

**REVIEW OF CANYON ROCK  
AB2588 HEALTH RISK ASSESSMENT (HRA)**

October 9, 2018

Site ID: 00049

Toxics Emissions Inventory Year: 2013

Review Conducted by: Michael Kehetian, SDAPCD

A Health Risk Assessment (HRA) was performed for the Superior Ready Mix Canyon Rock Facility, 7500 Mission Gorge Road, San Diego, CA 92120 by Sage ATC Environmental Consulting. This Submittal HRA was provided to the District for review on February 3, 2017.

The following are the District's results based on modifications made to the Submittal HRA. These results takes into account the facility's written responses provided to the District in a letter dated April 19, 2017.

**Summary of Review Risk Assessment Results:**

Cancer Point of Maximum Impact (PMI)	30 in one million
Cancer Maximum Exposed Individual Resident (MEIR)	15 in one million
Cancer Maximum Exposed Individual Worker (MEIW)	1.5 in one million

Chronic Noncancer Health Hazard Index (PMI)	2.7
Chronic Noncancer Health Hazard Index (MEIR)	0.7
Chronic Noncancer Health Hazard Index (MEIW)	0.9
8-Hour Noncancer Health Hazard Index (MEIW)	0.1

Acute Noncancer Health Hazard Index (PMI)	2.81
Acute Noncancer Health Hazard Index (MEIR)	2.74
Acute Noncancer Health Hazard Index (MEIW)	2.0

Sub-Chronic Lead Exposure Risk	< 0.12 ug/m <sup>3</sup>
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The High Exposure Scenario approval level is 0.12 ug/m<sup>3</sup> in the Air Resources Board (ARB) Risk Management Guidelines for Lead, 2001.

Population Excess Cancer Burden	0.003
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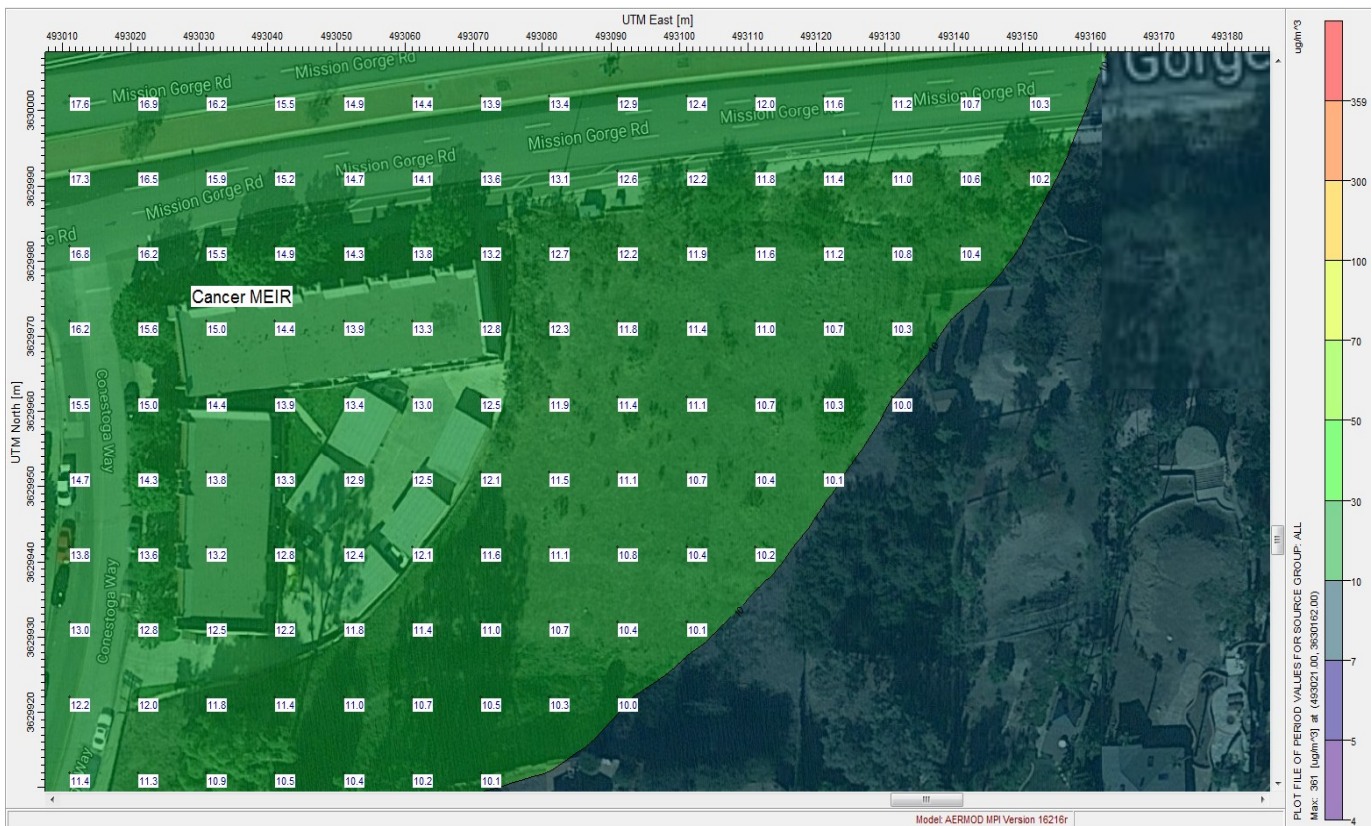
## Summary of Health Impacts

Cancer risk at the MEIR is due to arsenic (~47%), hexavalent chromium (~33%), nickel (~7%), formaldehyde (~7%), and benzene (~4%) from various emitting sources within the facility.

The Acute Health Hazard Index (HHI) to the immune system is due to nickel (~93%) from the Drum Mix Asphalt Production (Permit 930742).

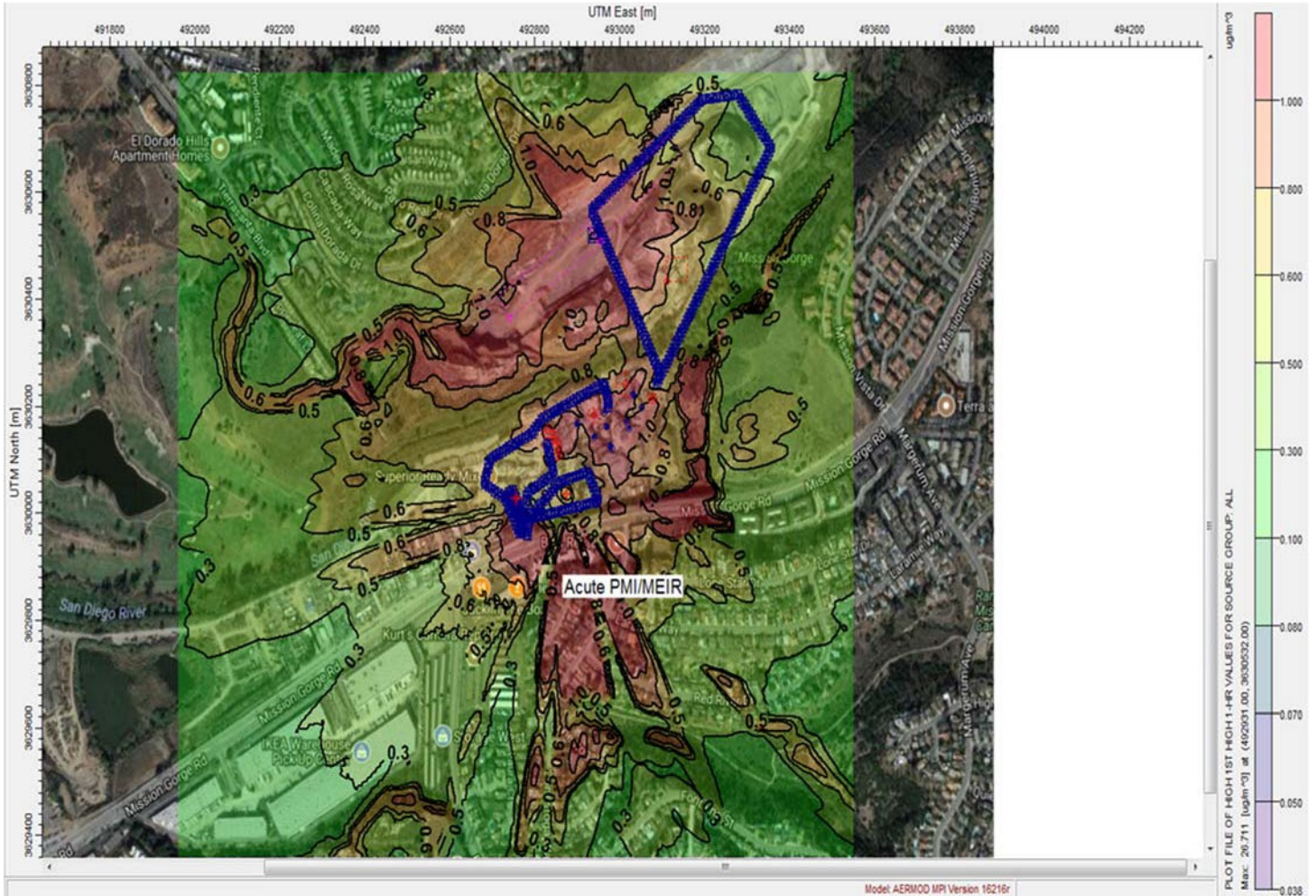
The HRA concludes that cancer risk at residential receptors and the acute HHI exceed the public notification levels specified in District Rule 1210. In addition, the acute HHI requires risk reduction measures to not exceed 1.0. The following maps show the extent of the public notification area.

Residential Cancer Risk > 10 in one million  
(Green Contour, Apartment Complex Southeast of Facility)



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Acute Health Hazard Index (HHI) > 1.0  
(Red Contours)



Note: blue lines are facility's haul roads

## **REVIEW OF CANYON ROCK AB2588 HEALTH RISK ASSESSMENT (HRA)**

### **District Comments:**

#### **Modelling**

The District accepted urban dispersion coefficients presented in the Submittal HRA. It is noted that in the future, rural dispersion coefficients may be required if District policy changes.

The District remodeled using the urban coefficients and adjusted the surface roughness from the default of 1.0 to 0.437 which is more representative of the prevailing northwesterly winds for the Kearny Mesa 2010-2012 meteorology data, which was used in the analysis. The dispersion results comparing a surface roughness of 1.0 reduced to 0.437 were negligible. The surface roughness equal to 0.437 was used in the District's HRA revision. The Kearny Mesa 2010-2012 meteorology data was processed with AERMET Version 16216, and the regulatory default adjusted ustar option was used.

The most recent NED Geotiff 10-meter resolution terrain data was uploaded in the Lakes AERMOD model and used for running AERMAP.

The Concrete Batch Plant (Permit 972902) exhaust was modeled as a vertical unobstructed point source by the District, which is consistent with the Submittal HRA. The applicant verified the stack exhaust is vertical with supporting pictures.

For the AERMOD particulate depletion option, the wet and dry deposition were disabled in the Submittal HRA which is the District's default modelling procedure.

#### **Risk Calculations**

In accordance with the OEHHA Guidance Manual, 2015, Estimation of Concentrations in Air, Soil, and Water, Section 5.3, the OEHHA default deposition rate of 0.05 meters per second (representative of particulate matter greater than 2.5 microns in diameter) for all fugitive and uncontrolled particulate matter was used by the District for the noninhalation exposure pathways. The noninhalation pathways for arsenic (dermal contact, soil ingestion, and mother's milk) contribute to 38% of the total risk of 15 in one million at the MEIR. The facility controls emissions from haul roads with watering and claims emissions from the haul roads would only be PM2.5. Since fugitive dust of arsenic is treated as PM10 and the District disagrees that watering results in all dust emissions being PM2.5, a deposition rate of 0.05 meters per second should be used. The District has also determined (see AP-42, Hot Mix Asphalt Plants, 2004, Table 11.1-4) that the default deposition rate of 0.05 meters per second is most representative of the Drum Mix Asphalt Production Plant (Permit 930742) emissions. In contrast, the Submittal HRA assumed a deposition rate of 0.02 meters per second for all particulate emissions. It is noted though that the noninhalation risk from Cr+6 is negligible, therefore, using a deposition rate of



## **REVIEW OF CANYON ROCK AB2588 HEALTH RISK ASSESSMENT (HRA)**

0.02 meters per second will not significantly influence the risk contribution from Cr+6. Unless a demonstration acceptable to the District is provided by the facility showing that the 0.02 meters per second deposition rate is more representative for some or all of the particulate emissions, the deposition rate for all particulate emissions must be 0.05 meters per second.

The Submittal HRA used fraction of time (FAH) adjustment. This should not be done if a school is within the 1.0 in one million residential cancer risk isopleth. Since there is a school (Excelsior Academy) within a 1.0 in one million residential cancer risk isopleth in the District's revised modeling, FAH adjustment was not applied for receptors with ages less than 16 years. This is consistent with OEHHA Guidance Manual, Fraction of Time Spent at Home for Cancer Risk Assessment, Section 8.2.2.

### **2013 Toxics Emissions Inventory**

Consistent with the Submittal HRA, the haul roads watering control efficiency was increased from 80% to 95% based on two-hour watering intervals since this control efficiency has been approved for the revised toxic emissions inventory.

Consistent with the Submittal HRA, the Cement Silo Loading (Permit 1339) emissions were calculated using the District default emission factors for Pneumatic Loading (instead of default Bucket Loading factors) since this has been approved for the revised toxic emissions inventory.

In the Submittal HRA, the emissions for the Drum Mix Asphalt Production Plant (Permit 930742) were calculated using unapproved metal emission factors referenced as based on the Mineral Products Industry Facilities Report (MPI Report), Profile 5, prepared by AWR Engineering Group, July 1996. The MPI Report was reviewed by the District. The MPI Report provided metal concentrations based on several dust samples. These dust samples were captured by fabric filters from selected sites and put together as a composite sample. These metal concentrations appear to have been used in some manner to estimate the revised metal emission factors for the Drum Mix Asphalt Production Plant. The District informed the facility that the metal concentrations they presented are not necessarily representative because the dust samples were composite samples not site specific and were samples of particulate collected and not particulate emitted. The existing Approved Emissions Inventory uses metal emission factors from AP-42, Hot Mix Asphalt Plants, 2004, Table 11.1-12. The District determined the AP-42 emission factors are more representative than the emission factors presented in the Submittal HRA. The AP-42 factors need to be used in the HRA unless a demonstration acceptable to the District is provided that different factors are more representative.

# Office of Environmental Health Hazard Assessment



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Edmund G. Brown Jr.  
Governor

October 18, 2017

Archi dela Cruz  
Senior Air Pollution Control Engineer  
Toxics Engineering and Emissions Inventory Section  
San Diego County Air Pollution Control District (SDAPCD)  
10124 Old Grove Road  
San Diego, California 92131

Subject: Review of the Hot Spots Risk Assessment for the Superior Ready Mix Canyon Rock Facility (SDAPCD Facility number 103A)

Dear Mr. dela Cruz:

The Air Toxics Hot Spots Program health risk assessment (HRA) for airborne emissions from the **Superior Ready Mix LP, Canyon Rock Facility** in the city of San Diego, California has been reviewed by staff of the Office of Environmental Health Hazard Assessment (OEHHA) as required by Section 44361 of the California Health and Safety Code. The Canyon Rock facility produces sand, crushed rock, and road base, and provides concrete, aggregate, and asphalt products for use in construction, landscape and home improvement. The HRA from Canyon Rock dated February 2017 ("Facility HRA" hereafter) covers calendar year (CY) 2013. In the Facility HRA, cancer risks and non-cancer hazard indices (His) were calculated.

In CY 2013, emissions from Canyon Rock were generated by five stationary sources and their individual haul roads which contributed fugitive Toxic Air Contaminant (TAC) emissions (Facility HRA page 1-2). These roads were treated as one separate source, making a total of six modeled, primary TAC sources at the Canyon Rock Facility. Each source had one or more sub-sources. Sub-sources are detailed in the Facility HRA (pages 1-2 to 1-3). Primary sources included:

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California Environmental Protection Agency

Sacramento: (916) 324-7572 Oakland: (510) 622-3200

[www.oehha.ca.gov](http://www.oehha.ca.gov)

<u>Modeled Emission Sources</u>	<u>Permit Numbers</u>	<u>Operating Hours</u>
Cement Treated Base Plant (CTB)	1339	06:00 - 18:00
Rock Crushing and Screening Plant	1572	Variable
Relocatable Rock (Recycle) Plant	890533	06:00 - 18:00
Hot-Mix Asphalt Drum-Mix Plant	930742	up to 24 hrs/day
Dual Alley Concrete Batch Plant	972902	06:00 - 18:00
Haul Roads	not provided	06:00 - 18:00*

\*except road for the Hot-Mix Plant which operated 24 hrs/day

The United States Environmental Protection Agency's computer model, AERMOD (version 15181), was used to estimate ground-level pollutant concentrations from each source, and the Facility HRA was completed by conducting a total of six modeling runs (Facility HRA page 1-9). The California Air Resources Board's Hot Spots Analysis and Reporting Program (HARP2; version 16217), and PLOTFILES from AERMOD were used to assess exposures and health impacts for various receptors (Facility HRA page 1-10 to 1-11). Of the 45 TACs emitted, 25 were subject to evaluation for cancer and non-cancer (acute, 8-hr, and chronic) health risks (Facility HRA page 1-8; Table 1-4). Estimated air emissions in 2013 included but were not limited to crystalline silica (no CAS #; 5407 lbs/yr), nickel (CAS # 7440-02-0; 23.92 lbs/yr), arsenic (CAS # 7440-38-2; 1.31 lbs/yr), and hexavalent chromium (CAS # 18540-29-9; 0.22 lbs/yr). A complete list of emissions can be seen in the Facility HRA, Table 1-3, page number 1-6.

In March 2015, OEHHA adopted an updated *Air Toxics Hot Spots Guidance Manual for Preparation of Health Risk Assessments* as mandated by the Children's Environmental Health Protection Act of 1999. The current Facility HRA was based on an approach adopted by the SDAPCD in a preliminary analysis of potential health risks from the Canyon Rock facility. Specific differences between the approaches taken in the Facility HRA and in the SDAPCD's preliminary analysis are listed on pages 1-4 to 1-5 of the former. OEHHA did not assess the appropriateness of the changes. The purpose of this letter is to convey the results of our evaluation of the current Facility HRA; it should not be construed to imply that OEHHA agrees with any editorial comments or statements contained in the text of the risk assessment that do not impact the results. Our assessment assumes emissions modeling was performed correctly and in accordance with guidelines from OEHHA and the SDAPCD's *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program HRAs*. OEHHA's analysis (attached) of the risks depends on the accuracy of the emissions estimates, the appropriateness of the air dispersion modeling, completeness of the Facility HRA, and the corroborating files provided. We hope that our comments are useful to the District. If you would like to discuss the review, please call Dr. John Budroe at (510) 622-3150.

Mr. Archi dela Cruz  
October 18, 2017  
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Sincerely,



Rona M. Silva, Ph.D.  
Associate Toxicologist  
Air Toxicology and Risk Assessment Section



## OEHHA's Review of the Superior Ready Mix Canyon Rock Facility Health Risk Assessment

### 1. Limitations

Some additional information is needed for OEHHA to assess more fully and accurately the calculated risks. A summarized list of the things needed to clarify the HRA is shown below along with some missing HRA elements required by OEHHA and SDAPCD.

1. Although comma-separated values (.csv) files were provided to allow confirmation of the risks reported for specific receptors noted in the Facility HRA, no KML files were provided. Thus, OEHHA was unable to confirm whether receptors reported as the point of maximum impact (PMI), maximally exposed individual worker (MEIW), or maximally exposed individual resident (MEIR) for cancer/non-cancer risks were correct. (Note: OEHHA was able to observe the identified PMI, MEIW, and MEIR UTM coordinates via Google Earth to confirm their location on the fence-line, off-site, and/or in residential areas.)
2. Stated contributions from specific chemical drivers to acute and chronic His for the MEIR and MEIW appear to consider effects only on the primary target organ/system. The Facility HRA is ambiguous in this respect. OEHHA was able to use csv files to back-calculate (confirm) the reported His. Stated acute His for the MEIR and MEIW appear to ignore impacts of manganese and benzene, likely because they were not shown to affect the respiratory system.
3. The geographical reference point for the facility was not provided in Universal Transverse Mercator (UTM), and it was not specified whether the other UTM coordinates given were North American Datum of 1927 or 1983 (NAO 27 or NAO 83, respectively).
4. Chemical drivers, sources, and their associated contributions to the risks (cancer, chronic, 8-hour, and acute) at the point of maximum impact (PMI) are not shown in the Facility HRA. An estimate of the 8-hour hazard index (HI) at the PMI is also missing.
5. Acute and chronic hazard quotients (HQs) for the PMI, MEIR, MEIW, and sensitive receptors are missing, as is the 8-hr HQ for the MEIW.
6. Physical form of emitted substances not noted for hazard identification.
7. Number of operating hours per year not stated for sources.
8. There were no reports of emission control equipment and efficiencies by source and substance.

9. Memos indicating the District's approval of meteorological data were not included.

## 2. Summary of Information Provided

### I. Background Information

Facility Name	Superior Ready Mix Canyon Rock Facility
Facility Address	7500 Mission Gorge Road San Diego, CA 92120
UTM (m E, m N)	NP
Land Use Type	NP
SDAPCDID	103A
Reporting Year	2013

Information shown is from the Facility HRA (page 1-1).

NP - Not provided in the HRA or any files reviewed by OEHHA.

### II. Offsite Cancer Risk

Cancer Risk Category	Excess Risk in 1 million	UTM (m E, m N)	Receptor#
PMI <sup>a</sup>	13.24	492788, 3629960	949
MEIR <sup>b</sup>	4.62	493038, 3629960	978
MEIR-optional (70-yr) <sup>c</sup>	5.18	493038, 3629960	978
MEIW <sup>d</sup>	1.15	492713, 3629985	959

Information shown is from the Facility HRA (page 1-12) unless otherwise noted.

<sup>a</sup>According to the Facility HRA (page 1-12), excess cancer risk at the PMI is only a theoretical calculation, since no person can actually be working or living at that location, which is directly adjacent to the facility property line on Mission Gorge Road.

<sup>a</sup>Receptor confirmed as PMI in MR1-HARP-Cancer-ALL-30 Year.csv. UTM and risk confirmed in MR1-HARP-Cancer-PMI-30 Year.csv.

<sup>b</sup>LJTM and risk information confirmed in MR1-HARP-Cancer-MEIR-30 Year.csv.

<sup>c</sup>Information obtained by OEHHA from MR1-HARP-Cancer-MEIR-70 Year.csv.

<sup>d</sup>LJTM and risk information confirmed in MR1-HARP-Cancer-MEIW-25 Year.csv.

### III. Offsite Cancer Risk Sources and Drivers

Cancer Risk Category	Primary Chemical Drivers & Impact(%)	Primary Sources & Impact(%)	Primary Pathways
PMIa	Arsenic (80.3%) and hexavalent chromium (15.15%)	NP	Inhalation, soil, and dermal
MEIR (30-yr exposure)b	Arsenic (69.26%) and hexavalent chromium (11.69%)	NP	Soil, inhalation, and dermal
MEIR-optional (9-yr exposure)	NP	NP	NP
MEIR-optional (70-yr exposure)c	Arsenic (68.15%) and hexavalent chromium (12.1%)	NP	Soil, inhalation, and dermal
MEIW (25-yr exposure )d	Hexavalent chromium (51.6%) and arsenic (39.94%)	NP	Inhalation , soil, and dermal

All information shown, except primary pathways, is from the Facility HRA (pages 1-12 to 1-13) unless otherwise noted.

NP - Not provided in the HRA or any csv files reviewed by OEHHA.

aMR1-H ARP-Cancer-PMI-30 Year.csv used by OEHHA to calculate impact due to chemical drivers and determine primary pathways.

bMR1-HARP-Cancer-MEIR-30 Year.csv used to determine pathways and confirm chemical information.

cMR1-HARP-Cancer-MEIR-70 Year.csv used to determine pathways and confirm chemical information.

dMR1-HARP-Cancer-MEIW-25 Year.csv used to determine pathways and confirm chemical information.

According to the Facility HRA, 58 census tract/block number centroids were identified as being within a 1.5 kilometer radius of the Canyon Rock facility. Receptors were established at each of those centroids, and seven census tract receptors were found to have an excess cancer risk of >1 in one million. Table IV below identifies these seven receptors. For the three census tracts containing the high-risk receptors, population cancer burden was calculated at 3.11E-03.

**IV. Population Excess Cancer Burden Analysis (70-yr Exposure Duration)**

Census Tract*	Block	Census Tract Population	Cancer risk at the Receptor**	Cancer Burden
9507	2004	0	2.74E-06	0
9507	3002	292	1.11E-06	3.24E-04
9602	1000	228	1.45E-06	3.30E-04
9704	1000	723	2.05E-06	1.49E-03
9704	1001	128	1.72E-06	2.20E-04
9704	1002	400	1.25E-06	5.02E-04
9704	1004	107	2.34E-06	2.51E-04
<b>Total</b>				<b>3.11E-03</b>

\* Census block receptors and population data from the HARP2 Model.

\*\* Cancer Risk at Census Receptors were evaluated using HARP (Exposure Duration- 70 year). Table adapted from the Facility HRA (page 1-19; Table 1-15).

**V. Offsite Chronic Non-Cancer His**

Chronic Risk Category	HI	UTM (m E, m N)	Receptor#	Primary Target Organ/System
PMI*a	1.03	492788, 3629960	949	Respiratory
MEIRb	0.30	493038, 3629960	978	Respiratory
MEIW	0.45	492713, 3629985	959	Respiratory

All information shown is from the Facility HRA unless otherwise noted.

\*According to the Facility HRA (page 1-14), chronic non-cancer exposure at the PMI is only a theoretical calculation, since no person can actually be working or living at that location, which is directly adjacent to the property line on Mission Gorge Road.

°Receptor confirmed as PMI by OEHHA using MR1-HARP-Chronic-ALL.csv. UTM and HI confirmed by OEHHA using MR1-HARP-Chronic-PMI.csv. This latter file was also used by OEHHA to determine primary target system.

bMR1-HARP-Chronic-MEIR.csv used by OEHHA to confirm UTM and target system. HI was shown in this file to be 0.32. The HI value of 0.30 appears to ignore contributions from Manganese (HI = 2.05E-02) and Benzene (HI = 1.52E-03).

cMR1-HARP-Chronic-MEI W.csv used by OEHHA to confirm UTM and target system. HI was shown in this file to be 0.48. The HI value of 0.45 appears to ignore contributions from Manganese (HI= 3.79E-02) and Benzene (HI = 2.84E-04).

**VI. Offsite Chronic Non-Cancer Sources and Drivers**

<b>Chronic Risk Category</b>	<b>Primary Chemical Drivers &amp; Impact(%)</b>	<b>Primary Sources &amp; Impact(%)</b>
PMIa	Arsenic (NP) and crystalline silica (NP)	<b>NP</b>
<b>MEIR</b>	Arsenic (61.28%) and crystalline silica (34.49%)	<b>NP</b>
<b>MEIW</b>	Crystalline silica (48.93%) and arsenic (47.58%)	<b>NP</b>

All information shown is from the Facility HRA (pages 1-14 to 1-15) unless otherwise noted.

NP - Not Provided in the HRA.

aMR1-HARP-Chronic-PMI.csv used by OEHHA to determine primary chemical drivers.

bMR1-HARP-Chronic-MEIR.csv used by OEHHA to confirm primary chemical drivers. Some chemicals that were shown in the csv file to have contributed to the total HI were not considered in the Facility HRA (page 1-15; Table 1-9) or included in the calculation of the HI because they did not affect the primary target (respiratory system). OEHHA believes these chemicals included Manganese (HI = 2.05E-02) and Benzene (HI = 1.52E-03). If all chemicals and targets are considered, impacts from arsenic and crystalline silica are approximately 57% and 32%, respectively.

cMR1-HARP-Chronic-MEIW.csv used by OEHHA to confirm primary chemical drivers. Some chemicals that were shown in the csv file to have contributed to the HI were not considered in the Facility HRA (page 1-15; Table 1-10) or included in the calculation of the HI because they did not affect the primary target (respiratory system). OEHHA believes these chemicals included Manganese (HI= 3.79E-02) and Benzene (HI = 2.84E-04). If all chemicals and targets are considered, impacts from arsenic and crystalline silica are approximately 45% and 44%, respectively.

**VII. Offsite 8-Hour Chronic Non-Cancer His**

<b>8-hr Chronic Risk Category</b>	<b>HI</b>	<b>UTM (m E, m N)</b>	<b>Receptor#</b>	<b>Primary Target Organ/System</b>
PMI	NP	NP	NP	NP
MEIW	0.08	492713, 3629985	959	Central Nervous System

All information shown is from the Facility HRA (page 1-16). OEHHA was not able to confirm this information.

NP - Not Provided in the HRA.

### VIII. Offsite 8-Hour Chronic Non-Cancer Sources and Drivers

8-hr Chronic Risk Category	Primary Chemical Drivers & Impact (%)	Primary Sources & Impact (%)
PMI	NP	NP
MEIW	Manganese (72.86%) and arsenic (27.14%)	NP

All information shown is from the Facility HRA (page 1-16). OEHHA was not able to confirm this information. NP - Not Provided in the HRA.

### IX. Offsite Acute Non-Cancer His

Acute Risk Category	HI	UTM (m E, m N)	Receptor#	Primary Target Organ/System
PMIa	0.39	492804, 3630657	869	Immune System
MEIRb	0.36	492901, 3629889	726	Eyes
MEIWC	0.26	492713, 3629985	959	Immune System

All information shown is from the Facility HRA (page 1-17) unless otherwise noted.

aReceptor confirmed as PMI by OEHHA using MR1-HARP-Acute-ALL.csv. UTM, HI and primary target confirmed by OEHHA in MR1-HARP-Acute-PMI.csv.

bMR1-HARP-Acute-MEIR.csv used by OEHHA to confirm HI, UTM, and target system for the given receptor.

cMR1-HARP-Acute-MEIW.csv used by OEHHA to confirm HI, UTM, and target system for the given receptor.

### X. Offsite Acute Non-Cancer Sources and Drivers

Acute Risk Category	Primary Chemical Drivers & Impact{}	Primary Sources & Impact{}
PMIa	Nickel (97.21%)	NP
MEIRb	Formaldehyde (99.98%)	NP
MEIWC	Nickel (92.9%) and Benzene (7.1%)	NP

All information shown is from the Facility HRA (pages 1-17) unless otherwise noted. NP - Not Provided in the HRA.

aMR1-HARP-Acute-PMI.csv used by OEHHA to confirm primary chemical driver. The stated chemical-specific impact (97.21%) relates only to effects on the immune system. When considering all target organs/systems, the impact of nickel is approximately 60%. That of arsenic is approximately 31%.

bMR1-HARP-Acute-MEIR.csv used by OEHHA to confirm primary chemical driver. The stated chemical-specific impact (99.98%) relates only to effects on the eyes. When considering all target organs/systems, the impact of formaldehyde is approximately 49%. That of nickel and arsenic is approximately 24% and 14%, respectively.

cMR1-HARP-Acute-MEIW.csv used by OEHHA to confirm primary chemical drivers. The stated chemical-specific impact (92.9% and 7.1% for nickel and benzene, respectively) relate only to effects on the immune system. When considering all target organs/systems, the impacts of nickel, arsenic, formaldehyde and benzene are approximately 49%, 32%, 15%, and 4%, respectively.



**XI. Sensitive Receptors (Highest Values)**

<b>Risk Category</b>	<b>Impact</b>	<b>UTM (m E, m N)</b>	<b>Receptor #</b>	<b>Primary Pathways (Cancer Risk) or Target Organs/Systems (His)</b>
Cancer Risk (in 1 million) <sup>a</sup>	0.51*	491808, 3629386	NP	Soil and inhalation
Chronic Hlb	0.028	Same as above	NP	Central nervous and cardiovascular systems
Acute Hie	0.059	Same as above	NP	Immune and reproductive/developmental systems

All information shown, except primary pathways and target organs/systems, is from the Facility HRA (pages 1-19). Side Note: All sensitive receptor information shown in the Facility HRA (page 1-19, Table 1-16) was confirmed by OEHHA except the acute HI for Lewis Middle School which was off by one order of magnitude. In the HRA, the acute HI was noted as 0.0043, but the acute csv file named below shows the value is 0.043.

NP - Not Provided in the HRA.

<sup>a</sup>MR4-HARP-Cancer-All.csv used by OEHHA to determine primary exposure pathways, and confirm impact and UTM.

<sup>b</sup>MR4 -HARP-Chronic-All.csv used by OEHHA to determine primary targets, and confirm impact and UTM.

<sup>c</sup>MR4-HARP- Acute-All.csv used by OEHHA to determine primary targets, and confirm impact and UTM.

**XII. Analysis of the 30-day Lead Concentrations**

<b>Source</b>	<b>Monthly Lead Contribution (µg/m<sup>3</sup>)</b>	<b>Contribution(%)</b>
Cement Treated Plant	0.00002	0.23
Rock Crushing Plant	0.00216	24.86
Recycle Plant	0.00001	0.12
Hot Mix Asphalt Plant	0.00002	0.23
Concrete Batch Plant	0.00461	53.05
Haul Roads	0.00187	21.52
<b>Sum</b>	<b>0.00869</b>	<b>100.00</b>
CA 30-day Standard	0.12	

Table adapted from the Facility HRA (page 1-20; Table 1-17). OEHHA could not confirm whether these values were correct.

### 3. Missing Information

#### XIII. Sensitive Receptors within Approximately 2 km from the Canyon Rock Facility

Sensitive Receptor	Category	Address
Magnolia Science Academy & De Anza Preschool	School	6525 Estrella Ave, San Diego, CA 92120
Excelsior Academy	School	7202 Princess View Dr. San Diego, CA 92120
St. Therese Academy	School	6046 Camino Rico, San DieQo, CA 92120
Gold 'n Grannies Childcare	Daycare	5434 Chaparajos Ct, San Diego, CA 92120
Gold N Childcare Services	Daycare	6005 Hillandale Ct, San Diego, CA 92120
Life-Line Convalescent Ministries	Nursing Home	7401 Princess View Dr Suite A, San Diego, CA 92120
Vibrant Living	Nursing Home	5723 Bounty St, San Diego, CA 92120

OEHHA found these additional receptors using Google Maps.

### 4. Conclusions

Results reported in the Facility HRA suggest that cancer risk at the off-site PMI (Receptor #949; 492788 m E, 3629960 m N) exceeds 10 in 1-million, and the non-cancer chronic hazard index at the off-site PMI (also Receptor #949) exceeds 1.00. At the same time, it was also noted that this PMI is located in an area where no workers/residents could live. Cancer risks and non-cancer hazard indices of other off-site sensitive receptors were estimated at below 10 in 1-million and below 1.00, respectively.