr_DerAdj_Rec748_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Residential Cancer Risk Report, 70-year Exposure, Derived (Adjusted) Analysis, Receptor 748, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

Rep_Can_70yr_DerAdj_Rec10942_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Residential Cancer Risk Report, 70-year Exposure, Derived (Adjusted) Analysis, Receptor 10942, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

Rep_Can_30yr_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Residential Cancer Risk Report, 30-year Exposure, Derived (OEHHA) Analysis, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Can_9yrA_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Residential Cancer Risk Report, 9-year Exposure, Derived (OEHHA) Analysis, Adult, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Can_9yrC_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Residential Cancer Risk Report, 9-year Exposure, Derived (OEHHA) Analysis, Child, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Residential Chronic HI Report, Resident Exposure, Derived (OEHHA) Analysis, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Chr_Res_DerOEH_Rec750_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Residential Chronic HI Report, Resident Exposure, Derived (OEHHA) Analysis, Receptor 750, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

Rep_Chr_Res_DerOEH_Rec10970_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Residential Chronic HI Report, Resident Exposure, Derived (OEHHA) Analysis, Receptor 10970, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

1.2 HARP Output Files for Worker Cancer and Chronic Health Impacts

File Name **File Description**

Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Worker Cancer Risk Report, Point Estimate, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Can_WRK_Avg_Rec924_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Worker Cancer Risk Report, Point Estimate, Receptor 924, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

Rep_Chr_Wrk_PtEst_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Worker Chronic HI Report, Point Estimate, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Chr_Wrk_PtEst_Rec925_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Worker Chronic HI Report, Point Estimate, Receptor 925, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

1.3 HARP Output Files for Acute Health Impacts

File Name **File Description**

Rep_Acu_AllRec_AllSrc_AllCh_ByRec_UTM.txt

Acute HI Report, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Acu_Rec14_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 14, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

Rep_Acu_Rec749_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 749, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

Rep_Acu_Rec924_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 924, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

Rep_Acu_Rec10942_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 10942, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

1.4 Site Parameters Files

File Name	File Description
Residential.sit	Residential site parameters
Worker.sit	Off-site Worker site parameters

1.5 Ground-Level Concentration Files

File Name	File Description
GLC_1HR-acute.csv	Maximum 1-hour ground-level concentration at all receptors, exported from HARP
GLC_AVRG.csv	Average period ground-level concentration at all receptors, exported from HARP

2 Current Operations (Supplemental HRA) HARP Risk Analysis Files

2.1 HARP Output Files for Residential Cancer and Chronic Health Impacts

File Name	File Description
Cancer_Population_Exposure.txt	Cancer population exposure within $1x10^{-6}$ risk isopleth
Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt	Residential Cancer Risk Report, 70-year Exposure, Derived (Adjusted) Analysis, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included
Rep_Can_70yr_DerAdj_Rec750_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt	Residential Cancer Risk Report, 70-year Exposure, Derived (Adjusted) Analysis, Receptor 750, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included
Rep_Can_70yr_DerAdj_Rec10942_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt	Residential Cancer Risk Report, 70-year Exposure, Derived (Adjusted) Analysis, Receptor 10942, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included
Rep_Can_30yr_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt	Residential Cancer Risk Report, 30-year Exposure, Derived (OEHHA) Analysis, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included
Rep_Can_9yrA_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt	Residential Cancer Risk Report, 9-year Exposure, Derived (OEHHA) Analysis, Adult, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included
Rep_Can_9yrC_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt	Residential Cancer Risk Report, 9-year Exposure, Derived (OEHHA) Analysis, Child, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Residential Chronic HI Report, Resident Exposure, Derived (OEHHA) Analysis, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Chr_Res_DerOEH_Rec750_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Residential Chronic HI Report, Resident Exposure, Derived (OEHHA) Analysis, Receptor 750, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

Rep_Chr_Res_DerOEH_Rec10970_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Residential Chronic HI Report, Resident Exposure, Derived (OEHHA) Analysis, Receptor 10970, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

2.2 HARP Output Files for Worker Cancer and Chronic Health Impacts

File Name **File Description**

Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Worker Cancer Risk Report, Point Estimate, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Can_WRK_Avg_Rec925_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Worker Cancer Risk Report, Point Estimate, Receptor 925, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

Rep_Chr_Wrk_PtEst_AllRec_AllSrc_AllCh_ByRec_Site_UTM.txt
Worker Chronic HI Report, Point Estimate, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Chr_Wrk_PtEst_Rec925_AllSrc_AllCh_BySrc_ByChem_DosePath_Site.txt
Worker Chronic HI Report, Point Estimate, Receptor 925, All Sources, All Chemicals, By Source, By Chemical, Dose by Pathway, with Site Parameters included

2.3 HARP Output Files for Acute Health Impacts

File Name **File Description**

Rep_Acu_AllRec_AllSrc_AllCh_ByRec_UTM.txt

Acute HI Report, All Receptors, All Sources, All Chemicals, By Receptor, with Site Parameters and UTM Coordinates included

Rep_Acu_Rec14_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 14, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

Rep_Acu_Rec749_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 749, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

Rep_Acu_Rec924_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 924, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

Rep_Acu_Rec10942_AllSrc_AllCh_BySrc_ByChem.txt
Acute HI Report, Receptor 10942, All Sources, All Chemicals, By Source, By Chemical, with Site Parameters included

2.4 Site Parameters Files

File Name	File Description
Residential.sit	Residential site parameters
Worker.sit	Off-site Worker site parameters

2.5 Ground-Level Concentration Files

File Name	File Description
GLC_1HR-acute.csv	Maximum 1-hour ground-level concentration at all receptors, exported from HARP
GLC_AVRG.csv	Average period ground-level concentration at all receptors, exported from HARP