Amended AB2588
Health Risk Assessment

Prepared for:
TAMCO
Rancho Cucamonga, California

Prepared by:
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Date:
January 2015

Project Number:
0528453E

ENVIRON

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Acronyms and Abbreviations

AB2588	Air Toxics “Hot Spots” Information and Assessment Act
AER	Annual Emission Reporting
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AMS	American Meteorological Society
ATIR	Air Toxics Inventory Report
BRF	Billet Reheat Furnace
BPIPPRIME	Building Profile Input Program PRIME
CARB	California Air Resources Board
CFR	Code of Federal Regulations
CPF	Cancer Potency Factors
CSC	Caster Spray Chamber
DICE	Diesel Internal Combustion Engine
DPM	Diesel Particulate Matter
EAF	Electric Arc Furnace
ENVIRON	ENVIRON International Corporation
HARP	Hot Spots Analysis and Reporting Program
HI	Hazard Index
HIA	Acute Hazard Index
HIC	Chronic Hazard Index
HRA	Health Risk Assessment
NAAQS	National Ambient Air Quality Standard
NAD	North American Datum
NED	National Elevation Datasets
MEIR	Maximally Exposed Individual Resident
MEIW	Maximally Exposed Individual Worker
MICR	Maximum Individual Cancer Risk
OEHHA	Office of Environmental Health Hazard Assessment
PAH	Polynuclear Aromatic Hydrocarbons
PM	Particulate Matter
PM-10	Particulate Matter less than 10 microns in diameter
PMI	Point of Maximum Impact

REL	Reference Exposure Level
RfD	Reference Dose
SCAQMD	South Coast Air Quality Management District
sL	Silt Loading
TAC	Toxic Air Contaminants
URF	Unit Risk Factor
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled
ZOI	Zone of Impact

Executive Summary

In accordance with the California Air Toxics "Hot Spots" Act (AB2588), this report presents the human health risk assessment (HRA) for the TAMCO Rancho Cucamonga Steel Mini-Mill (referred to hereinafter as TAMCO or the Mill), located at 12459-B Arrow Route, Rancho Cucamonga, California (South Coast Air Quality Management District [SCAQMD] Facility ID # 18931). ENVIRON International Corporation (ENVIRON) previously prepared an AB2588 HRA for TAMCO and submitted to SCAQMD on September 20, 2013 (referred to hereinafter as the "2013 Draft HRA"); a revised report was submitted on April 22, 2014 (referred to hereinafter as the "2014 Draft HRA"). Per the review comments on the 2013 and the 2014 Draft HRAs by SCAQMD in its letters to TAMCO dated February 14, 2014 and November 20, 2014, ENVIRON prepared this amended report (referred to hereinafter as "Amended HRA"). ENVIRON prepared this HRA following the Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment (OEHHA, 2003), the latest toxicity values published by OEHHA, the SCAQMD's Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (SCAQMD, 2011), and the United States Environmental Protection Agency (USEPA) Guidelines on Air Quality Models (USEPA, 2005). TAMCO is a steel recycling mill that produces steel reinforcing bars that are commonly used in construction. The ferrous steel scrap is recycled and delivered to the Mill by trucks and rail, and then melted in an Electric Arc Furnace (EAF) to produce steel billets. The billets are reheated in a reheat furnace to form concrete reinforcing bar (rebar). The facility-wide emissions for the emitted AB2588-listed substances are summarized in Table ES-1. Exposure pathways and target organs for the substances are also included in this table.

ENVIRON conducted the AB2588 HRA in four steps:

- The first step in the HRA was to identify the toxic air contaminants (TACs) of concern, sources of those contaminants, and to estimate the emissions from each source. This process is called "hazard identification."
- The second step, called "exposure assessment," was to quantify the amount of TACs that people are exposed to during a specific time period, as well as the total number of people exposed. ENVIRON used USEPA AERMOD Executable Version 14134 to perform the air dispersion modeling for this Amended HRA and to estimate the ground level air concentrations of the TACs.
- The third step is called "dose-response assessment." Dose is the amount of a chemical that enters the human body (or reaches a target organ); response is the resulting health effect from the level of the dose. ENVIRON used the Hot Spots Analysis and Reporting Program (HARP) software (Version 1.4f) to perform the calculations for this step as well as for the last step. Exposure pathways evaluated in the HRA include inhalation, dermal absorption, soil ingestion, homegrown produce, and mother's milk for the residential scenario and inhalation, dermal absorption, and soil ingestion for the worker scenario.
- The last step of the risk assessment process is called "risk characterization." Risk characterization ties together the above three processes to describe the type and magnitude

of any increased health risks as a result of the exposure to the toxic air emissions from a facility.

Table ES-2 below summarizes the results of this HRA. The estimated incremental cancer risk for the maximally exposed individual resident (MEIR) is 1.51 x 10^{-5} (15.1 in a million), and for the maximally exposed individual worker (MEIW) is 24.6 x 10^{-5} (24.6 in a million). The maximally exposed sensitive receptor is Montessori Child Development Center, a child care facility located at 8196 Mulberry Avenue, Fontana, California; this receptor has an estimated cancer risk of 6.12 x 10-6, or approximately 6.12 in one million, based on a 70-year exposure assumption. Chromium VI, diesel exhaust emissions, characterized as diesel particulate matter (DPM), cadmium, and dioxins and furans are the primary contributors to the cancer risk. The locations of the MEIR, MEIW, and Acute Point of Maximum Impact (PMI) are illustrated on Figure ES-1 and the 70-year one-in–a-million cancer risk "zone of impact" is shown on Figure ES-2.

The excess cancer burden for the total population within the zone of impact is 0.62.

The chronic hazard index (HIC) is 0.55 at the MEIR, and is 3.48 at the MEIW, not accounting for any background concentrations. The highest HIC among the sensitive receptors is 0.18 at the Montessori Child Development Center. Mercury, manganese, and arsenic are the primary contributors to the highest HIC. Cardiovascular, central nervous system, developmental, kidney, respiratory systems, skin, and blood are the primary target organs.

The acute hazard index (HIA) at the MEIR is 0.39 and at the MEIW is3.04. The highest HIA for the sensitive receptors is 0.40 at Oparc Adc-Rancho Cucamonga, which is a senior center located at 8333 Rochester Avenue, #112, Rancho Cucamonga, California. Nickel is the primary contributor to the highest HIA. Central nervous system, developmental, immune, and reproductive systems are the primary target organs.

The SCAQMD's public notification thresholds are as follows:

- ≥ 1 x 10^{-5} maximum individual (lifetime) cancer risk (MICR),
- > 1.0 HIA, or
- > 1.0 HIC.

The SCAQMD Rule 1402 action risk levels for a risk reduction plan are as follows:

- Cancer risk (MICR): 25 in one million, or
- Cancer burden: 0.5, or
- HIA: 3.0, or
- HIC: 3.0.

SCAQMD Rule 1402 also establishes the risk reduction significant risk levels:

- MICR of 100 in one million (1.0 x 10^{-4}), or
- HIA or HIC of five (5.0) for any target organ system at any receptor location.

The results indicate that the HIA (3.04) and the HIC (3.48) at the MEIW exceed the SCAQMD Rule 1402 risk reduction plan threshold of 3.0 but are less than significant risk reduction threshold of 5.0. The cancer burden (0.62) exceeds, the SCAQMD action risk levels, which trigger a risk reduction plan. The cancer risk of 24.6 in a million at the MEIW and of 15.1 in a million at the MEIR exceeds the SCAQMD public notification threshold of 10 in a million for cancer risk.

Table ES-1. Total Emission Rate, Exposure Pathway, and Target Organ by TAC

Chemical Name	CAS #	Max Hourly Emission Rate (lb/hr)	Max Hourly Emission Rate (g/s)	Annual Emission Rate (lb/yr)	Annual Emission Rate (g/s)	Multi-pathway Substance	Pathways					Acute Target Organs								Chronic Target Organs - Inhalation (Oral)											
							Inhalation	Dermal	Soil ingestion	Home grown produce	Mother's milk	CV	CNS	IMMUN	GILV	REPRO	RESP	EYE	DEVEL	BLOOD	CV	CNS	KIDNEY	GILV	REPRO	RESP	SKIN	EYE	ENDO	DEVEL	BLOOD	IMMUNE
1,1,2,2-Tetrachloroethane	79345	1.94E-06	2.44E-07	2.58E-04	3.71E-09		x																								
1,1,2-Trichloroethane	79005	1.17E-06	1.47E-07	1.56E-04	2.24E-09		x																								
1,2,4-Trimethylbenzene	95636	1.84E-02	2.32E-03	3.33E+00	4.79E-05		x																								
1,2-Dichloropropane	78875	9.98E-07	1.26E-07	1.33E-04	1.91E-09		x																								
1,3-Butadiene	106990	1.21E-02	1.53E-03	2.10E+00	3.02E-05		x												x						x						
1,3-Dichloropropene	542756	9.75E-07	1.23E-07	1.30E-04	1.87E-09		x																								
Acetaldehyde	75070	1.16E-02	1.46E-03	2.77E+00	3.98E-05		x										x	x							x						
Acrolein	107028	3.21E-03	4.04E-04	1.21E+00	1.74E-05		x										x	x							x						
Aluminum	7429905	2.09E-01	2.63E-02	4.15E+02	5.97E-03		x																								
Ammonia	7664417	7.18E-01	9.05E-02	1.75E+03	2.51E-02		x										x	x							x						
Antimony	7440360	1.26E-04	1.59E-05	1.47E-01	2.12E-06		x																								
Arsenic	7440382	1.17E-03	1.47E-04	2.73E+00	3.93E-05	x	x	x	x	x		x	x						x		x(x)	x(x)				x(x)	x(x)			x(x)		
Barium	7440393	1.24E-02	1.56E-03	1.57E+01	2.26E-04		x																								
Benzene	71432	5.11E-02	6.44E-03	1.04E+01	1.49E-04		x							x		x			x	x		x							x	x	
Beryllium	7440417	1.11E-04	1.40E-05	2.10E-01	3.02E-06	x	x	x	x	x													(x)		x						x
Cadmium	7440439	2.70E-02	3.40E-03	7.31E+01	1.05E-03	x	x	x	x	x													x(x)		x						
Carbon Tetrachloride	56235	1.36E-06	1.71E-07	1.81E-04	2.60E-09		x						x		x	x			x			x		x					x		
Chlorine	7782505	5.99E-03	7.54E-04	1.04E+00	1.49E-05		x										x	x							x						
Chloroform	67663	1.05E-06	1.32E-07	1.40E-04	2.01E-09		x						x			x			x				x	x					x		
Cobalt	7440484	7.00E-04	8.82E-05	1.12E+00	1.62E-05		x																								

Chemical Name	CAS #	Max Hourly Emission Rate (lb/hr)	Max Hourly Emission Rate (g/s)	Annual Emission Rate (lb/yr)	Annual Emission Rate (g/s)	Multi-pathway Substance	Pathways					Acute Target Organs								Chronic Target Organs - Inhalation (Oral)											
							Inhalation	Dermal	Soil ingestion	Home grown produce	Mother's milk	CV	CNS	IMMUN	GILV	REPRO	RESP	EYE	DEVEL	BLOOD	CV	CNS	KIDNEY	GILV	REPRO	RESP	SKIN	EYE	ENDO	DEVEL	BLOOD	IMMUNE
Copper	7440508	2.09E-01	2.64E-02	5.54E+02	7.97E-03		x										x														
Cyclohexane	110827	8.42E-06	1.06E-06	1.17E-02	1.68E-07		x																								
Diesel Exhaust Particulates	9901	1.05E+00	1.32E-01	2.66E+02	3.83E-03		x																		x						
Dioxins and Furans	1086/1080	2.33E-07	2.93E-08	4.29E-04	6.16E-09	x	x	x	x	x	x													x(x)	x(x)	x(x)			x(x)	x(x)	x(x)	
Ethyl Benzene	100414	2.29E-02	2.88E-03	5.73E+00	8.25E-05		x																x	x				x	x		
Ethylene Dibromide	106934	1.63E-06	2.05E-07	2.17E-04	3.12E-09		x																		x						
Ethylene Dichloride	107062	8.63E-07	1.09E-07	1.15E-04	1.65E-09		x																	x							
Formaldehyde	50000	4.88E-02	6.15E-03	1.14E+01	1.65E-04		x											x							x						
Fluoride	1101	8.70E+00	1.10E+00	2.35E+04	3.38E-01		x										x	x							x						
Hexane	110543	1.98E-02	2.49E-03	4.59E+00	6.61E-05		x														x										
Hexavalent Chromium	18540299	2.21E-03	2.78E-04	5.94E+00	8.54E-05	x	x	x	x	x															x					(x)	
Isopropyl Benzene	98828	1.76E-05	2.21E-06	2.43E-02	3.50E-07		x																								
Lead	7439921	4.32E-01	5.44E-02	1.17E+03	1.68E-02	x	x	x	x	x																					
Manganese	7439965	5.34E-01	6.73E-02	1.06E+03	1.52E-02		x														x										
Mercury	7439976	5.45E-02	6.86E-03	1.52E+02	2.19E-03	x	x	x	x	x			x						x		x(x)	x(x)							x(x)		
Methanol	67561	1.04E-02	1.31E-03	1.80E+00	2.58E-05		x						x																x		
Methyl Ethyl Ketone	78933	8.73E-04	1.10E-04	1.51E-01	2.18E-06		x										x	x													
Methyl Tert-Butyl Ether	1634044	2.71E-02	3.41E-03	4.69E+00	6.75E-05		x																x	x			x				
Methylene Chloride	75092	3.15E-06	3.97E-07	4.20E-04	6.04E-09		x						x								x	x									
Naphthalene	91203	1.97E-03	2.48E-04	4.92E-01	7.08E-06		x																		x						
Nickel	7440020	3.29E-02	4.14E-03	8.01E+01	1.15E-03	x	x	x	x	x				x											x				(x)	x	
Phosphorus	7723140	3.99E-03	5.03E-04	1.56E+00	2.25E-05		x																								

Chemical Name	CAS #	Max Hourly Emission Rate (lb/hr)	Max Hourly Emission Rate (g/s)	Annual Emission Rate (lb/yr)	Annual Emission Rate (g/s)	Multi-pathway Substance	Pathways					Acute Target Organs								Chronic Target Organs - Inhalation (Oral)										
							Inhalation	Dermal	Soil ingestion	Home grown produce	Mother's milk	CV	CNS	IMMUN	GILV	REPRO	RESP	EYE	DEVEL	BLOOD	CV	CNS	KIDNEY	GILV	REPRO	RESP	SKIN	EYE	ENDO	DEVEL	BLOOD	IMMUNE
Polynuclear Aromatic Hydrocarbons (PAHs)	1151	2.24E-05	2.83E-06	5.45E-02	7.84E-07	x	x	x	x	x																					
Selenium	7782492	3.66E-04	4.61E-05	6.55E-01	9.43E-06		x														x	x		x							
Silver	7440224	4.13E-05	5.20E-06	5.68E-02	8.17E-07		x																								
Styrene	100425	1.89E-03	2.38E-04	3.28E-01	4.72E-06		x										x	x				x									
Thallium	7440280	1.17E-05	1.48E-06	1.21E-02	1.75E-07		x																								
Toluene	108883	1.03E-01	1.30E-02	2.48E+01	3.56E-04		x						x			x	x	x	x			x				x				x	
Total Chromium	7440473	6.49E-02	8.18E-03	1.41E+02	2.02E-03		x																								
Vanadium	7440622	4.33E-03	5.46E-04	5.16E+00	7.43E-05		x										x	x													
Vinyl Chloride	75014	5.49E-07	6.92E-08	7.32E-05	1.05E-09		x						x				x	x													
o-Xylenes	95476	2.26E-02	2.84E-03	3.91E+00	5.62E-05		x										x	x				x				x					
m-Xylenes	108383	6.48E-02	8.16E-03	1.12E+01	1.61E-04		x										x	x				x				x					
Total Xylenes	1330207	3.15E-03	3.97E-04	5.76E+00	8.29E-05		x										x	x				x				x					
Zinc	7440666	5.12E+00	6.45E-01	1.39E+04	2.00E-01		x																								

Notes:

lb/hr = pounds per hour; lb/yr = pounds per year; g/s = grams per second

CV – Cardiovascular System; CNS – Central Nervous System; DEVEL – Developmental System; EYE – Eyes; GILV – Gastrointestinal-Liver; IMMUN – Immunological System; KIDN – Kidney; REPRO – Reproductive System; RESP – Respiratory System; BLOOD – Circulatory System; ENDO – Endocrine system; SKIN - Skin

1. The list of pathways and target organs is based on the CARB HARP health database released on July 3, 2014.

Table ES-2. Executive Summary of Health Impacts (SCAQMD Health Risk Assessment Summary Form)

Company Name: TAMCO
Facility Name: TAMCO
Facility Address: 12459-B Arrow Route, Rancho Cucamonga, CA
Type of Business: Steel Mini-Mill
SCAQMD ID Number: #18931

A. Cancer Risk

1. Inventory Reporting Year: 2011
2. Maximum Cancer Risk to Receptors:
   a. Residence 15.1 in a million Location _ (451800 m, 3773300 m)
   b. Worker 24.6 in a million Location _ (450700 m, 3772500 m)
3. Substances Accounting for 90% of Cancer Risk: Chromium (VI), DPM, cadmium, dioxins and furans
   Processes Accounting for 90% of Cancer Risk: EAF Baghouse Vents, Melt Shop Fugitive Emissions, and Light Towers
4. Residential Population Exposed to Specific Risk Levels:
   a. 1 to <10 in a million 143,686
   b. 10 to <100 in a million 4,461
   c. 100 to <1000 in a million 0
   d. >=1000 in a million 0
   e. Total >= 1 in a million 148,147
5. Cancer Burden: 0.62 (for the residential population within the 1 in a million cancer contour zone)

   Maximum Distance to Edge of 1 x 10^{-6} Cancer Risk Isopleth (meters): 10,000

B. Hazard Indices

1. Highest Chronic Hazard Indices:
   a. Residential HI: 0.55; Location: 451800 m, 3773300 m;
      Toxicological endpoint: Cardiovascular System , Central Nervous System , Developmental System , Endocrine System , Eyes, Gastrointestinal-Liver, Immunological System, Kidney, Reproductive System , Respiratory System , Skin, and Blood
   b. Worker HI: 3.48; Location: 451300 m, 3772800 m;

      Toxicological endpoint: Cardiovascular System , Central Nervous System , Developmental System , Endocrine System, Eye, Gastrointestinal-Liver, Immunological System, Kidney, Reproductive System , Respiratory System , Skin, and Blood
2. Substances Accounting for 90% of Chronic Hazard Index: Manganese, mercury, and arsenic
3. Maximum Acute Hazard Index:
   PMI:3.04; Location: 450869 m, 3772854 m; toxicological endpoint: Cardiovascular System , Central Nervous System , Developmental System, Eyes, Gastrointestinal-Liver, Immunological System, Reproductive System , Respiratory System , and Blood
4. Substances Accounting for 90% of Acute Hazard Index: Nickel

Figure ES-1. Locations of MEIR and MEIW for Cancer Risk

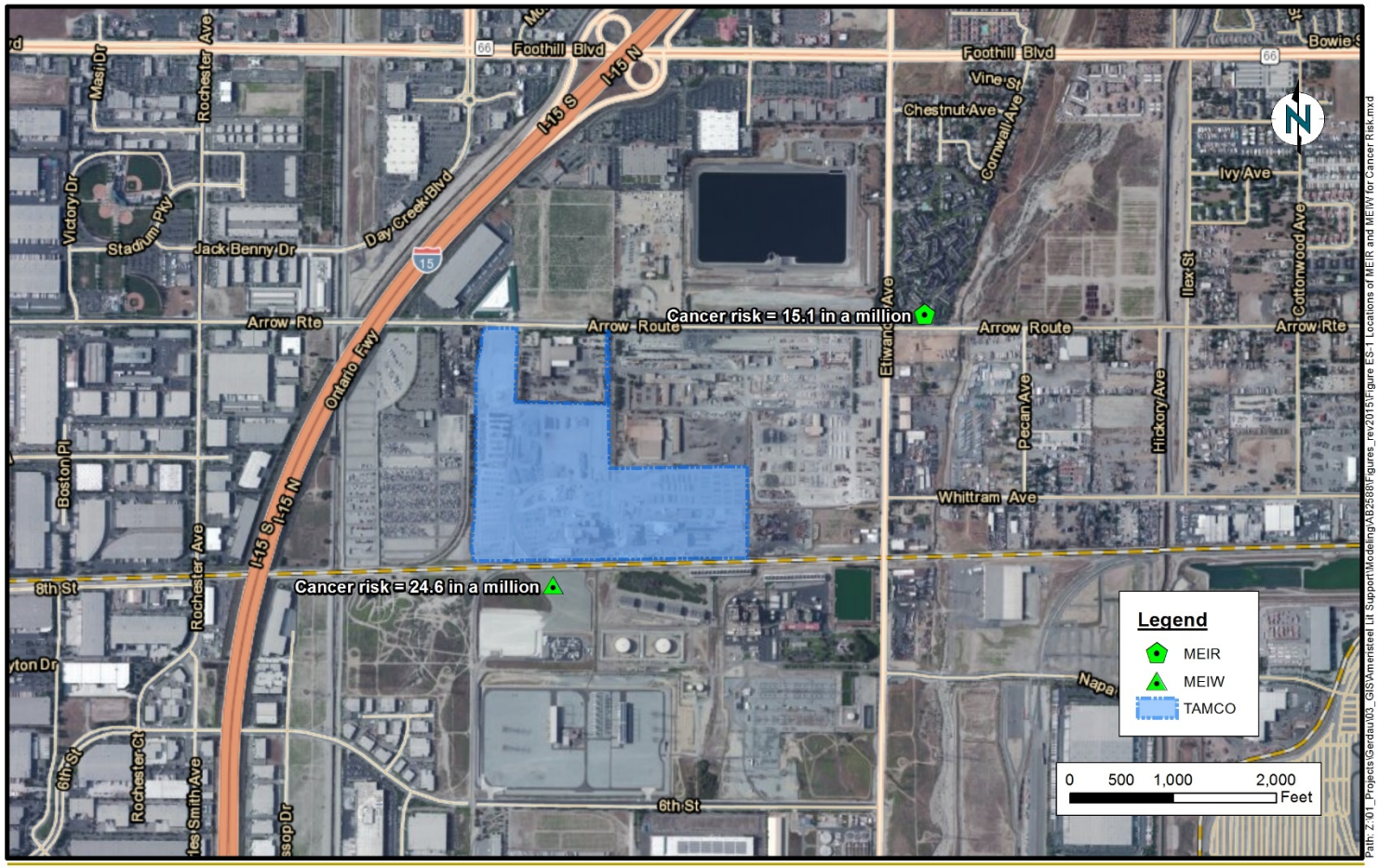

Figure ES-2. Residential Cancer Risk Isopleths

ENVIRON	Residential Cancer Risk Isopleths 12459-B Arrow Route Rancho Cucamonga, California	Figure ES-2
UPDATED BY: XZLiu DATE: 1/14/2015		PROJECT: 05-28453E

1 Introduction

1.1 Background and Facility Location

ENVIRON prepared this AB2588 Health Risk Assessment (HRA) report for the TAMCO Mini-Mill using the 2011 emission data included in the Air Toxic Inventory Report (ATIR) submitted to the SCAQMD on January 22, 2013. The ATIR emission calculations were updated in response to the SCAQMD's comment letter on the ATIR dated April 24, 2013, and comment letters on the 2013, and the 2014 Draft HRAs dated February 14, 2014 and November 20, 2014. This HRA report has been prepared in accordance with OEHHA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment (OEHHA, 2003), the SCAQMD's Supplemental Guidelines (SCAQMD, 2011), and the relevant guidelines from the California Air Resources Board (California Air Resources Board [CARB], 2003). 2011 is one of the low production years historically and Gerdau expects to increase production in the near future. In addition, application of the proposed OEHHA risk assessment guidelines will increase risks. ENVIRON will address the changes in risk as a result of the throughput increase and the proposed new OEHHA risk assessment guidelines in the Risk Reduction Plan. The TAMCO facility (SCAQMD ID # 18931) is located at 12459-B Arrow Route, Rancho Cucamonga, California. Figure 1 shows the facility and its vicinity. The land use in the immediate vicinity (up to 0.5 mile radius) of the Mill is primarily industrial. The closest residential area is located northeast of TAMCO over 0.5-mile away. The topography around the facility is generally flat. The facility's layout showing the locations of the various buildings and the emission sources are presented on Figures 2 through 6A.

1.2 Health Risk Assessment Format and Definitions

Health risk assessments can be outlined as a four-step process that includes hazard identification, exposure assessment, dose-response assessment, and risk characterization.

The first step of the HRA process is to identify the contaminants of concern and sources of the contaminants, as well as to estimate the emissions from each source. This process is called "hazard identification."

The second step, known as "exposure assessment," is concerned with the quantity of a contaminant that people are exposed to during a specific time period, as well as the total number of people exposed. Once the identity and location of the source(s) are known, the amounts and the process of transporting the contaminants through the environment need to be identified. Computer models, such as the ones distributed by the United States Environmental Protection Agency (USEPA, 2004), use mathematical equations to simulate the movement and dispersion of air contaminants. The models incorporate source parameters (such as emission rate and contaminant release height), meteorological data (such as wind speed and direction), and distances from the sources to the exposed population to estimate the downwind concentrations. Once the amount of exposure to each toxic air contaminant is identified, an assessment of the contaminant path into the human body is performed. For air emissions, breathing (inhalation) is usually the primary route by which a contaminant enters the body, but contaminants can also enter through eating (ingestion) or can be absorbed through the skin (dermal absorption). The route that a contaminant uses to enter the body is called a "pathway." The risk assessment model used to assess the health risks from TAMCO's air emissions is a

multi-pathway model. In other words, the model accounts for all applicable exposure pathways, such as inhalation, ingestion of soil, ingestion of produce, and dermal absorption.

The third step of an HRA is called “dose-response assessment.” Dose is the amount of a chemical that enters the human body (or reaches a targeted organ); response is the resulting health effect from the level of the dose. Epidemiologists, toxicologists, and other researchers conduct animal and human epidemiological studies to evaluate and establish the causal relationships between the various doses and the resulting health effects (responses) for a chemical. These causal relationships are quantified as the cancer potency (slope) factors (CPF) or unit risk factors (URF) for carcinogenic health effects and acute and chronic Reference Exposure Levels (REL) for non-carcinogenic health effects.

The last step of the risk assessment process is called “risk characterization.” Risk characterization ties together the above three processes to describe the type and magnitude of any increased health risks as a result of the exposure to the toxic air emissions from a facility.

For the purpose of this AB2588 HRA, acute, chronic, and cancer health impacts are defined as follows:

- Acute risks are non-cancer adverse health impacts, commonly associated with exposures to relatively high concentrations of toxic air contaminants (TAC) over short periods of time, from minutes to hours. Acute exposure typically results in headaches, dizziness, nausea, eye/nose/throat irritation, and/or skin rash. Each toxic chemical may affect the body through different mechanisms. Target organs for each TAC have been identified by OEHHA in its guidance document (OEHHA, 2003).
- Chronic risks are non-cancer adverse health impacts, commonly associated with exposures to relatively low concentrations of TACs over long periods of time, as in several years. Typical symptoms of chronic exposure include persistent respiratory or digestive problems, chronic cough, chest pains, numbness or tingling, loss of smell or taste, etc. As with acute risks, the target organs due to chronic risks that will be analyzed in this HRA may affect the body through different mechanisms and have been identified by OEHHA (OEHHA, 2003).
- Cancer is defined as the abnormal or irregular growth of cells or tissue. There are many triggers that may cause or increase the risk of cancer, including exposure to certain chemicals or TACs. The increased risk of cancer from exposure to a chemical means the additional risk of getting cancer from continuous exposure (70 years and 365 days per year) to potentially cancer-causing compounds. Cancer risk is usually expressed as a probability (e.g., ten excess chances of contracting cancer in one million exposed individuals).

In general, this AB2588 HRA provides conservative estimates of the probabilities for contracting adverse health effects due to the processes occurring at the TAMCO mill. A “conservative” estimate assumes that the worst-case exposure conditions exist so that the health effects are not underestimated.

1.3 Significance Criteria and Notification Levels

Under AB2588, the operator of a facility must provide notices to all exposed persons if the facility’s health risk assessment indicates that there is a significant health risk associated with

the air toxic emissions from the facility. The SCAQMD's public notification thresholds are as follows:

- Greater than or equal to 1 x 10^{-5} maximum individual (lifetime) cancer risk (MICR),
- Greater than 1.0 HIA, or
- Greater than 1.0 HIC.

The operator is also required to implement risk reduction measures if the emissions from the facility cause an exceedance of any of the following Action Risk Levels in SCAQMD Rule 1402:

- MICR of twenty-five in one million (2.5 x 10^{-5}),
- Cancer burden of 0.5, or
- Total HIA or HIC of three (3.0) for any target organ system at any receptor location.

SCAQMD Rule 1402 also establishes significant risk levels; facilities above these levels are not eligible for extensions of the 3-year deadline to implement the Risk Reduction Plan:

- MICR of 100 in one million (1.0 x 10^{-4}), or
- Total HIA or HIC of five (5.0) for any target organ system at any receptor location.

Based on this HRA, TAMCO exceeds the public notification thresholds for Cancer Risk, and the Rule 1402 Action Risk Levels for Chronic and Acute Hazard Indices.

2 Hazard Identification

Hazard identification is the first step of an HRA process, which includes identification of the contaminants of concern and sources of the contaminants, as well as estimation of emissions from each source. For purposes of this HRA, the contaminants of concern are those listed in the AB2588 regulation. This section will describe the processes at the TAMCO Mill, the various air emission sources, and the emission estimation methods.

2.1 Process Description

TAMCO operates a steel recycling mini-mill and produces steel reinforcing bars that are commonly used in construction. The process involves the following steps:

1) Ferrous scrap metal such as processed automobiles and appliances is recycled and delivered to the Mill by trucks and rail.
2) Dump trucks transport scrap metal from the Scrap Yard to the Melt Shop where scrap metal is introduced into an Electric Arc Furnace (EAF). This process is called the charging stage.
3) After the charging stage, EAF heats the scrap metal to over 3,000 degrees Fahrenheit requiring up to 70 megawatts of electricity to melt the scrap.
4) When the metal reaches a molten state, the furnace is tapped into a ladle, which has been preheated by the ladle preheaters.
5) The ladles transport the molten metal throughout the Melt Shop.
6) The molten steel is then poured into a caster to cool and solidify into strands. As the strands move through the caster, they are cut with torches and make the semi-finished products called billets. Billets are then transferred to a cooling bed.
7) After the billets are cooled down, they are either stored in the billets yard or moved to the billet reheat furnace (fired by natural gas) to reheat the billets to 2,150 degrees Fahrenheit.
8) Following the reheat furnace, the billets are then processed in the rolling mill that converts the heated billets into concrete reinforcing bar (rebar). The rolling mill consists of a series of roll stands that progressively squeeze, reduce and stretch the steel to the required shape and size.
9) Once the rebar emerges, it is cut, bundled and stored in the rebar yard for future delivery.

TAC emissions are released into the ambient air from these processes via stacks (e.g., billet reheat furnace stack), a control device (e.g., baghouse), buildings (e.g., Melt Shop fugitives), or re-entrainment of roadway dusts.

2.2 Emission Estimates

TAMCO has the following TAC emission sources. ENVIRON divided these sources into three groups based on the source configuration (e.g., point, volume, or area source) used in the air dispersion model.

1) Point sources
   - EAF baghouse
   - Billet reheat furnace (BRF)
   - Caster spray chamber (CSC)
   - Emergency generators
   - Portable light towers

2) Volume sources
   - Melt Shop fugitives
   - Open fugitive dust sources including:
     – Vehicle traffic on paved and unpaved roads[1]
     – Baghouse dust loading to railcars
     – Scrap handling at the scrap yard
     – Slag handling at the slag yard
     – Wind erosion from slag storage piles, and
     – Slag crushing
   - Combustion sources including:
     – Ladle heaters
     – Tundish heaters
     – Rolling mill and Melt Shop natural gas combustion (Rule 219 exempt)
   - Fuel storage and dispensing station[2]

3) Area sources
   - Miscellaneous portable internal combustion engines (Rule 219 exempt)

[1] Modeled as a series of volume sources following EPA recommendation for modeling for haul road fugitive dust emissions. http://www.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf.
[2] A volume source was used for fuel dispensing facilities. The source parameters are based on a Technical Memorandum prepared by Sonoma Technology, Inc for BAAQMD, titled Default Modeling Parameters for Stationary Sources, and dated April 1, 2011.

ENVIRON estimated TAC emissions associated with various processes at the Mill as described in Section 2.1. ENVIRON used site-specific data, if available, such as source test results and on-site roadway dust sampling results. ENVIRON obtained the emission factors from standard sources such as the SCAQMD and USEPA AP-42. Table 1 summarizes TAC emission rates by source. Table 2 provides the total facility-wide emission rates for all the TACs as well as the associated exposure pathway and target organs. The following sections discuss details on the emission estimates for specific emission sources that were not previously discussed in the January ATIR submittal. Appendix B provides the calculations and inputs used in the emission estimation for all TAC emission sources at the Mill.

2.2.1 Emission Estimates for the Point Sources

ENVIRON estimated stack (point) source emissions for the EAF based on the SCAQMD source test conducted in 2012 at the exhaust of the associated baghouse using the methodology discussed in the Section 4 of the January ATIR submittal. As discussed in the ATIR prepared for this AB2588 HRA, the north and the south fans draw exhaust gases from the Melt Shop and send them to the baghouse. The fans normally run at full speed when the EAF is in operation, slower when just the caster is operating, and slower yet when just the ladle heaters are operating. The fans are shut down when all of the equipment is shut down, which included most weekends in 2011. We estimated the 2011 full load equivalent operating hours by summing ten-minute average ampere (amp) values from these fans, and dividing the result by the 95th percentile value of the fan amps. This was done to avoid the large amp draw that occurs when the fans are started up. The amp values are used by the RECLAIM CEMS to calculate the stack flow for the EAF. We calculated the annual emissions based on the hourly emission factors measured during the source test conducted by SCAQMD in June 2012 multiplied by full load equivalent annual operating hours (3,768 hours) in 2011 for the EAF baghouse. We also calculated beryllium and fluoride emissions for the baghouse using the AP-42 emission factors, and based dioxin and furan emissions on the emission factor from the EAF stack testing results of Gerdau's Cambridge, Ontario, Canada Mill.[3,4]. The calculated TAC emission rates for the EAF baghouse are summarized in Appendix B, Tables B-1a. Table B-1b shows the calculated values for the dioxin and furan emissions. Appendix B, Table B-1c shows the calculated values for the annual operating hours of 3,768 hours for the EAF baghouse.

ENVIRON also estimated the BRF and the CSC emissions using the emission factors derived from the TAMCO source tests conducted in 2013. The calculated emission rates are presented in Appendix B, Tables B-2 and B-3.

TAMCO has three emergency diesel internal combustion engines (Emergency DICEs), but only two of them (D37 and D41) are currently in service; D39 was not used in 2011 or afterwards. ENVIRON calculated annual diesel particulate matter (DPM) emissions associated with these Emergency DICEs using the SCAQMD default emission factor. The calculated DPM emission rates are presented in Appendix B, Table B-4a. TAMCO also operates one natural gas fired

[3] US EPA AP-42; Table 12.5.1-9
[4] LEHDER Environmental Service Limited. 2011. Source Testing Report Compliance Dioxin and Furan Source Testing Program Electric Arc Furnace Baghouse System Gerdau Ameristeel Mill, Cambridge, Ontario. February.

emergency engine (D45). The calculated TAC emission rates are presented in Appendix B, Table B-4b.

In addition, ENVIRON separated the portable diesel light towers' emissions from other portable engines as these engines account for approximately 90% of the diesel fuel usage reported in the 2011 Annual Emission Reporting (AER) and their emissions were emitted from engine stacks. ENVIRON estimated the DPM emissions from these light towers based on the USEPA nonroad diesel engine Tier 1 emission standard and the operating hours. The emission rate calculation is presented in Appendix B, Tables B-4c. The other diesel portable engines emissions as shown in Appendix B, Table B-4d were estimated according to the methodology discussed for area sources in Section 2.2.3.

2.2.2 Emission Estimates for the Volume Sources (Fugitive Dusts)

ENVIRON estimated that the Melt Shop fugitive emissions are 10% of the EAF baghouse emissions using the model calibration methodology previously discussed in the January ATIR. The emissions from the Melt Shop are presented in Appendix B, Table B-1a.

ENVIRON also included fugitive TAC emissions from the onsite roadways, slag processing system, and other material handling processes in this HRA. The following sections discuss the emission estimation methods for the outdoor fugitive dust.

Entrained road dust emissions

ENVIRON used the applicable USEPA AP-42 methodology (USEPA, 2011 and USEPA, 2006) to calculate the entrained dust emissions from movement of vehicles on the paved and unpaved roadways within the boundaries of the Mill. The AP-42 method uses an empirical equation to calculate the particulate matter (PM) emission factor (in terms of pounds/vehicle mile traveled), which is then multiplied by the vehicle miles traveled (VMT) to calculate the paved road entrained dust emissions. Equation 1 below provides the empirical equation for paved roads from AP-42:

Where: (1)

$$Entrained\ PM\ EF\ (\text{lb/VMT}) = \left(\text{k} \times (sL)^{0.91} \times (\text{W})^{1.02}\right) \times \left(1 - \frac{\text{P}}{4\text{N}}\right)$$

k= particle size multiplier

sL= silt loading (g/m^2)

W=Mean Weight of the vehicle fleet (tons)

P= Number of precipitation days

N= Number of days in averaging period

Equation 2 below provides the empirical equation for unpaved roads from AP-42:

Where: (2)

$$Entrained\ PM\ EF\ (\text{lb/VMT}) = \left(k \times (S/12)^{a} \times (W/3)^{b}\right) \times \left(\frac{(365 - P)}{365}\right)$$

k= particle size multiplier

S= silt content (%)

W=Mean Weight of the vehicle fleet (tons)

P= Number of precipitation days

ENVIRON used the particle size multiplier for PM less than 10 microns in diameter (PM-10)[5] and estimated 27 days of precipitation with 0.01 inch or more based on the 2011 precipitation data collected at TAMCO's meteorological station.[6] ENVIRON used the AP-42 default silt loading factor (sL) and silt content (S) for iron and steel production. ENVIRON also obtained the vehicle routes for material transfer from TAMCO as shown in Figure 6B. ENVIRON calculated trip-weighted average truck weights for each segment to account for all vehicles travelling on the roads within the Mill. The emission rate calculation is presented in Appendix B, Tables B-5 through B-10.

Toxic metals emitted as PM are the contaminants of concern in the dust. ENVIRON used the TAC profile from the dust samples collected on June 25, 2013 from the roadways at TAMCO. Because the manufacturing processes at the Mill have not changed since 2011, ENVIRON assumed that the TAC profile from the 2013 dust sampling event is appropriate for this HRA. ENVIRON followed the methodologies in AP-42 (USEPA, 1993) for road dust sampling and analyses, and determined the sampling locations by consulting TAMCO. Based on the different nature of the hauling materials (raw vs. process products), ENVIRON classified the on-site roadways into the following three groups of routes

1. Scrap delivery
2. Transfer Scrap to Melt Shop
3. Other truck routes

ENVIRON averaged the metal concentrations from the dust samples by these three route groups ENVIRON first mapped each road dust sample to a route group according to Appendix B, Table B-5a and averaged the raw metal concentrations in our dust samples (Appendix B, Table B-5c) by the route group. Figure 6C shows the truck route groups. Figure 6D shows the locations for the dust samples collected by ENVIRON in 2013. Next, we assigned the route group to each modeled roadway segment (as shown in Appendix B, Table B-5b) to calculate their TAC emissions from the entrained road dust using the PM10 AP-42 emission factors

[5] Communication by Joseph Hower with Tom Chico of the SCAQMD, September 11, 2013.
[6] Data downloaded from http://www.wunderground.com/personal-weather-station/dashboard?ID=KCARANCH30

multiplied by the average metal concentrations of the dust. Figure 6E shows the modeled roadway segments in AERMOD. ENVIRON modeled re-entrained roadway dust emissions from vehicle movement at the Mill by placing adjacent volume sources on the traveled truck routes. Since submission of the 2014 Draft HRA, ENVIRON discovered that a few road segments on the east side of the property were not included in the previous modeling. We have added these segments back into the model as shown in Figure 6E.

To ensure that the model results are similar to the ambient data, ENVIRON calculated the average ratio of the modeled plus background concentration to monitored concentration (nickel, manganese, lead) to the calculated annual monitored concentration ratios for all monitors; the ratio is close to 1 as shown in Table C-1. ENVIRON also conducted a statistical analysis to show that that the background (Fontana MATES IV Station) is not influenced by TAMCO.

Slag Processing

As required by the SCAQMD letter from Dr. Elaine Chang dated April 24, 2013, ENVIRON included TAC emissions associated with unloading the slag materials, wind erosion from slag storage piles, and slag crushing at the slag yard in this HRA. ENVIRON obtained the quantities of the 2011 slag materials recovered from the EAF and the slag materials crushed in the 2011 from TAMCO, and used the AP-42 emission factor for estimating the TAC emissions from these processes. The emission rate calculation is presented in Appendix B, Tables B-11 through B-13.

Other Fugitive Open Dust Sources

ENVIRON included TAC emissions associated with the screw conveyor used to transfer the baghouse dust into the railcars as well as the scrap materials handling at the scrap yard. The calculated emission rates using AP-42 emission factors are presented in Appendix B, Tables B-14 through B-15.

Natural Gas Combustion Sources

ENVIRON estimated the TAC emissions from the miscellaneous Melt Shop natural gas combustion sources (heaters) using the SCAQMD default emission factors. ENVIRON conservatively modeled the ladle heaters as part of the Melt Shop fugitive emissions as a volume source, although 90% of their emissions are actually captured and vented via the EAF baghouse. ENVIRON modeled other miscellaneous heaters using volume sources as they are located within the buildings (e.g. rolling mill) and the combustion emissions from these heaters currently exhaust into the ambient air within the building. The calculated emission rates are presented in Appendix B, Tables B-16.

Fuel Storage and Dispensing Station

ENVIRON estimated the TAC emissions from the gasoline and diesel storage tanks and dispensing station using emission factors from the SCAQMD (SCAQMD, 2011). The emission rate calculation is presented in Appendix B, Tables B-16.

2.2.3 Emission Estimates for the Area Sources

ENVIRON estimated TAC emissions from the remaining (10%) diesel portable engines such as welders and air compressors (the other 90% is for portable light towers discussed in Section 2.2.1) and the gasoline portable engines using default emission factors from the SCAQMD

(SCAQMD, 2010). The calculated emission rates are presented in Appendix B, Tables B-4d. For the purpose of modeling, ENVIRON represented these emission sources using an area source because they are used at various locations within the boundaries of the Mill.

3 Exposure Assessment

Exposure assessment uses air dispersion modeling to establish the ambient air TAC concentrations surrounding the facility and evaluation of the potential exposure pathways. ENVIRON used the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) version 14134 to conduct this assessment.

3.1 Model Options

ENVIRON used AERMOD in the regulatory default mode, as recommended by the USEPA (USEPA, 2009) and the SCAQMD (SCAQMD, 2011). This includes:

- Adjusting stack heights for stack-tip downwash (point sources only);
- Incorporating the effects of elevated terrain;
- Employing the calms processing routine; and
- Employing the missing data processing routine.

All the point sources at the Mill are located on or near various manufacturing or/and office buildings (refer to Figure 2). The USEPA-approved Building Profile Input Program PRIME (BPIPPRIME) was used to simulate the building downwash, which is the effect of nearby structures on the flow of the plumes from their respective emission sources. Table 3 presents the dimensions of the buildings. The cancer and chronic health effects are based on annual average concentrations and the acute health effects are based on maximum one-hour concentrations. Therefore, the AERMOD model was run for the annual average and the maximum one-hour time periods.

3.2 Source Characterization and Parameters

AERMOD requires source-specific parameters such as stack height, stack inside diameter, exit velocity, and stack gas temperature. Tables 4a – 4c present the source parameters used in the AERMOD model for each modeled TAC emission source.

Three different representations of emission sources are used in the air dispersion model:

- Point sources;
- Area sources; and
- Volume sources.

Point sources are used to represent those emissions that have single identifiable points of release. A typical point source will have a stack with a defined location. Other sources, however, do not have a single, discrete point of release. Area or volume sources are used to represent these other sources for modeling purposes. Sources that can be reasonably represented as emitting at a uniform rate over a two-dimensional surface are modeled as area sources. Sources that can be reasonably represented as emitting at a uniform rate from a three dimensional space are modeled as volume sources. Figures 3 through 6A show the modeled TAC emission sources at the TAMCO Mill.

Urban land use was used in AERMOD per the SCAQMD guidance (SCAQMD, 2011). A surface roughness of 1.00 was used to characterize the region as completely urban and a population of 2,015,355 for the San Bernardino County was used (SCAQMD, 2011).

3.3 Operation Schedule

TAMCO is permitted to operate 24 hours/day and 365 days/year. For modeling purposes, ENVIRON conservatively assumed that most emission sources at TAMCO operate 24 hours/day and 365 days/year in 2011. Given that they operate mostly during daytime, we believe this is a conservative assumption by modeling their emissions at night because it would result in higher concentration due to less air dispersion. For the diesel light towers and sources related to EAF operation such as the baghouse, Melt Shop fugitives, and spray chamber stack, ENVIRON incorporated variable emission rates for the EAF operational sources and the light towers to reflect greater operation during night hours, and thus, generation of more emissions during the night-time for these sources.

As discussed in the January ATIR, baghouse emissions occur when the north and the south fans draw exhaust gases from the Melt Shop and send them to the baghouse, even when the EAF is not operating. The EAF operated mostly during the nighttime and the weekdays in 2011. This HRA assumes that the emission rate for the EAF operational sources is linear with fan amps. While this may not be the case over the fans entire operating range, the fans operate at about 65%-100% capacity when they are operating. Within this operating range, assuming a linear relationship between emissions and fan amps is a reasonable estimate.

Inherent in the assumption that the emissions are linear with fan amps is that the concentration of the metals in the exhaust is constant during fan operations, regardless of the production at the EAF. It is likely that the outlet concentration decreases to some degree when the baghouse inlet loading is reduced, and therefore, absent emission data at reduced inlet loading, assuming constant outlet exhaust concentration is reasonable and conservative.

We derived a temporal profile for the EAF operational sources based on the fraction of the 2011 fan amps for a given month (January – December), day of the week, and hour of the day (see Appendix B, Table B-1c). This temporal profile allows AERMOD to model variable emission rates by month, day of the week, and hour of the day. The calculated annual emissions were then distributed based on the temporal schedule for EAF baghouse (Appendix B, Table B-1c).

For the light towers, we assumed that these sources operate from 7 p.m. to 6 a.m., 5 days per week to model the annual concentrations.

Note that we only apply the temporal profile discussed above to calculate the annual-average concentrations. Since submission of the 2014 Draft HRA, we discovered the temporal profile derived for the long-term impacts has been mistakenly used for modeling the short-term impacts of the Melt Shop fugitives. This is overly conservative as we modeled 1-hour concentrations based on the hourly Melt Shop fugitive emissions more than the maximum hourly emission rate. We have corrected this in the revised HRA by setting up separate AERMOD runs to calculate one-hour concentrations for the above sources with variable emission rates to ensure the

maximum acute impacts are captured correctly when applying the maximum hourly emission rates in HARP.

3.4 Description of Receptors

ENVIRON conducted air dispersion modeling to estimate ground level short-term average (1-hr) and long-term average (annual) concentrations at both the fenceline and downwind locations.

1) Boundary Receptors: TAMCO is built on an approximately 80-acre property. Per the SCAQMD modeling guidelines for AERMOD, the modeled fenceline receptors were placed 75 meters apart.
2) Grid Receptors: As shown on Figure 8, grid receptors in the model were placed at equally spaced intervals covering the zone of impact. According to the SCAQMD AB2588 guidelines, the zone of impact is defined as areas where receptors have a potential multi-pathway cancer risk greater than one in a million, and a hazard index (HI) of 0.5. ENVIRON used the following receptor grids in the modeling.
   - Fine Grid: 100 meters by 100 meters up to 2,000 meters from the fenceline and
   - Coarse Grid: 250 meters by 250 meters from 2,000 meters to 5,000 meters from the fenceline.
3) Residential and Commercial/Industrial Receptors: To identify the maximally exposed individual at an existing residential receptor (MEIR) and at an existing occupational worker receptor (MEIW), the nearby land use obtained from the aerial photo and/or city zoning maps were used to properly label the receptor types as residents and workers. Figure 7 shows the location of the nearest residential area.
4) Sensitive Receptors: ENVIRON modeled discrete receptors at locations of known sensitive receptors within the zone of impact, as shown in Figure 9. Sensitive receptor locations were identified from searches of the following on-line public databases:
   - California Community Care Licensing Division[7]
   - California Department of Education, California School Directory[8]
   - California Office of Statewide Health Planning and Development, Automated Licensing Information and Report Tracking System[9]
5) Census Block Receptors: ENVIRON also modeled census block receptors to calculate cancer burden (population-level risk estimates). We obtained the census block geometrics and population data from the website of the United States Census Bureau and geo-referenced the coordinates for the centroid points of the census blocks. Figure 10 shows the modeled census block receptors in this HRA.

Separate model runs were conducted for grid/boundary receptors, sensitive receptors, census receptors, respectively.

[7] http://ccld.ca.gov/docs/ccld_search/ccld_search.aspx, accessed April 18, 2013.
[8] http://www.cde.ca.gov/re/sd, accessed April 18, 2013.
[9] http://alirts.oshpd.ca.gov/AdvSearch.aspx, accessed April 18, 2013.

3.5 Meteorological Data

The SCAQMD AB2588 guidelines state that the nearest representative meteorological station should be chosen for modeling as long as there are no intervening terrain features that dictate the use of an alternate station. The nearest SCAQMD meteorological station is Fontana, which is approximately 2.5 kilometers from TAMCO, and is not hindered by any intervening terrain. Therefore, ENVIRON used 2005 – 2009 Fontana meteorological data processed by the SCAQMD for the air dispersion modeling.

3.6 Terrain Data

The surface elevations for the various modeling objects (e.g., emission sources, receptors) in the modeling domain were imported from the National Elevation Dataset (NED), developed by United States Geological Survey (USGS). Terrain elevation data were incorporated into AERMOD input files using version 06341 of AERMAP, which is AERMOD's terrain preprocessor.

3.7 Coordinate System

ENVIRON used the Universal Transverse Mercator (UTM) system of coordinates and the North American Datum (NAD) for identifying the UTM coordinates of the various modeling objects (sources, buildings, receptors etc.).

4 Health Risk Assessment Modeling

4.1 The HARP Risk Analysis Module

SCAQMD requires that all AB2588 HRAs be prepared using the HARP model. The most recent version of HARP (version 1.4f) and HARP On-Ramp (version 1) was used to prepare this HRA. The health risk module of HARP incorporates the current OEHHA guidelines (OEHHA 2003), exposure factors, most recent toxicity values, and California Air Resources Board guidelines (CARB, 2003). The HARP On-Ramp was developed as an interim tool to allow the use of AERMOD output files with HARP.

As required by SCAQMD and as defined by OEHHA, Tier-1 type of risk evaluation is presented in the HRA report. Tier-1 is a standard point-estimate approach using the recommended point-estimates presented in the OEHHA guidelines. The results of the Tier-1 evaluation are useful in comparing risks among a large number of facilities and are used for regulatory purposes.

ENVIRON processed the AERMOD output files in HARP On-Ramp. The following two types of files were imported to HARP (included in Appendix D):

1) AERMOD input files
2) AERMOD annual and 1-hour output files

HARP On-Ramp processed these files and generated the following two types of files (included in Appendix E):

1) The source-receptor file, including identification of sources, modeled pollutants, receptor coordinates, and maximum one-hour and annual emission rates (*.SRC);
2) The X/Q summary file containing average and one-hour maximum X/Q values for every source-receptor combination (*.XOQ).

Three separate runs were conducted for grid/boundary receptors, sensitive receptors, and census receptors.

ENVIRON also created a HARP transaction file (*.tra), which was used to import data/ information on the facility, devices, processes and stacks, and the emission rates for TACs from the emission sources to HARP (included in Appendix E).

The HARP risk analysis module utilized the above input files to compute the ambient ground level concentrations for annual and hourly averaging periods. Next, the model computed cancer risks, HIC, and HIA for each individual receptor. Health risk values by source, by chemical, or by exposure pathway can also be generated through HARP. As required by the SCAQMD notice to prepare a HRA, ENVIRON reported risks associated with the Emergency DICEs and non-Emergency DICE sources separately.

4.2 Exposure Pathways

Exposure pathways are generally classified as primary pathways and secondary pathways. The inhalation pathway was considered as a primary pathway for TAMCO. The primary

non-inhalation pathways could potentially include dermal exposure, water ingestion, crop ingestion (direct deposition), and soil ingestion. The secondary non-inhalation pathways could potentially include ingestion of mother's milk, fish, dairy products, all types of meat and eggs, and crop ingestion (root uptake). All of these exposure pathways were evaluated for applicability to the Mill; only the following five pathways were found to be applicable to this site and thus, are included in this HRA for residential exposures (residential receptors and census tract centroid receptors):

- inhalation
- dermal absorption
- soil ingestion
- home grown produce
- mother's milk

The inhalation, dermal absorption, and soil ingestion pathways are included in the analysis for worker and sensitive receptors.

4.3 Carcinogenic Health Effects

Exposure to carcinogens is based on two scenarios – living and working at a location impacted by the facility's potential air toxics. Specifically, the living scenario is applied to the analysis for residential receptors, sensitive receptors, and census tract centroid receptors; the working scenario is applied to the analysis for worker receptors.

Risk assessment modeling for the residential exposure assumes a continuous lifetime exposure for 70 years. The underlying assumption is that the residential population remains at one point for the entire 70 years. This is an extremely conservative assumption because many people change places of residence during their lifetime and do not remain at home all day and every day for a continuous 70-year period. The "Derived (Adjusted)" risk calculation method, as prescribed by CARB, was used for estimating cancer risks at residential receptors in this HRA. The "Derived (Adjusted)" risk calculations use the 80th percentile breathing rate rather than the high-end (i.e., 95th percentile) point estimate when the inhalation pathway is one of the dominant exposure pathways. A deposition velocity of 0.02 m/s was assumed for all the non-inhalation pathways when modeling for residential receptors because the facility has various particulate emission control devices. In addition, this HRA uses the urban default value of 5.2 percent for the fraction of homegrown fruits and vegetables consumed.

In addition, this HRA also presents the cancer risks for the 9-year and 30-year exposures. These exposures were chosen to coincide with USEPA's estimates of the median residence time (9 years), high-end residence time (30 years), and a default assumption for lifetime (70 years).

For the worker cancer risk calculations, off-site workers are assumed to be exposed only during the work hours and work days (i.e., 8 hours per day, 5 days per week, 49 weeks per year for 40 years). ENVIRON made no adjustment for the off-site worker exposure via inhalation pathway, because most emission sources at the Mill operate 24 hours per day and seven days

per week. For the baghouse and the light towers, the peak emissions occur during the night while the majority of off-site workers are at their places of employment during the daytime. ENVIRON believes that use of the annual average concentrations adequately represent the off-site worker exposures.

4.4 Non-Carcinogenic Health Effects

In the analyses of non-carcinogenic health effects, as the OEHHA Air Toxics Hot Spots Program Guidance Manual mentioned, the assumption is that a threshold exists below which no adverse health impacts are expected. The concept of a threshold is based on studies that indicate the body can tolerate low levels of exposures. Non-carcinogenic health effects vary depending on the pollutant, the magnitude of exposure, and the duration of the exposure. These health effects can generally be classified into acute exposures (short-term exposures) and chronic exposures (long-term exposures).

The HARP risk analysis module computes the non-carcinogenic hazard indices using their respective toxicological endpoints (or target organs). The use of a hazard index (HI) approach is recommended in the OEHHA Guidelines for reviewing the cumulative non-carcinogenic health impacts of a mixture of compounds. The HI approach assumes that the health effects of chemical mixtures are additive. The HI is calculated by dividing the estimated exposure (ground level concentration) to a given substance by the REL for that substance or dividing the dose level by the reference dose (RfD) for that substance.

$$Hazard\ Index = \sum \frac{Expsoure_i}{Health\ Standard_i}$$

Where: i = the number of pollutants being evaluated.

The HI evaluates certain groups of substances that exert their effect on the same target organs. Therefore, a HI is calculated for each target organ.

The HIC is based on the annual average emissions and the modeled annual average concentration, whereas the HIAs are based on the maximum 1-hour emissions and the modeled maximum 1-hour concentration. The total HI for a toxicological endpoint is computed as the sum of the HIs of all relevant pollutants. To estimate HIC for residential/sensitive/census tract centroid receptors, the derived (OEHHA) method was used in HARP. A specified method is not needed for calculating the HIA in HARP.

As required by SCAQMD, the HI calculations in this HRA did not include background concentrations.

4.5 Lead National Ambient Air Quality Standard (NAAQS) Modeling

Given that there is no chronic or acute REL for lead, the HRA did not evaluate non-carcinogenic impacts from lead using the standard Hazard Index approach as described above. As recommended by the SCAQMD, ENVIRON conducted air quality modeling for lead emissions from TAMCO's operation to calculate the 3-month rolling average of the lead concentration. Then we compared the 3-month rolling average modeled concentrations to the 2008 lead

NAAQS of 0.15 μg/m^3 to evaluate the potential for an offsite exceedance of the lead NAAQS. As defined by the EPA, primary standards "provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly."[10]

4.5.1 Emission Estimates

ENVIRON assumes that emission rates for the EAF operational sources are linear with fan amps, as described in Section 3.3 of this HRA. To account for the seasonal variation of emission rates for EAF in 2011, we set up an hourly emission rate file in AERMOD based on the fraction of maximum hourly fan amps multiplied by the maximum hourly emission factor from the source test for EAF operational sources. AERMOD models the emission rates for each hour based on these variable emission rates and calculate the monthly average. Then we used LEADPOST to calculate the rolling 3-month average and report the maximum rolling 3-mnth average at each receptor. For other sources, we conservatively used maximum hourly emission rates for 24 hours per day and 7 days per week operation.

4.5.2 Air Dispersion Model and Model Options

ENVIRON used the AERMOD version 14134 to conduct this assessment with the same model options described in Section 3.1 of this HRA report. The model estimates the monthly average lead concentrations at boundary receptors and grid receptors around the Mill.

4.5.3 Source Parameters

All the source parameters used in this analysis were the same as those used in the HRA as described in Section 3.2. The "ALL" source group was set up to analyze the cumulative impact from all lead emission sources.

4.5.3.1 Modeled Receptors

For the purpose of identifying the areas where lead emissions from TAMCO have the potential to exceed the 2008 lead NAAQS of 0.15 μg/m^3. ENVIRON modeled boundary receptors and a subset of the grid receptors as those used in the HRA.

4.5.3.2 Meteorological and Terrain Data

We used the same meteorological and terrain data, as mentioned in Sections 3.5 and 3.6, for the lead air quality modeling.

4.5.3.3 Post Processing

Given that AERMOD does not calculate the 3-month rolling average concentrations, ENVIRON used an EPA's post-processor called LEADPOST to generate the maximum rolling 3-month average lead concentrations from the AERMOD modeled monthly average.[11] Figure 19 shows the contour of 0.15 μg/m^3 maximum rolling 3-month average lead concentrations.

[10] http://www.epa.gov/air/criteria.html
[11] LEADPOST was downloaded from the EPA's website at http://www.epa.gov/airquality/lead/kitmodel.html

5 Risk Characterization

Risk characterization, the last step of the health risk assessment process, ties together the previous three processes (i.e., hazard identification, exposure assessment, and toxicity data) to describe the type and magnitude of any increased health risks as a result of the exposure to the toxic air emissions from a facility. To compare against AB2588 thresholds, ENVIRON separated the risks for the emergency diesel engines (Emergency DICEs) from the total risks.[12] In addition, risks from emergency diesel engines are also discussed in the Sections 5.2 and 5.3.

5.1 70-Year Cancer Risks at Maximally Exposed Individual (Excluding Emergency DICEs)

Maximally Exposed Individual Resident (MEIR)

Based on the HARP modeling, the cancer risk MEIR associated with TAC emissions excluding the Emergency DICEs is located at the UTM coordinates of (451,800, 3,773,300), discrete receptor #1351 in the HARP file, which is about 1,000 meters (0.6 mile) northeast of the Mill, as shown on Figure 11. The incremental cancer risk for the MEIR is 1.51×10^{-5}, or 15.1 in one million. This value is below the SCAQMD Rule 1402 action risk level of 25 in a million for risk reduction, but above the SCAQMD public notification threshold of 10 in a million.

The contributions of each pollutant to the cancer risk level at the MEIR are summarized in Table 6. The contributions from each emission source to the MEIR are shown in Table 7. About 47 percent of the risk is attributed to chromium VI, with the balance attributed to DPM, cadmium, dioxins and furans, and other chemicals emitted from the Mill. Approximately 86 percent of the cancer risk is from the inhalation pathway and 5 percent from the dermal pathway. The emissions from the EAF baghouse contributes about 47 percent of the cancer risk at the MEIR location, with the balance attributed to the Melt Shop fugitives, diesel light towers, entrained road dusts, and other sources throughout the Mill. The annual average concentrations at the MEIR are presented in Appendix C, Table C-2.

Maximally Exposed Individual Worker (MEIW)

The cancer risk MEIW associated with TAC emissions excluding the Emergency DICEs is located at UTM coordinates of (450,700, 3,772,500), discrete receptor #974 in the HARP model, located at the neighboring facility to the south of TAMCO's south fenceline near the EAF baghouse (see Figure 11). The results indicate that the estimated incremental cancer risk at the MEIW is 2.46×10^{-5}, or 24.6 in one million. This value does not exceed the SCAQMD Rule 1402 action risk level of 25 in a million for risk reduction, but is above the SCAQMD public notification threshold of 10 in a million. The contributions from each pollutant to the cancer risk level at the MEIW are summarized in Table 8, and the contributions from each emission source are shown in Table 9. Eight-four percent of the risk results from the inhalation pathway and 10 percent from the dermal pathway. Chromium VI accounts for 45 percent of the risk, with the balance attributed to DPM, cadmium, dioxins and furans, and other chemicals emitted from the Mill. The fugitive emissions from the Melt Shop contribute 47 percent of the cancer risk at the MEIW location, with the balance attributed to the EAF baghouse, diesel light towers, entrained road

[12] in response to the comment 4d) and 4j) on the SCAQMD's HRA comment letter dated November 20, 2014.

dusts, and other sources throughout the Mill. The annual average concentrations at MEIW are presented in Appendix C, Table C-2.

Sensitive Receptors

A total of 1,109 sensitive receptors were evaluated in this HRA. Seventy years of residential exposure was assumed in the calculation of the cancer risks for the sensitive receptors. Fifty sensitive receptors with the highest estimated incremental cancer risks are summarized in Table 10a. The entire list of evaluated sensitive receptors with the estimated cancer risks, HICs, and HIAs are included in the Appendix E. The sensitive receptor with the highest incremental cancer risk is Montessori Child Development Center, located in Fontana, which is located approximately 2,700 meters (1.7 miles) northeast of the Mill, and has an estimated cancer risk of 6.1×10^{-6}, or 6.1 in one million. This risk value is below the SCAQMD threshold for public notification. The annual average and maximum hourly concentrations for all sensitive receptors are included in Appendix E of this HRA.

5.2 70-Year Cancer Risks at Maximally Exposed Individual from Emergency DICEs Only

Maximally Exposed Individual Resident (MEIR)

The cancer risk MEIR associated with TAC emissions from the Emergency DICEs is located at the same discrete receptor #1351 as the MEIR associated with other TAC emissions. The incremental cancer risk for the MEIR from the Emergency DICEs is 2×10^{-7}, or 0.2 in one million. This value is below the SCAQMD public notification threshold of 10 in a million.

Maximally Exposed Individual Worker (MEIW)

The cancer risk MEIW associated with TAC emissions from the Emergency DICEs is located at UTM coordinates of (450,800, 3,772,500), discrete receptor #975 in the HARP model, located at the neighboring facility to the south of TAMCO's south fenceline near the EAF baghouse. The incremental cancer risk for the MEIW from the Emergency DICEs is 3×10^{-7}, or 0.3 in one million. This value is below the SCAQMD public notification threshold of 10 in a million**.**

5.3 70-Year Cancer Risks at Maximally Exposed Individual from All TAC Emission Sources

Maximally Exposed Individual Resident (Including Risks from the Emergency DICEs)

Based on the HARP modeling, the cancer risk MEIR location does not change with or without the cancer risks from the Emergency DICEs. The incremental cancer risk for the MEIR is 1.52×10^{-5}, or 15.2 in one million. The chemical and source contributions to this cancer risk level at the MEIR are summarized in Table 6 and Table 7.

Maximally Exposed Individual Worker (Including Risks from the Emergency DICEs)

Based on the HARP modeling, the cancer risk MEIW location does not change with or without the cancer risks from the Emergency DICEs. With the risk from the Emergency DICEs, the total incremental cancer risk becomes 2.49×10^{-5}, or 24.9 in one million at the same MEIW location. The chemical and source contributions to this cancer risk level at the MEIW are summarized in Table 8 and 9.

Sensitive Receptors

The top fifty sensitive receptors with the highest estimated incremental cancer risks are summarized in Table 10b. The cancer risks resulting from the Emergency DICEs are insignificant.

5.4 Cancer Risk Isopleths

SCAQMD defines the one in a million (i.e., 1.0 x 10^{-6} or 1.0E-06) cancer risk contour as the zone of influence (ZOI), shown in Figure 14. Also shown on the figure is the 1.0 x 10^{-5} cancer risk contour. The risk isopleths were derived using the residential exposure calculation, which over-estimates the risks in the areas that are commercial or industrial. Figure 15 shows the cancer risk isopleths for the worker exposure scenario.

5.5 9-Year and 30-Year Residency Duration Risk Estimates

Per the SCAQMD guidelines, ENVIRON also estimated the cancer risks using 9- and 30-year exposure duration for residential receptors. These risks were calculated using the derived OEHHA method as recommended by the SCAQMD guidelines. The cancer risk at the MEIR location using the 9-year residency (i.e., exposure duration) is 3.8 x 10^{-6} for children, approximately 3.8 in one million, and 2.4 x 10^{-6} for adult, approximately 2.4 in one million. The cancer risk at the MEIR location using the 30-year residency is 8.1 x 10^{-6}, approximately 8.1 in one million.

5.6 Population Cancer Burden

Population cancer burdens were calculated by multiplying the estimated cancer risk at each census tract centroid by the residential population in that census block. A total of 200 census tract centroids were included in the analysis. The HARP report presenting the census tract cancer burden and cumulative cancer burden data is included in the Appendix E of the revised HRA. The total cancer burden is 0.62, which exceeds the SCAQMD Rule 1402 action risk level of 0.5.

5.7 Non-Carcinogenic Health Impacts

5.7.1 Chronic Health Effects

The facility emits pollutants that may have chronic adverse health effects on the following human target organs (or toxicological endpoints):

- Cardiovascular system
- Central nervous system
- Developmental system
- Endocrine system
- Eye
- Kidneys
- Gastrointestinal system
- Immune system

- Reproductive system
- Respiratory system
- Skin
- Hematopoietic system

Maximally Exposed Individual Resident

As required by the SCAQMD Supplemental Guidelines, non-carcinogenic HICs for the maximum residential exposure by each pollutant and by each source are presented in Table 11 and Table 12. The highest HIC of 0.55 for the residential exposure is at discrete receptor #1351 (451,800, 3,773,300) for the central nervous systems (Figure 12). Mercury is the highest contributing pollutant (approximately 49 percent) to the chronic health impact, with the balance attributed to manganese, arsenic, and other chemicals emitted from the Mill. The primary source contributors are the EAF baghouse (41 percent), entrained road dusts, (27 percent), and Melt Shop Fugitives (27 percent), with the balance attributed to the entrained road dusts, and other sources at the Mill. The HIC at the MEIR is below the SCAQMD public notification threshold of 1.0. The annual average concentrations at MEIR are presented in Appendix C, Table C-2.

The HIC isopleths of 0.5 using the residential exposure scenario are presented in Figure 16; Isopleths for 0.5, and 1.0 using the worker exposure scenario are presented in Figure 17.

Maximally Exposed Individual Worker

Results for the maximum off-site exposure by each pollutant and by each source are presented in Tables 13 and 14, respectively. The highest HIC for worker receptors is 3.48 at discrete receptor #1106 for the central nervous systems. The maximum off-site chronic exposure is located at UTM coordinates (451,300, 3,772,800) and on the neighboring facility to the east of the Melt Shop (Figure 12). Manganese is the top contributing pollutant (74 percent) to the chronic health impact. Entrained road dust is the dominating contributor (77 percent). The HIC at the MEIW exceeds the SCAQMD public notification threshold of 1.0 and the SCAQMD risk reduction threshold of 3.0. The annual average concentrations at the MEIW are presented in Appendix C, Table C-2.

Sensitive Receptors

The HICs at all the sensitive receptors are below the SCAQMD public notification threshold of 1.0. The highest HIC among the sensitive receptors is 0.18 at the Montessori Child Development Center, a child care center, located in Fontana.

5.7.2 Acute Health Effects

The facility also emits pollutants that may have acute adverse health effects on the following human target organs (or toxicological endpoints):

- Cardiovascular system
- Central nervous system
- Developmental system

- Eye
- Gastrointestinal system
- Immune system
- Reproductive system
- Respiratory system
- Hematopoietic system

Maximally Exposed Individual Resident

Results for the maximum residential exposure for acute health effects by pollutants and by sources are presented in Tables 15 and 16, respectively. The highest HIA for the residential receptors is 0.39 for the immune system, with approximately 98 percent attributable to nickel. The emissions from the entrained road dusts, the EAF baghouse, and the Melt Shop fugitives contribute approximately 53 percent, 16 percent, and 13 percent to the HIA, respectively. The maximum residential acute exposure receptor is located at receptor 1351 (451,800, 3,773,300), about 1,000 meters (0.6 mile) north from the facility (Figure 13). The highest HIA is below the SCAQMD public notification threshold of 1.0. The maximum hourly concentrations at MEIR are presented in Appendix C, Table C-2.

Maximally Exposed Individual Worker

Results for the maximum worker exposure by each pollutant and by each source are presented in Tables 17 and 18, respectively. The HIA at the MEIW is 3.04 for the immune system, with 98 percent attributable to nickel. The TAC emissions from the entrained road dusts, the Melt Shop fugitives, and the EAF baghouse contribute approximately 56 percent, 20 percent, and 16 percent to the HIA, respectively. The MEIW for the HIA is receptor #4146 located at coordinates (450,869, 3,772,854), which is on the fence line to the north of the Melt Shop (Figure 13). Fenceline receptors are included for the selection of HIA MEIW because it is assumed that it is possible for an offsite worker to be right outside the fenceline for about one hour. This is also the location of HIA PMI. The HIA is above the SCAQMD public notification threshold of 1.0, and the SCAQMD risk reduction threshold of 3.0. The maximum hourly concentrations at MEIR are presented in Appendix C, Table C-2. The isopleths of HIA at 0.5, and 1.0 are presented in Figure 18.

Sensitive Receptors

The highest HIA is 0.40, below the SCAQMD public notification threshold of 1.0, at Oparc Adc Rancho Cucamonga, a senior center, located in Rancho Cucamonga.

5.7.3 Lead NAAQS Modeling

As mentioned in Section 4.5, ENVIRON conducted the air quality modeling to evaluate the potential offsite impacts from TAMCO's lead emissions due to absence of RELs for lead. Figure 19 shows the contour of 0.15 $\mu g/m^3$ based on the maximum rolling 3-month average lead concentrations. The figure indicates that a small area to the south of TAMCO exceed the 2008 Pb NAAQS.

5.8 Risk Reductions

The results indicate that the HIA (3.48) and the HIC (3.04) at the MEIW trigger the SCAQMD Rule 1402 action risk level of 3.0 for a risk reduction plan. The cancer burden (0.62) exceed the SCAQMD action levels for a risk reduction plan (0.5 for cancer burden). The MEIR cancer risk (15.1 in a million) and MEIW cancer risk (24.6 in million) exceed the SCAQMD public notification threshold of 10 in a million for cancer risk. The risk reduction provisions are contained in:

- SCAQMD Rule 1402; and
- California Health and Safety Code 44390-44394

The public notification provisions are contained in:

- SCAQMD Rule 1402;
- California Health and Safety Code 44362; and
- SCAQMD Public Notification Procedures for Phase I and II Facilities under the Air Toxics Hot Spots Information and Assessment Act

As the results indicated, the emissions from the EAF baghouse and Melt Shop fugitives are the primary contributors to the elevated cancer risks. The emissions from the entrained road dusts, the EAF baghouse, and Melt Shop fugitives are the primary contributors to the elevated HIC and HIA. Risk reduction will focus on further control on the TAC emissions from these emission sources.

5.8.1 Current Mitigation Measures

TAMCO understands that the TAC emissions from various processes such as Melt Shop fugitives, and re-entrained road dust emissions contribute to the excess incremental cancer risk or HI. Therefore, TAMCO is currently implementing or conducting engineering evaluations of the following emission mitigation measures.

Fugitive Dust Controls

As part of Rule 1420 compliance, TAMCO has implemented various housekeeping measures to control fugitive dust, such as street sweeping and vacuuming, water and dust-suppressant application, paving additional unpaved areas, and water sprays for Melt Shop slag loading. To better characterize the emissions from the roads, ENVIRON conducted road dust sampling in June 2013 to analyze the silt loading or silt content on the road surface as well as the metal concentrations in the dust. The mitigated emissions are presented in Appendix F

ENVIRON found that the HIC and HIA at the MEIW decreases from 3.48 to 2.73 and from 3.04 to 2.88, respectively and are below the SCAQMD action level for a risk reduction plan of 3. These reductions are due to the decrease in the road dust contribution as a result of lower silt content on the roadways caused by improved street sweeping and other housekeeping measures.

Melt Shop Enclosure Policy

Also as part of Rule 1420 compliance, TAMCO has implemented a Melt Shop enclosure policy to control the large building openings of the Melt Shop depending on the local wind conditions. Combined with ambient monitoring data, TAMCO has been able to identify scenarios when the wind speeds and/or direction may cause high ambient monitoring results, allowing the facility to take appropriate measures to reduce the expected monitoring results. TAMCO is currently shutting down the EAF when the National Weather Service issues a High Wind Warning for northeast winds.

Replace Diesel-Fueled Light Towers

As indicated in the MEIW cancer risk breakdown by emission sources (Table 9), the light tower emissions account for approximately 4 in a million cancer risk at the MEIW. TAMCO has converted its diesel light towers to solar powered engines. Given that all the diesel light towers are converted to solar power, along with the cancer risk reduction from the road dust controls discussed above, cancer risk at the MEIW will decrease from 24.6 in a million to 20.2 in a million, which is below the SCAQMD action level for a risk reduction plan of 25 in a million.

Proposed Modification

TAMCO has completed modifications for the ladle heaters and the baghouse dust loading system, to further control Melt Shop fugitives from the EAF. In addition, TAMCO has filed a permit application to construct a new, larger baghouse to replace the existing ridge vent baghouse, along with modifications to the Melt Shop canopy to substantially improve capture efficiency. Direct ladle stir station ventilation would be installed as part of the new baghouse project. All these projects together would reduce the fugitive TAC emissions from the Melt Shop close to zero and reduce the baghouse emissions and thus, decrease the health impacts of the EAF.

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

6 Uncertainty Analysis

ENVIRON has used appropriate engineering and scientific methods in the health risk analysis presented in this report. However, there is a great deal of uncertainty associated with the process of risk assessment. Uncertainty may be defined as what is not known and may be reduced with further scientific studies. The uncertainty arises from lack of data in many areas, which necessitates the use of assumptions. Sources of uncertainty, which may either underestimate or more likely overestimate the off-site impact, include:

- Exposure estimates – These uncertainties are typically associated with the air dispersion model, which uses mathematical equations to simulate pollutant dispersion in ambient air.
- Toxicity data – This area represents great uncertainty due to lack of human data. Toxicologists use various assumptions, safety factors, and uncertainty factors in attempt to adjust the toxicity data from animal studies to human.
- Health risk characterization – Various assumptions are used in the health risk calculations that overestimate the potential risks; however, OEHHA requires that these parameters be used in the AB2588 HRAs to allow comparisons of different facilities in the AB2588 program.

These sources of uncertainty are further discussed in the paragraphs below. In general, a reasonably conservative approach was used throughout the risk assessment.

6.1 Exposure Estimates

AERMOD, the air dispersion model used in this analysis, utilizes Gaussian dispersion equations and a number of assumptions to determine the ground level concentrations and depositions of various pollutants (USEPA, 2004). Sensitivity analyses conducted on Gaussian dispersion models have concluded that it is unrealistic to expect the dispersion models to consistently predict real world pollutant concentrations, which introduces a level of uncertainty in the risk assessment.

In addition, actual meteorological conditions such as wind gusts are rarely accounted for in the model.

6.2 Toxicity Data

Uncertainty in toxicity data include:

- The differences among species and human populations cannot be easily quantified and incorporated into the risk analysis. Factors including metabolism, target site sensitivity, diet, immunological responses, and genetics may influence the response to toxic pollutants.
- Uncertainties in the assumptions underlying the dose-response level used.
- Extrapolation from large experimental doses, where, for example, other toxic effects may compromise the assessment of carcinogenic potential, to usually much smaller environmental doses.
- Lack of data on absorption efficiencies for most compounds.

- Lack of knowledge about interactions from simultaneous exposures to a number of compounds, i.e., synergistic or antagonistic effects that could over or under estimate the risks.

6.3 Health Risk Characterization

Conservative assumptions on exposure duration likely overestimate the health risks for the residential receptors. For the cancer risk analysis, this analysis assumed that the residents are exposed for 24 hours per day, 365 days per year, for 70 years at the same location. However, residents usually leave their houses on a daily basis for work, shopping, errands, etc. USEPA's data indicate that the residents rarely live in the same residence for 70 years[13]. As a matter of fact, the median value is 9 years, and the high-end residency period is 30 years, which is why OEHHA supports the inclusion of the cancer risks for 9- and 30-year residency periods in the AB2588 HRA reports. In addition, there is a natural range or variability in the human population in such properties as height, weight, and susceptibility to air toxicants. Finally, off-site workers are assumed to work in the same place of employment for 40 years, which is also very conservative.

In summary, the risk estimates generated by this health analysis should not be interpreted as the expected rates of disease in the exposed population but rather as estimates of potential risks, based on current knowledge and a number of assumptions.

[13] USEPA Exposure Factors Handbook, Chapter 16—Activity Factors.

7 References

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Tables

Table 1. TAC Emission Rates by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source Type	Modeled Source ID	Source Description	Chemical	Annual Emissions (lb/yr)	Maximum Hourly Emissions (lb/hr)
Point	D37	D-37 Diesel Emergency ICE	Diesel Exhaust Particulates	5.70E+00	3.75E-01
Point	D41	D-41 Diesel Emergency ICE	Diesel Exhaust Particulates	6.03E+00	2.91E-01
Point	D45	D-45 Natural Gas Emergency ICE	1,1,2,2-Tetrachloroethane	2.58E-04	1.94E-06
Point	D45	D-45 Natural Gas Emergency ICE	1,1,2-Trichloroethane	1.56E-04	1.17E-06
Point	D45	D-45 Natural Gas Emergency ICE	1,2-Dichloropropane	1.33E-04	9.98E-07
Point	D45	D-45 Natural Gas Emergency ICE	1,3-Butadiene	6.76E-03	5.07E-05
Point	D45	D-45 Natural Gas Emergency ICE	1,3-Dichloropropene	1.30E-04	9.75E-07
Point	D45	D-45 Natural Gas Emergency ICE	Acetaldehyde	2.85E-02	2.14E-04
Point	D45	D-45 Natural Gas Emergency ICE	Acrolein	2.68E-02	2.01E-04
Point	D45	D-45 Natural Gas Emergency ICE	Ammonia	3.20E-02	2.40E-04
Point	D45	D-45 Natural Gas Emergency ICE	Benzene	1.61E-02	1.21E-04
Point	D45	D-45 Natural Gas Emergency ICE	Carbon Tetrachloride	1.81E-04	1.36E-06
Point	D45	D-45 Natural Gas Emergency ICE	Chloroform	1.40E-04	1.05E-06
Point	D45	D-45 Natural Gas Emergency ICE	Ethyl Benzene	2.53E-04	1.90E-06
Point	D45	D-45 Natural Gas Emergency ICE	Ethylene Dibromide	2.17E-04	1.63E-06
Point	D45	D-45 Natural Gas Emergency ICE	Ethylene Dichloride	1.15E-04	8.63E-07
Point	D45	D-45 Natural Gas Emergency ICE	Formaldehyde	2.09E-01	1.57E-03
Point	D45	D-45 Natural Gas Emergency ICE	Methanol	3.12E-02	2.34E-04
Point	D45	D-45 Natural Gas Emergency ICE	Methylene Chloride	4.20E-04	3.15E-06
Point	D45	D-45 Natural Gas Emergency ICE	Naphthalene	9.90E-04	7.43E-06
Point	D45	D-45 Natural Gas Emergency ICE	Styrene	1.21E-04	9.08E-07
Point	D45	D-45 Natural Gas Emergency ICE	Toluene	5.69E-03	4.27E-05
Point	D45	D-45 Natural Gas Emergency ICE	Total Xylenes	1.99E-03	1.49E-05
Point	D45	D-45 Natural Gas Emergency ICE	Vinyl Chloride	7.32E-05	5.49E-07
Point	LS1-LS6	Light Towers	Diesel Exhaust Particulates	2.17E+02	1.62E-01
Point	RF	Billet Reheat Furnace - Process Emissions	Arsenic	3.92E-01	2.13E-04
Point	RF	Billet Reheat Furnace - Process Emissions	Beryllium	5.15E-02	2.80E-05
Point	RF	Billet Reheat Furnace - Process Emissions	Cadmium	2.04E-01	1.11E-04
Point	RF	Billet Reheat Furnace - Process Emissions	Copper	1.45E+01	7.89E-03
Point	RF	Billet Reheat Furnace - Process Emissions	Lead	3.67E+00	2.00E-03
Point	RF	Billet Reheat Furnace - Process Emissions	Manganese	2.76E+00	1.50E-03
Point	RF	Billet Reheat Furnace - Process Emissions	Nickel	6.71E-01	3.64E-04
Point	RF	Billet Reheat Furnace - Process Emissions	Selenium	5.08E-01	2.76E-04
Point	RF	Billet Reheat Furnace - Process Emissions	Total Chromium	1.41E+00	7.66E-04
Point	RF	Billet Reheat Furnace - Process Emissions	Zinc	3.43E+00	1.86E-03
Point	RGNG	Reheat Furnace Burner Stack	Acetaldehyde	3.51E-01	1.03E-04
Point	RGNG	Reheat Furnace Burner Stack	Acrolein	3.12E-01	9.17E-05
Point	RGNG	Reheat Furnace Burner Stack	Ammonia	1.25E+03	3.67E-01
Point	RGNG	Reheat Furnace Burner Stack	Benzene	6.64E-01	1.95E-04
Point	RGNG	Reheat Furnace Burner Stack	Ethyl Benzene	7.81E-01	2.29E-04
Point	RGNG	Reheat Furnace Burner Stack	Formaldehyde	1.41E+00	4.13E-04
Point	RGNG	Reheat Furnace Burner Stack	Hexane	5.08E-01	1.49E-04
Point	RGNG	Reheat Furnace Burner Stack	Naphthalene	1.17E-01	3.44E-05
Point	RGNG	Reheat Furnace Burner Stack	Polynuclear Aromatic Hydrocarbons (PAHs)	3.91E-02	1.15E-05
Point	RGNG	Reheat Furnace Burner Stack	Toluene	3.05E+00	8.94E-04
Point	RGNG	Reheat Furnace Burner Stack	Total Xylenes	2.27E+00	6.65E-04
Point	SCS	Spray Chamber Stack	Arsenic	1.08E-01	5.87E-05
Point	SCS	Spray Chamber Stack	Beryllium	1.46E-02	7.96E-06
Point	SCS	Spray Chamber Stack	Cadmium	7.91E-02	4.30E-05
Point	SCS	Spray Chamber Stack	Copper	4.66E+00	2.53E-03
Point	SCS	Spray Chamber Stack	Lead	3.28E+00	1.78E-03
Point	SCS	Spray Chamber Stack	Manganese	3.53E+00	1.92E-03
Point	SCS	Spray Chamber Stack	Nickel	2.22E-01	1.20E-04
Point	SCS	Spray Chamber Stack	Selenium	1.21E-01	6.57E-05
Point	SCS	Spray Chamber Stack	Total Chromium	2.47E-01	1.34E-04
Point	SCS	Spray Chamber Stack	Zinc	1.36E+01	7.37E-03
Point	EAFBH1-16	EAF Baghouse Vents	Arsenic	1.78E+00	6.49E-04
Point	EAFBH1-16	EAF Baghouse Vents	Beryllium	1.02E-01	3.75E-05
Point	EAFBH1-16	EAF Baghouse Vents	Cadmium	6.59E+01	2.42E-02
Point	EAFBH1-16	EAF Baghouse Vents	Copper	4.72E+02	1.70E-01
Point	EAFBH1-16	EAF Baghouse Vents	Dioxins and Furans	3.90E-04	2.12E-07
Point	EAFBH1-16	EAF Baghouse Vents	Fluoride	2.14E+04	7.91E+00
Point	EAFBH1-16	EAF Baghouse Vents	Hexavalent Chromium	5.39E+00	2.00E-03
Point	EAFBH1-16	EAF Baghouse Vents	Lead	1.05E+03	3.84E-01
Point	EAFBH1-16	EAF Baghouse Vents	Manganese	6.78E+02	2.50E-01
Point	EAFBH1-16	EAF Baghouse Vents	Mercury	1.38E+02	4.95E-02
Point	EAFBH1-16	EAF Baghouse Vents	Nickel	6.39E+01	2.36E-02
Point	EAFBH1-16	EAF Baghouse Vents	Total Chromium	1.01E+02	3.72E-02
Point	EAFBH1-16	EAF Baghouse Vents	Zinc	1.25E+04	4.60E+00
Volume	219MS	Melt Shop - 219 Exempt Equipment	Acetaldehyde	8.47E-03	8.19E-06
Volume	219MS	Melt Shop - 219 Exempt Equipment	Acrolein	5.32E-03	5.14E-06
Volume	219MS	Melt Shop - 219 Exempt Equipment	Ammonia	6.30E+00	6.10E-03
Volume	219MS	Melt Shop - 219 Exempt Equipment	Benzene	1.58E-02	1.52E-05
Volume	219MS	Melt Shop - 219 Exempt Equipment	Ethyl Benzene	1.87E-02	1.81E-05
Volume	219MS	Melt Shop - 219 Exempt Equipment	Formaldehyde	3.35E-02	3.24E-05
Volume	219MS	Melt Shop - 219 Exempt Equipment	Hexane	1.24E-02	1.20E-05
Volume	219MS	Melt Shop - 219 Exempt Equipment	Naphthalene	5.91E-04	5.71E-07
Volume	219MS	Melt Shop - 219 Exempt Equipment	Polynuclear Aromatic Hydrocarbons (PAHs)	1.97E-04	1.90E-07
Volume	219MS	Melt Shop - 219 Exempt Equipment	Toluene	7.21E-02	6.97E-05
Volume	219MS	Melt Shop - 219 Exempt Equipment	Total Xylenes	5.36E-02	5.18E-05
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Acetaldehyde	1.02E-02	8.19E-06

Table 1. TAC Emission Rates by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source Type	Modeled Source ID	Source Description	Chemical	Annual Emissions (lb/yr)	Maximum Hourly Emissions (lb/hr)
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Acrolein	6.40E-03	5.14E-06
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Ammonia	7.58E+00	6.10E-03
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Benzene	1.90E-02	1.52E-05
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Ethyl Benzene	2.25E-02	1.81E-05
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Formaldehyde	4.03E-02	3.24E-05
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Hexane	1.49E-02	1.20E-05
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Naphthalene	7.11E-04	5.71E-07
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Polynuclear Aromatic Hydrocarbons (PAHs)	2.37E-04	1.90E-07
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Toluene	8.67E-02	6.97E-05
Volume	219RM	Rolling Mill - 219 Exempt Equipment	Total Xylenes	6.45E-02	5.18E-05
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Acetaldehyde	1.59E-01	1.84E-04
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Acrolein	1.38E-01	1.60E-04
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Ammonia	1.64E+02	1.90E-01
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Benzene	2.97E-01	3.45E-04
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Ethyl Benzene	3.53E-01	4.10E-04
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Formaldehyde	6.30E-01	7.31E-04
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Hexane	2.36E-01	2.73E-04
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Naphthalene	1.54E-02	1.78E-05
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Polynuclear Aromatic Hydrocarbons (PAHs)	5.12E-03	5.94E-06
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Toluene	1.36E+00	1.57E-03
Volume	EAFNG	Electric Arc Furnace - External Natural Gas Combustion	Total Xylenes	1.01E+00	1.17E-03
Volume	MSFUG	Melt Shop Fugitive Emissions	Arsenic	1.78E-01	6.49E-05
Volume	MSFUG	Melt Shop Fugitive Emissions	Beryllium	1.02E-02	3.75E-06
Volume	MSFUG	Melt Shop Fugitive Emissions	Cadmium	6.59E+00	2.42E-03
Volume	MSFUG	Melt Shop Fugitive Emissions	Copper	4.72E+01	1.70E-02
Volume	MSFUG	Melt Shop Fugitive Emissions	Dioxins and Furans	3.90E-05	2.12E-08
Volume	MSFUG	Melt Shop Fugitive Emissions	Fluoride	2.14E+03	7.91E-01
Volume	MSFUG	Melt Shop Fugitive Emissions	Hexavalent Chromium	5.39E-01	2.00E-04
Volume	MSFUG	Melt Shop Fugitive Emissions	Lead	1.05E+02	3.84E-02
Volume	MSFUG	Melt Shop Fugitive Emissions	Manganese	6.78E+01	2.50E-02
Volume	MSFUG	Melt Shop Fugitive Emissions	Mercury	1.38E+01	4.95E-03
Volume	MSFUG	Melt Shop Fugitive Emissions	Nickel	6.39E+00	2.36E-03
Volume	MSFUG	Melt Shop Fugitive Emissions	Total Chromium	1.01E+01	3.72E-03
Volume	MSFUG	Melt Shop Fugitive Emissions	Zinc	1.25E+03	4.60E-01
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Acetaldehyde	1.08E-01	4.84E-05
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Acrolein	9.40E-02	4.22E-05
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Ammonia	1.11E+02	5.00E-02
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Benzene	2.02E-01	9.06E-05
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Ethyl Benzene	2.40E-01	1.08E-04
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Formaldehyde	4.28E-01	1.92E-04
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Hexane	1.60E-01	7.18E-05
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Naphthalene	1.04E-02	4.69E-06
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Polynuclear Aromatic Hydrocarbons (PAHs)	3.48E-03	1.56E-06
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Toluene	9.23E-01	4.14E-04
Volume	NLHNG	North Ladle Heater - External Natural Gas Combustion	Total Xylenes	6.86E-01	3.08E-04
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Acetaldehyde	1.15E-01	4.84E-05
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Acrolein	1.00E-01	4.22E-05
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Ammonia	1.19E+02	5.00E-02
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Benzene	2.15E-01	9.06E-05
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Ethyl Benzene	2.56E-01	1.08E-04
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Formaldehyde	4.56E-01	1.92E-04
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Hexane	1.71E-01	7.18E-05
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Naphthalene	1.11E-02	4.69E-06
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Polynuclear Aromatic Hydrocarbons (PAHs)	3.71E-03	1.56E-06
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Toluene	9.83E-01	4.14E-04
Volume	SLHNG	South Ladle Heater - External Natural Gas Combustion	Total Xylenes	7.31E-01	3.08E-04
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Acetaldehyde	5.95E-02	3.51E-05
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Acrolein	5.18E-02	3.06E-05
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Ammonia	6.14E+01	3.63E-02
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Benzene	1.11E-01	6.57E-05
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Ethyl Benzene	1.32E-01	7.82E-05
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Formaldehyde	2.36E-01	1.39E-04
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Hexane	8.82E-02	5.21E-05
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Naphthalene	5.75E-03	3.40E-06
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Polynuclear Aromatic Hydrocarbons (PAHs)	1.92E-03	1.13E-06
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Toluene	5.08E-01	3.00E-04
Volume	VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	Total Xylenes	3.78E-01	2.23E-04
Volume	NTUND	North Tundish Heater	Acetaldehyde	1.75E-02	8.19E-06
Volume	NTUND	North Tundish Heater	Acrolein	1.10E-02	5.14E-06
Volume	NTUND	North Tundish Heater	Ammonia	1.30E+01	6.10E-03
Volume	NTUND	North Tundish Heater	Benzene	3.26E-02	1.52E-05
Volume	NTUND	North Tundish Heater	Ethyl Benzene	3.87E-02	1.81E-05
Volume	NTUND	North Tundish Heater	Formaldehyde	6.92E-02	3.24E-05
Volume	NTUND	North Tundish Heater	Hexane	2.56E-02	1.20E-05
Volume	NTUND	North Tundish Heater	Naphthalene	1.22E-03	5.71E-07
Volume	NTUND	North Tundish Heater	Polynuclear Aromatic Hydrocarbons (PAHs)	4.07E-04	1.90E-07
Volume	NTUND	North Tundish Heater	Toluene	1.49E-01	6.97E-05
Volume	NTUND	North Tundish Heater	Total Xylenes	1.11E-01	5.18E-05
Volume	STUND	South Tundish Heater	Acetaldehyde	1.77E-02	8.19E-06
Volume	STUND	South Tundish Heater	Acrolein	1.11E-02	5.14E-06
Volume	STUND	South Tundish Heater	Ammonia	1.32E+01	6.10E-03

Table 1. TAC Emission Rates by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source Type	Modeled Source ID	Source Description	Chemical	Annual Emissions (lb/yr)	Maximum Hourly Emissions (lb/hr)
Volume	STUND	South Tundish Heater	Benzene	3.29E-02	1.52E-05
Volume	STUND	South Tundish Heater	Ethyl Benzene	3.90E-02	1.81E-05
Volume	STUND	South Tundish Heater	Formaldehyde	6.99E-02	3.24E-05
Volume	STUND	South Tundish Heater	Hexane	2.59E-02	1.20E-05
Volume	STUND	South Tundish Heater	Naphthalene	1.23E-03	5.71E-07
Volume	STUND	South Tundish Heater	Polynuclear Aromatic Hydrocarbons (PAHs)	4.11E-04	1.90E-07
Volume	STUND	South Tundish Heater	Toluene	1.50E-01	6.97E-05
Volume	STUND	South Tundish Heater	Total Xylenes	1.12E-01	5.18E-05
Volume	SCCVY	Screw Conveyor	Arsenic	5.91E-04	2.61E-07
Volume	SCCVY	Screw Conveyor	Barium	1.58E-02	6.98E-06
Volume	SCCVY	Screw Conveyor	Cadmium	3.55E-02	1.57E-05
Volume	SCCVY	Screw Conveyor	Cobalt	9.34E-04	4.13E-07
Volume	SCCVY	Screw Conveyor	Copper	1.18E-01	5.23E-05
Volume	SCCVY	Screw Conveyor	Hexavalent Chromium	4.02E-05	1.78E-08
Volume	SCCVY	Screw Conveyor	Lead	8.51E-01	3.76E-04
Volume	SCCVY	Screw Conveyor	Manganese	6.57E-01	2.91E-04
Volume	SCCVY	Screw Conveyor	Mercury	2.18E-05	9.65E-09
Volume	SCCVY	Screw Conveyor	Nickel	1.14E-02	5.03E-06
Volume	SCCVY	Screw Conveyor	Total Chromium	8.59E-02	3.80E-05
Volume	SCCVY	Screw Conveyor	Vanadium	6.57E-03	2.91E-06
Volume	SCCVY	Screw Conveyor	Zinc	1.15E+01	5.07E-03
Volume	SCRAPH	Scrap Handling	Aluminum	1.23E+01	1.01E-02
Volume	SCRAPH	Scrap Handling	Antimony	8.52E-03	7.00E-06
Volume	SCRAPH	Scrap Handling	Arsenic	1.39E-02	1.14E-05
Volume	SCRAPH	Scrap Handling	Barium	5.71E-01	4.69E-04
Volume	SCRAPH	Scrap Handling	Beryllium	7.07E-04	5.81E-07
Volume	SCRAPH	Scrap Handling	Cadmium	1.68E-02	1.38E-05
Volume	SCRAPH	Scrap Handling	Cobalt	8.81E-02	7.23E-05
Volume	SCRAPH	Scrap Handling	Copper	7.45E-01	6.12E-04
Volume	SCRAPH	Scrap Handling	Hexavalent Chromium	3.89E-04	3.19E-07
Volume	SCRAPH	Scrap Handling	Lead	6.07E-01	4.98E-04
Volume	SCRAPH	Scrap Handling	Manganese	4.45E+00	3.65E-03
Volume	SCRAPH	Scrap Handling	Mercury	1.82E-03	1.50E-06
Volume	SCRAPH	Scrap Handling	Nickel	6.66E-01	5.47E-04
Volume	SCRAPH	Scrap Handling	Selenium	6.16E-04	5.06E-07
Volume	SCRAPH	Scrap Handling	Silver	3.00E-03	2.47E-06
Volume	SCRAPH	Scrap Handling	Thallium	2.50E-04	2.06E-07
Volume	SCRAPH	Scrap Handling	Total Chromium	8.42E-01	6.92E-04
Volume	SCRAPH	Scrap Handling	Vanadium	8.72E-02	7.16E-05
Volume	SCRAPH	Scrap Handling	Zinc	4.83E+00	3.97E-03
Volume	SLAGCRU	Slag Crushing	Aluminum	0.00E+00	0.00E+00
Volume	SLAGCRU	Slag Crushing	Antimony	1.12E-03	2.09E-06
Volume	SLAGCRU	Slag Crushing	Arsenic	8.29E-04	1.55E-06
Volume	SLAGCRU	Slag Crushing	Barium	1.12E-01	2.09E-04
Volume	SLAGCRU	Slag Crushing	Beryllium	4.79E-04	8.94E-07
Volume	SLAGCRU	Slag Crushing	Cadmium	1.13E-04	2.11E-07
Volume	SLAGCRU	Slag Crushing	Cobalt	2.60E-03	4.85E-06
Volume	SLAGCRU	Slag Crushing	Copper	7.85E-02	1.47E-04
Volume	SLAGCRU	Slag Crushing	Hexavalent Chromium	4.67E-06	8.73E-09
Volume	SLAGCRU	Slag Crushing	Lead	2.51E-03	4.69E-06
Volume	SLAGCRU	Slag Crushing	Manganese	3.00E+00	5.61E-03
Volume	SLAGCRU	Slag Crushing	Mercury	2.20E-05	4.11E-08
Volume	SLAGCRU	Slag Crushing	Molybdenum	5.82E-03	1.09E-05
Volume	SLAGCRU	Slag Crushing	Nickel	2.43E-02	4.54E-05
Volume	SLAGCRU	Slag Crushing	Phosphorus	8.81E-02	1.65E-04
Volume	SLAGCRU	Slag Crushing	Selenium	2.96E-04	5.52E-07
Volume	SLAGCRU	Slag Crushing	Silver	2.53E-04	4.73E-07
Volume	SLAGCRU	Slag Crushing	Thallium	1.57E-04	2.93E-07
Volume	SLAGCRU	Slag Crushing	Titanium	3.95E-01	7.38E-04
Volume	SLAGCRU	Slag Crushing	Total Chromium	2.40E-01	4.48E-04
Volume	SLAGCRU	Slag Crushing	Vanadium	5.02E-02	9.38E-05
Volume	SLAGCRU	Slag Crushing	Zinc	3.52E-02	6.58E-05
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Antimony	1.87E-02	4.86E-05
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Arsenic	1.39E-02	3.60E-05
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Barium	1.87E+00	4.85E-03
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Beryllium	8.01E-03	2.08E-05
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Cadmium	1.89E-03	4.90E-06
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Copper	1.31E+00	3.41E-03
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Hexavalent Chromium	7.82E-05	2.03E-07
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Lead	4.20E-02	1.09E-04
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Manganese	5.03E+01	1.30E-01
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Mercury	3.68E-04	9.55E-07
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Molybdenum	9.74E-02	2.53E-04
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Nickel	4.07E-01	1.06E-03
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Phosphorus	1.47E+00	3.83E-03
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Selenium	4.95E-03	1.28E-05
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Silver	4.24E-03	1.10E-05
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Thallium	2.62E-03	6.80E-06
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Titanium	6.61E+00	1.72E-02
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Total Chromium	4.02E+00	1.04E-02
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Vanadium	8.41E-01	2.18E-03

Table 1. TAC Emission Rates by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source Type	Modeled Source ID	Source Description	Chemical	Annual Emissions (lb/yr)	Maximum Hourly Emissions (lb/hr)
Volume	SLAGH	Slag Handling and Storage Pile Fugitives	Zinc	5.89E-01	1.53E-03
Volume	UGTD	Fuel Dispensing Facility (Diesel)	1,2,4-Trimethylbenzene	3.24E-02	2.34E-05
Volume	UGTD	Fuel Dispensing Facility (Diesel)	Ethyl Benzene	3.24E-04	2.34E-07
Volume	UGTD	Fuel Dispensing Facility (Diesel)	Toluene	9.72E-04	7.01E-07
Volume	UGTD	Fuel Dispensing Facility (Diesel)	Total Xylenes	9.39E-03	6.77E-06
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	1,2,4-Trimethylbenzene	1.22E-01	8.78E-05
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Benzene	8.76E-02	6.32E-05
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Cyclohexane	1.17E-02	8.42E-06
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Ethyl Benzene	6.81E-02	4.91E-05
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Hexane	4.87E-02	3.51E-05
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Isopropyl Benzene	2.43E-02	1.76E-05
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Toluene	3.41E-01	2.46E-04
Volume	UGTG	Fuel Dispensing Facility (Gasoline)	Total Xylenes	3.41E-01	2.46E-04
Volume	VP's & VU's	Entrained Road Dusts	Aluminum	4.02E+02	1.99E-01
Volume	VP's & VU's	Entrained Road Dusts	Antimony	1.19E-01	6.87E-05
Volume	VP's & VU's	Entrained Road Dusts	Arsenic	2.38E-01	1.31E-04
Volume	VP's & VU's	Entrained Road Dusts	Barium	1.32E+01	6.85E-03
Volume	VP's & VU's	Entrained Road Dusts	Beryllium	2.30E-02	1.13E-05
Volume	VP's & VU's	Entrained Road Dusts	Cadmium	2.28E-01	1.32E-04
Volume	VP's & VU's	Entrained Road Dusts	Cobalt	1.03E+00	6.23E-04
Volume	VP's & VU's	Entrained Road Dusts	Copper	1.37E+01	7.42E-03
Volume	VP's & VU's	Entrained Road Dusts	Hexavalent Chromium	1.25E-02	6.20E-06
Volume	VP's & VU's	Entrained Road Dusts	Lead	8.53E+00	4.92E-03
Volume	VP's & VU's	Entrained Road Dusts	Manganese	2.48E+02	1.16E-01
Volume	VP's & VU's	Entrained Road Dusts	Mercury	2.11E-02	1.31E-05
Volume	VP's & VU's	Entrained Road Dusts	Nickel	7.85E+00	4.72E-03
Volume	VP's & VU's	Entrained Road Dusts	Selenium	2.09E-02	1.03E-05
Volume	VP's & VU's	Entrained Road Dusts	Silver	4.93E-02	2.74E-05
Volume	VP's & VU's	Entrained Road Dusts	Thallium	9.11E-03	4.43E-06
Volume	VP's & VU's	Entrained Road Dusts	Total Chromium	2.27E+01	1.15E-02
Volume	VP's & VU's	Entrained Road Dusts	Vanadium	4.18E+00	1.98E-03
Volume	VP's & VU's	Entrained Road Dusts	Zinc	6.89E+01	3.95E-02
Area	DICE	Diesel Internal Combustion Engines (219 exempt)	Diesel Exhaust Particulates	3.79E+01	2.18E-01
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	1,2,4-Trimethylbenzene	3.18E+00	1.83E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	1,3-Butadiene	2.09E+00	1.21E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Acetaldehyde	1.89E+00	1.09E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Acrolein	4.54E-01	2.62E-03
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Benzene	8.68E+00	5.01E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Chlorine	1.04E+00	5.99E-03
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Copper	7.52E-03	4.34E-05
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Ethyl Benzene	3.78E+00	2.18E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Formaldehyde	7.87E+00	4.54E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Hexane	3.30E+00	1.91E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Manganese	7.52E-03	4.34E-05
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Methanol	1.77E+00	1.02E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Methyl Ethyl Ketone	1.51E-01	8.73E-04
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Methyl Tert-Butyl Ether	4.69E+00	2.71E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	m-Xylenes	1.12E+01	6.48E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Naphthalene	3.28E-01	1.89E-03
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Nickel	7.52E-03	4.34E-05
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	o-Xylenes	3.91E+00	2.26E-02
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Styrene	3.28E-01	1.89E-03
Area	GICE	Gasoline Internal Combustion Engines (219 exempt)	Toluene	1.71E+01	9.88E-02

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Table 2. Total Emission Rate, Exposure Pathway, and Target Organ by TAC
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical Name	CAS #	Max Hourly Emission Rate (lb/hr)	Max Hourly Emission Rate (g/s)	Annual Emission Rate (lb/yr)	Annual Emission Rate (g/s)	Multi-pathway Substance	Pathways					Acute Target Organs									Chronic Target Organs - Inhalation (Oral)											
							Inhalation	Dermal	Soil ingestion	Home grown produce	Mother's milk	CV	CNS	IMMUN	GILV	REPRO	RESP	EYE	DEVEL	BLOOD	CV	CNS	KIDNEY	GILV	REPRO	RESP	SKIN	EYE	ENDO	DEVEL	BLOOD	IMMUNE
1,1,2,2-Tetrachloroethane	79345	1.94E-06	2.44E-07	2.58E-04	3.71E-09		x												x		x(x)	x(x)				x(x)	x(x)			x(x)		
1,1,2-Trichloroethane	79005	1.17E-06	1.47E-07	1.56E-04	2.24E-09		x																									
1,2,4-Trimethylbenzene	95636	1.84E-02	2.32E-03	3.33E+00	4.79E-05		x																									
1,2-Dichloropropane	78875	9.98E-07	1.26E-07	1.33E-04	1.91E-09		x																									
1,3-Butadiene	106990	1.21E-02	1.53E-03	2.10E+00	3.02E-05		x												x						x							
1,3-Dichloropropene	542756	9.75E-07	1.23E-07	1.30E-04	1.87E-09		x																									
Acetaldehyde	75070	1.16E-02	1.46E-03	2.77E+00	3.98E-05		x										x	x							x							
Acrolein	107028	3.21E-03	4.04E-04	1.21E+00	1.74E-05		x										x	x							x							
Aluminum	7429905	2.09E-01	2.63E-02	4.15E+02	5.97E-03		x																									
Ammonia	7664417	7.18E-01	9.05E-02	1.75E+03	2.51E-02		x										x	x							x							
Antimony	7440360	1.26E-04	1.59E-05	1.47E-01	2.12E-06		x																									
Arsenic	7440382	1.17E-03	1.47E-04	2.73E+00	3.93E-05	x	x	x	x	x		x	x						x		x(x)	x(x)				x(x)	x(x)			x(x)		
Barium	7440393	1.24E-02	1.56E-03	1.57E+01	2.26E-04		x																									
Benzene	71432	5.11E-02	6.44E-03	1.04E+01	1.49E-04		x							x		x			x	x		x								x	x	
Beryllium	7440417	1.11E-04	1.40E-05	2.10E-01	3.02E-06	x	x	x	x	x														(x)		x							x
Cadmium	7440439	2.70E-02	3.40E-03	7.31E+01	1.05E-03	x	x	x	x	x													x(x)			x						
Carbon Tetrachloride	56235	1.36E-06	1.71E-07	1.81E-04	2.60E-09		x						x		x	x			x			x		x						x		
Chlorine	7782505	5.99E-03	7.54E-04	1.04E+00	1.49E-05		x										x	x							x							
Chloroform	67663	1.05E-06	1.32E-07	1.40E-04	2.01E-09		x						x			x			x				x	x						x		
Cobalt	7440484	7.00E-04	8.82E-05	1.12E+00	1.62E-05		x																									
Copper	7440508	2.09E-01	2.64E-02	5.54E+02	7.97E-03		x										x															
Cyclohexane	110827	8.42E-06	1.06E-06	1.17E-02	1.68E-07		x																									
Diesel Exhaust Particulates	9901	1.05E+00	1.32E-01	2.66E+02	3.83E-03		x																		x							
Dioxins and Furans	1086/1080	2.33E-07	2.93E-08	4.29E-04	6.16E-09	x	x	x	x	x	x													x(x)	x(x)	x(x)			x(x)	x(x)	x(x)		
Ethyl Benzene	100414	2.29E-02	2.88E-03	5.73E+00	8.25E-05		x																x	x					x	x		
Ethylene Dibromide	106934	1.63E-06	2.05E-07	2.17E-04	3.12E-09		x																		x							
Ethylene Dichloride	107062	8.63E-07	1.09E-07	1.15E-04	1.65E-09		x																	x								
Formaldehyde	50000	4.88E-02	6.15E-03	1.14E+01	1.65E-04		x											x								x						
Fluoride	1101	8.70E+00	1.10E+00	2.35E+04	3.38E-01		x										x	x								x						
Hexane	110543	1.98E-02	2.49E-03	4.59E+00	6.61E-05		x															x										
Hexavalent Chromium	18540299	2.21E-03	2.78E-04	5.94E+00	8.54E-05	x	x	x	x	x																x					(x)	
Isopropyl Benzene	98828	1.76E-05	2.21E-06	2.43E-02	3.50E-07		x																									
Lead	7439921	4.32E-01	5.44E-02	1.17E+03	1.68E-02	x	x	x	x	x																						
Manganese	7439965	5.34E-01	6.73E-02	1.06E+03	1.52E-02		x															x										
Mercury	7439976	5.45E-02	6.86E-03	1.52E+02	2.19E-03	x	x	x	x	x			x						x			x(x)	x(x)							x(x)		
Methanol	67561	1.04E-02	1.31E-03	1.80E+00	2.58E-05		x						x																	x		
Methyl Ethyl Ketone	78933	8.73E-04	1.10E-04	1.51E-01	2.18E-06		x										x	x														
Methyl Tert-Butyl Ether	1634044	2.71E-02	3.41E-03	4.69E+00	6.75E-05		x																x	x			x					
Methylene Chloride	75092	3.15E-06	3.97E-07	4.20E-04	6.04E-09		x						x								x	x										
Naphthalene	91203	1.97E-03	2.48E-04	4.92E-01	7.08E-06		x																			x						
Nickel	7440020	3.29E-02	4.14E-03	8.01E+01	1.15E-03	x	x	x	x	x				x												x				(x)	x	
Phosphorus	7723140	3.99E-03	5.03E-04	1.56E+00	2.25E-05		x																									
Polynuclear Aromatic Hydrocarbons (PAHs)	1151	2.24E-05	2.83E-06	5.45E-02	7.84E-07	x	x	x	x	x																						
Selenium	7782492	3.66E-04	4.61E-05	6.55E-01	9.43E-06		x														x	x		x								
Silver	7440224	4.13E-05	5.20E-06	5.68E-02	8.17E-07		x																									
Styrene	100425	1.89E-03	2.38E-04	3.28E-01	4.72E-06		x										x	x				x										
Thallium	7440280	1.17E-05	1.48E-06	1.21E-02	1.75E-07		x																									
Toluene	108883	1.03E-01	1.30E-02	2.48E+01	3.56E-04		x						x			x	x	x	x			x				x					x		
Total Chromium	7440473	6.49E-02	8.18E-03	1.41E+02	2.02E-03		x																									
Vanadium	7440622	4.33E-03	5.46E-04	5.16E+00	7.43E-05		x										x	x														
Vinyl Chloride	75014	5.49E-07	6.92E-08	7.32E-05	1.05E-09		x						x				x	x														
o-Xylenes	95476	2.26E-02	2.84E-03	3.91E+00	5.62E-05		x										x	x				x				x						
m-Xylenes	108383	6.48E-02	8.16E-03	1.12E+01	1.61E-04		x										x	x				x				x						
Total Xylenes	1330207	3.15E-03	3.97E-04	5.76E+00	8.29E-05		x										x	x				x				x						
Zinc	7440666	5.12E+00	6.45E-01	1.39E+04	2.00E-01		x																									

Note:

1. The list of pathways and target organs is based on the CARB HARP health database released on July 3, 2014.

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Table 3. Building Dimensions
TAMCO Steel Mill
Rancho Cucamonga, California

Building No	Building Name	UTMx	UTMy	Building Height[1]
		meters	meters	meters
1	Main Office	450900.8	3772743.8	2.7
2	Building Station	451216.8	3772685.2	9.1
3	Rolling Mill	450975.2	3772687	11.3
4	Office Building	451028.2	3772601.1	2.4
5	Project Shop	451029.4	3772719.2	9.1
6	Cold Shear Pulpit	451183.5	3772675.3	2.7
7	MCC Building	451178.2	3772687.6	2.7
8	Break Room	451087.1	3772598	2.7
9	Melt Shop	450726.1	3772671.7	21.9
10	Storage	451082.4	3772589.7	2.7
11	Storage	451077.2	3772587.3	2.7
12	Office Building	450938.1	3772677.5	2.7
13	Fab Shop	450699.9	3772609.5	9.1
14	Break Room and Office	450947.5	3772741.2	2.7
15	Lockers	450945.7	3772750.2	2.7
16	Baghouse	450854.7	3772625.6	18.9
17	Office Building	450762.6	3772606.9	6.1
18	Break Room	450779.6	3772793.7	2.7
19	Guard Shack	450856.9	3772877	2.7
20	Locker Room	450858	3772836.7	3.0
21	Scale Office	450725	3773028.4	2.7

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Note:
1. From TAMCO plot plan.

Table 4a. Modeling Source Parameters - Point Sources
TAMCO Steel Mill
Rancho Cucamonga, California

Point Source ID	Sources	Stacks	Stack Height	Stack Diameter	Exhaust Temperature	Stack Exit Velocity
			m	m	K	m/s
EAFBH1	Electric Arc Furnace (EAF) Baghouse[1]	EAF Baghouse Vent #1	22.7	2.4	349	5.5
EAFBH2		EAF Baghouse Vent #2	22.7	2.4	349	5.5
EAFBH3		EAF Baghouse Vent #3	22.7	2.4	349	5.5
EAFBH4		EAF Baghouse Vent #4	22.7	2.4	349	5.5
EAFBH5		EAF Baghouse Vent #5	22.7	2.4	349	5.5
EAFBH6		EAF Baghouse Vent #6	22.7	2.4	349	5.5
EAFBH7		EAF Baghouse Vent #7	22.7	2.4	349	5.5
EAFBH8		EAF Baghouse Vent #8	22.7	2.4	349	5.5
EAFBH9		EAF Baghouse Vent #9	22.7	2.4	349	5.5
EAFBH10		EAF Baghouse Vent #10	22.7	2.4	349	5.5
EAFBH11		EAF Baghouse Vent #11	22.7	2.4	349	5.5
EAFBH12		EAF Baghouse Vent #12	22.7	2.4	349	5.5
EAFBH13		EAF Baghouse Vent #13	22.7	2.4	349	5.5
EAFBH14		EAF Baghouse Vent #14	22.7	2.4	349	5.5
EAFBH15		EAF Baghouse Vent #15	22.7	2.4	349	5.5
EAFBH16		EAF Baghouse Vent #16	22.7	2.4	349	5.5
SCS	Spray Chamber Stack[2]	Spray Chamber Stack	32.9	1.2	321	6.3
RFNG	Reheat Furnace Natual Gas Combustion[3]	Reheat Furnace Stack	8.0	1.0	424	21.5
RF	Reheat Furnace[3]	Reheat Furnace Stack	8.0	1.0	424	21.5
D37	Emergency Internal Combustion Engine[4]	D-37 Emergency ICE	3.7	0.2	744	44.6
D41		D-41 Emergency ICE	3.7	0.2	728	45.5
D45		D-45 Emergency ICE	3.7	0.2	755	26.2
LS1	219 Exempt Diesel ICE (Light Stands)[4,5]	Diesel-fueled Light Stand #1	3.7	0.2	740	0.1
LS2		Diesel-fueled Light Stand #2	3.7	0.2	740	0.1
LS3		Diesel-fueled Light Stand #3	3.7	0.2	740	0.1
LS4		Diesel-fueled Light Stand #4	3.7	0.2	740	0.1
LS5		Diesel-fueled Light Stand #5	3.7	0.2	740	0.1
LS6		Diesel-fueled Light Stand #6	3.7	0.2	740	0.1

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Notes:

1. The source parameters for the baghouse is based on the followings:
   - Stack height - Based on building height indicated in the drawing provided by TAMCO plus ENVIRON's estimate for the vent above the baghouse roof
   - Stack diameter - Calculated based on the equivalent diameter of the open area area per vent
   - Exhaust temperature - Obtained from the SCAQMD source test conducted in June 2012
   - Exit velocity - Calculated based on the stack flow divided by 75% of the open area of the stack to account for the reduced opening area due to the inner rain cap. A flow rate of 857,214 ft^3/min was used based on the SCAQMD source test. Opening area length of 126 ft and width of 8.4 ft were used based on the drawing provided by TAMCO.
2. The source parameters for the spray chamber stack is based on the followings:
   - Stack height - Based on the engineering drawing provided by TAMCO.
   - Stack diameter - Based on the engineering drawing provided by TAMCO
   - Exhaust temperature - Based on the source test conducted in 2013
   - Exit velocity - Based on the source test conducted in 2013
3. The source parameters for the reheat furnace stack is based on the followings:
   - Stack height - Provided by TAMCO
   - Stack diameter - Based on the source test conducted in 2013
   - Exhaust temperature - Based on the source test conducted in 2013
   - Exit velocity - Based on the source test conducted in 2013
4. The source parameters for the emergency generator is based on the followings:
   - Stack height - Source parameters for the generator are based on median generator data in STI, 2011.
   - Stack diameter - Source parameters for the generator are based on median generator data in STI, 2011.
   - Exhaust temperature - Based on the exhaust flow rate from the manufacturer's engine data
   - Exit velocity - Based on the exhaust flow rate from the manufacturer's engine data divided by the flow area calculated using the assumed stack diameters
5. These are horizontal stacks and thus we assumed exit velocity of 0.1 m/s per SCAQMD Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588).

Sources:

1. Delta Air Quality Services, Incorporated. 1997. Results of Billet Reheat Furnace Burner and Furnace Stack NOx Tests.
2. South Coast Air Quality Management District (SCAQMD). 2012. Source Test Report 12-303 Conducted At Gerdau/TAMCO.
3. Delta Air Quality Services, Incorporated. 2013. Test Report For Lead and Multiple Metals Testing at Gerdau's Caster Spray Chamber Exhaust. April.
4. Delta Air Quality Services, Incorporated. 2013. Test Report for Lead and Multiple Metals Testing At Gerdau's Billet Reheat Furnace. April.
5. Sonoma Technology, Inc. (STI). 2011. Default modeling parameters for stationary sources. April. Provided by San Francisco Department of Planning, Environmental Planning.
6. SCAMQD.2011. SCAQMD Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). June

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Table 4b. Modeling Source Parameters - Volume Sources
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Sources	Release Height	Initial Lateral Dimension[8]	Initial Vertical Dimension[9]
		m	m	m
MSFUG	Melt Shop Fugitives[1]	11.0	13.5	10.2
NTUND	North Tundish Heater[2]	1.8	0.8	0.9
STUND	South Tundish Heater[2]	1.8	0.8	0.9
219RM	Rolling Mill - 219 Exempt Sources[3]	5.6	14.7	5.2
EAFNG	Electric Arc Furnace Natural Gas Combustion[4]	11.0	13.5	10.2
VLHNG	Vertical Ladle Heater Natural Gas Combustion[4]	11.0	13.5	10.2
SLHNG	South Ladle Heater Natural Gas Combustion[4]	11.0	13.5	10.2
NLHNG	North Ladle Heater External Natural Gas Combustion[4]	11.0	13.5	10.2
219MS	Melt Shop 219 Exempt Equipment[4]	11.0	13.5	10.2
UGTG and UGTD	Fuel Dispensing Facility[5]	1.0	0.5	1.0
SCCVY	Screw Conveyor[6]	3.0	0.5	2.8
SCRAPH	Scrap Handling[6]	1.5	38.3	1.4
SLAGH	Slag Handling and Storage Pile Fugitives[6]	1.5	34.7	1.4
SLAGCRU	Slag Crushing[6]	3.0	9.7	2.8
VP's & VU's	Paved and Unpaved Road Dust Fugitives[7]	2.6	4.2	2.4

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Notes:

1. Release height for the melt shop fugitive emissions is based on the half of the melt shop building height.
2. Assumed a release height of 6 feet based on a professional estimate by ENVIRON.
3. Release height for the rolling mill miscellaneous natural gas combustion sources is based on the half of the rolling mill building height.
4. Miscellaneous natural gas combustion emissions modeled as fugitive emissions from Melt Shop.
5. Based on the average parameters for fuel dispensing facility from STI study.
6. Based on a professional estimate by ENVIRON.
7. Based on EPA's recommendations on modeling haul roads.
8. Initial lateral dimension of single volume sources is length of side divided by 4.3 based on USEPA guidance.
9. Initial vertical dimension of single volume sources is vertical dimension of source divided by 2.15 based on USEPA guidance.

Sources:

1. Sonoma Technology, Inc. (STI). 2011. Default modeling parameters for stationary sources. April. Provided by San Francisco Department of Planning, Environmental Planning.
2. USEPA. 2012. Haul Road Workshop Final Report Submission to EPA - OAOPS. March

Table 4c. Modeling Source Parameters - Area Sources
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Sources	Sub-area	Release Height[1]	Initial Vertical Dimension[2]
			m	m
DICE	Diesel Portable Engines - Rule 219 Exempt Sources (excluding light towers)	Portable Diesel Internal Combustion Engine	0.6	0.14
GICE	Gasoline Portable Engines - Rule 219 Exempt Sources	Portable Gasoline Internal Combustion Engine	0.6	0.14

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Notes:

1. Assumed release height for portable engines equal to 0.6 meter based on ARB Risk Reduction Plan (CARB 2000).
2. Initial vertical dimension of single volume sources is vertical dimension of source divided by 4.3.

Sources:

1. California Air Resource Board (CARB). 2000. Risk Reduction Plan to Reduce Particulate matter Emissions from Diesel-Fueled Engines and Vehicles. Appendix VII: Risk Characterization Scenarios. October.
2. United States Environmental Protection Agency (USEPA). 2004. User's Guide for the AMS/EPA Regulatory Model - AERMOD. Office of Air Quality Planning and Standards. Emissions Monitoring and Analysis Division. Research Triangle Park, North Caroline. EPA-454/B-03-001. September.

Table 5. Risk and Hazard Index Summary
TAMCO Steel Mill
Rancho Cucamonga, California

Sources Excluding Emergency Diesel Internal Combustion Engines

Location	Health Effect	Risk or Hazard Index	Receptor ID	UTMx	UTMy
MEIW	Cancer	24.6	974	450700	3772500
MEIR	Cancer	15.1	1351	451800	3773300
MEIW	Chronic HI	3.48	1106	451300	3772800
MEIR	Chronic HI	0.55	1351	451800	3773300
PMI	Acute	3.04	4146	450869	3772854
MEIW	Acute	3.04	4146	450869	3772854
MEIR	Acute	0.39	1501	451800	3773600

Emergency Diesel Internal Combustion Engines

Location	Health Effect	Risk	Receptor ID	UTMx	UTMy
MEIW	Cancer	0.3	975	450800	3772500
MEIR	Cancer	0.2	1351	451800	3773300

All Sources Including Emergency Diesel Internal Combustion Engines

Location	Health Effect	Risk	Receptor ID	UTMx	UTMy
MEIW	Cancer	24.9	974	450700	3772500
MEIR	Cancer	15.2	1351	451800	3773300

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Abbreviations:
PMI: Point of Maximum Impact
MEIW: Maximally Exposed Individual Worker
MEIR: Maximally Exposed Individual Resident
DICE: Emergency Diesel Internal Combustion Engines

Table 6. MEIR Cancer Risk by Chemical and Exposure Pathway
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	CAS No.	Inhalation	Dermal	Soil	Mother's Milk	Plants	Oral Subtotal	Total
Cr(VI)	18540299	7.02E-06	1.95E-09	6.41E-08	0.00E+00	1.07E-08	7.68E-08	7.09E-06
Diesel Exhaust PM	9901	3.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.08E-06
Cadmium	7440439	2.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-06
Dioxin and Furan	1086	1.15E-07	4.83E-07	2.02E-07	4.14E-07	3.27E-08	1.13E-06	1.25E-06
Lead	7439921	1.05E-07	6.67E-09	2.20E-07	0.00E+00	1.57E-07	3.83E-07	4.88E-07
Arsenic	7440382	1.01E-07	2.41E-07	1.18E-07	0.00E+00	2.16E-08	3.81E-07	4.81E-07
Nickel	7440020	2.35E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-07
PAHs, total	1151	7.49E-10	9.96E-09	1.49E-09	0.00E+00	1.26E-08	2.41E-08	2.48E-08
1,3-Butadiene	106990	1.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-08
Benzene	71432	1.32E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E-08
Beryllium	7440417	6.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.12E-09
Formaldehyde	50000	2.82E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.82E-09
Naphthalene	91203	6.25E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-10
Ethyl Benzene	100414	5.69E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-10
Acetaldehyde	75070	3.22E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-10
Methyl Tert-Butyl Ether	1634044	1.17E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-10
Ethylene dibromide	106934	8.58E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.58E-13
1,1,2,2-Tetrachloroethane	79345	8.16E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.16E-13
Carbon Tetrachloride	56235	4.29E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-13
Vinyl Chloride	75014	3.13E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.13E-13
1,1,2-Trichloroethane	79005	1.41E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-13
1,2-Dichloropropane	78875	1.32E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E-13
Ethylene dichloride	107062	1.31E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-13
1,3-Dichloropropene	542756	1.13E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-13
Chloroform	67663	4.21E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E-14
Methylene Chloride	75092	2.32E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-14
Fluorides	1101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	7439965	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	7439976	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium	7440473	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	7440508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zinc	7440666	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	7782492	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	107028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	108883	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	110543	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1330207	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	7664417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol	67561	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	100425	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	95636	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cumene	98828	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	110827	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	7440393	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	7440484	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	7440622	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aluminum	7429905	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	7440224	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	7440280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440360	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	78933	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
o-Xylene	95476	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
m-Xylene	108383	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	7782505	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total, including Emergency DICEs		1.32E-05	7.43E-07	6.05E-07	4.14E-07	2.34E-07	2.00E-06	1.52E-05
Total, excluding Emergency DICEs		1.30E-05	7.43E-07	6.05E-07	4.14E-07	2.34E-07	2.00E-06	1.51E-05

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Table 7. MEIR Cancer Risk by Emission Sources and Exposure Pathway
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Source Name	Inhalation	Dermal	Soil	Mother's Milk	Plants	Oral Subtotal	Total
BH	EAF Baghouse Vents	5.96E-06	3.75E-07	3.26E-07	2.51E-07	1.24E-07	1.08E-06	7.04E-06
MSFUG	Melt Shop Fugitive Emissions	3.89E-06	2.45E-07	2.13E-07	1.64E-07	8.08E-08	7.02E-07	4.59E-06
LS#1 - LS#6	Light Towers	2.32E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-06
DICE	Diesel Internal Combustion Engines (219 exempt)	5.78E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.78E-07
VP's & VU's	Entrained Road Dusts	2.35E-07	8.00E-08	4.72E-08	0.00E+00	1.27E-08	1.40E-07	3.75E-07
D41	D-41 Emergency ICE	1.18E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-07
D37	D-37 Emergency ICE	6.42E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.42E-08
RF	Billet Reheat Furnace - Process Emissions	1.32E-08	1.67E-08	8.54E-09	0.00E+00	1.80E-09	2.70E-08	4.03E-08
GICE	Gasoline Internal Combustion Engines (219 exempt)	3.32E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-08
SCS	Spray Chamber Stack	8.93E-09	9.48E-09	5.40E-09	0.00E+00	1.41E-09	1.63E-08	2.52E-08
SCRAPH	Scrap Handling	1.05E-08	3.36E-09	2.05E-09	0.00E+00	5.89E-10	5.99E-09	1.65E-08
SLAGH	Slag Handling And Storage Pile Fugitives	4.75E-09	2.82E-09	1.40E-09	0.00E+00	2.69E-10	4.48E-09	9.23E-09
SCCVY	Screw Conveyor	6.18E-09	1.95E-10	7.78E-10	0.00E+00	5.09E-10	1.48E-09	7.66E-09
RFNG	Reheat Furnace Burner Stack	3.81E-10	2.69E-09	4.03E-10	0.00E+00	3.42E-09	6.51E-09	6.89E-09
EAFNG	Electric Arc Furnace - External Natural Gas Combustion	6.78E-10	2.40E-09	3.59E-10	0.00E+00	3.04E-09	5.80E-09	6.48E-09
SLHNG	South Ladle Heater - External Natural Gas Combustion	4.91E-10	1.74E-09	2.60E-10	0.00E+00	2.21E-09	4.20E-09	4.70E-09
NLHNG	North Ladle Heater - External Natural Gas Combustion	4.61E-10	1.63E-09	2.44E-10	0.00E+00	2.07E-09	3.94E-09	4.40E-09
VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	2.54E-10	9.00E-10	1.35E-10	0.00E+00	1.14E-09	2.18E-09	2.43E-09
SLAGCRU	Slag Crushing	3.55E-10	2.10E-10	1.04E-10	0.00E+00	2.01E-11	3.35E-10	6.90E-10
NTUND	North Tundish Heater	6.64E-11	1.85E-10	2.77E-11	0.00E+00	2.35E-10	4.48E-10	5.14E-10
STUND	South Tundish Heater	6.59E-11	1.84E-10	2.75E-11	0.00E+00	2.33E-10	4.44E-10	5.10E-10
219RM	Rolling Mill Heater	5.01E-11	1.39E-10	2.09E-11	0.00E+00	1.77E-10	3.37E-10	3.87E-10
219MS	Melt Shop Heater - External Natural Gas Combustion	3.31E-11	9.23E-11	1.38E-11	0.00E+00	1.17E-10	2.23E-10	2.56E-10
D45	D-45 Natural Gas Emergency ICE	1.68E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-10
UGTG	Fuel Dispensing Facility (Gasoline)	1.06E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-10
UGTD	Fuel Dispensing Facility (Diesel)	3.18E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E-14
	Total, including Emergency DICEs	1.32E-05	7.43E-07	6.05E-07	4.14E-07	2.34E-07	2.00E-06	1.52E-05
	Total, excluding Emergency DICEs	1.30E-05	7.43E-07	6.05E-07	4.14E-07	2.34E-07	2.00E-06	1.51E-05

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Table 8. MEIW Cancer Risk by Chemical and Exposure Pathway
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	CAS No.	Inhalation	Dermal	Soil	Oral Subtotal	Total
Cr(VI)	18540299	1.08E-05	9.79E-08	1.65E-07	2.63E-07	1.11E-05
Diesel Exhaust PM	9901	5.43E-06	0.00E+00	0.00E+00	0.00E+00	5.43E-06
Cadmium	7440439	3.93E-06	0.00E+00	0.00E+00	0.00E+00	3.93E-06
Dioxin and Furan	1086	1.99E-07	1.45E-06	5.25E-07	1.97E-06	2.17E-06
Lead	7439921	1.78E-07	3.31E-07	5.59E-07	8.90E-07	1.07E-06
Arsenic	7440382	1.15E-07	5.31E-07	2.24E-07	7.55E-07	8.70E-07
Nickel	7440020	2.92E-07	0.00E+00	0.00E+00	0.00E+00	2.92E-07
PAHs, total	1151	1.52E-09	3.50E-08	4.55E-09	3.95E-08	4.11E-08
1,3-Butadiene	106990	1.35E-08	0.00E+00	0.00E+00	0.00E+00	1.35E-08
Benzene	71432	1.17E-08	0.00E+00	0.00E+00	0.00E+00	1.17E-08
Beryllium	7440417	5.93E-09	0.00E+00	0.00E+00	0.00E+00	5.93E-09
Formaldehyde	50000	2.86E-09	0.00E+00	0.00E+00	0.00E+00	2.86E-09
Ethyl Benzene	100414	5.94E-10	0.00E+00	0.00E+00	0.00E+00	5.94E-10
Naphthalene	91203	5.65E-10	0.00E+00	0.00E+00	0.00E+00	5.65E-10
Acetaldehyde	75070	3.30E-10	0.00E+00	0.00E+00	0.00E+00	3.30E-10
Methyl Tert-Butyl Ether	1634044	9.07E-11	0.00E+00	0.00E+00	0.00E+00	9.07E-11
Ethylene dibromide	106934	8.40E-13	0.00E+00	0.00E+00	0.00E+00	8.40E-13
1,1,2,2-Tetrachloroethane	79345	7.99E-13	0.00E+00	0.00E+00	0.00E+00	7.99E-13
Carbon Tetrachloride	56235	4.21E-13	0.00E+00	0.00E+00	0.00E+00	4.21E-13
Vinyl Chloride	75014	3.06E-13	0.00E+00	0.00E+00	0.00E+00	3.06E-13
1,1,2-Trichloroethane	79005	1.38E-13	0.00E+00	0.00E+00	0.00E+00	1.38E-13
1,2-Dichloropropane	78875	1.30E-13	0.00E+00	0.00E+00	0.00E+00	1.30E-13
Ethylene dichloride	107062	1.28E-13	0.00E+00	0.00E+00	0.00E+00	1.28E-13
1,3-Dichloropropene	542756	1.11E-13	0.00E+00	0.00E+00	0.00E+00	1.11E-13
Chloroform	67663	4.12E-14	0.00E+00	0.00E+00	0.00E+00	4.12E-14
Methylene Chloride	75092	2.28E-14	0.00E+00	0.00E+00	0.00E+00	2.28E-14
Fluorides	1101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	7439965	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	7439976	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium	7440473	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	7440508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zinc	7440666	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	7782492	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	107028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	108883	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	110543	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1330207	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	7664417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol	67561	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	100425	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	95636	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cumene	98828	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	110827	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	7440393	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	7440484	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	7440622	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aluminum	7429905	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	7440224	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	7440280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440360	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	78933	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
o-Xylene	95476	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
m-Xylene	108383	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	7782505	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total, including Emergency DICEs		2.10E-05	2.44E-06	1.48E-06	3.92E-06	2.49E-05
Total, excluding Emergency DICEs		2.07E-05	2.44E-06	1.48E-06	3.92E-06	2.46E-05

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Table 9. MEIW Cancer Risk by Emission Sources and Exposure Pathway
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Source Name	Inhalation	Dermal	Soil	Oral Subtotal	Total
MSFUG	Melt Shop Fugitive Emissions	9.35E-06	1.37E-06	8.51E-07	2.22E-06	1.16E-05
BH	EAF Baghouse Vents	6.00E-06	8.80E-07	5.46E-07	1.43E-06	7.43E-06
LS#1 - LS#6	Light Towers	4.68E-06	0.00E+00	0.00E+00	0.00E+00	4.68E-06
DICE	Diesel Internal Combustion Engines (219 exempt)	4.48E-07	0.00E+00	0.00E+00	0.00E+00	4.48E-07
VP's & VU's	Entrained Road Dusts	1.63E-07	1.11E-07	5.44E-08	1.66E-07	3.29E-07
D41	D-41 Emergency ICE	1.95E-07	0.00E+00	0.00E+00	0.00E+00	1.95E-07
D37	D-37 Emergency ICE	1.04E-07	0.00E+00	0.00E+00	0.00E+00	1.04E-07
SCS	Spray Chamber Stack	9.93E-09	2.10E-08	9.96E-09	3.09E-08	4.09E-08
GICE	Gasoline Internal Combustion Engines (219 exempt)	2.57E-08	0.00E+00	0.00E+00	0.00E+00	2.57E-08
SCCVY	Screw Conveyor	1.49E-08	2.45E-09	3.12E-09	5.56E-09	2.05E-08
RF	Billet Reheat Furnace - Process Emissions	3.60E-09	8.82E-09	3.87E-09	1.27E-08	1.63E-08
SCRAPH	Scrap Handling	8.04E-09	5.24E-09	2.61E-09	7.85E-09	1.59E-08
EAFNG	Electric Arc Furnace - External Natural Gas Combustion	1.64E-09	1.08E-08	1.41E-09	1.22E-08	1.39E-08
SLHNG	South Ladle Heater - External Natural Gas Combustion	1.19E-09	7.85E-09	1.02E-09	8.87E-09	1.01E-08
SLAGH	Slag Handling And Storage Pile Fugitives	3.67E-09	4.20E-09	1.80E-09	6.00E-09	9.67E-09
NLHNG	North Ladle Heater - External Natural Gas Combustion	1.12E-09	7.37E-09	9.57E-10	8.32E-09	9.44E-09
VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	6.14E-10	4.06E-09	5.28E-10	4.59E-09	5.21E-09
STUND	South Tundish Heater	3.00E-10	1.57E-09	2.05E-10	1.78E-09	2.08E-09
NTUND	North Tundish Heater	2.50E-10	1.31E-09	1.70E-10	1.48E-09	1.73E-09
RFNG	Reheat Furnace Burner Stack	1.10E-10	1.41E-09	1.83E-10	1.59E-09	1.70E-09
SLAGCRU	Slag Crushing	3.30E-10	3.78E-10	1.62E-10	5.39E-10	8.70E-10
219MS	Melt Shop Heater - External Natural Gas Combustion	7.97E-11	4.17E-10	5.42E-11	4.71E-10	5.51E-10
219RM	Rolling Mill Heater	3.02E-11	1.58E-10	2.05E-11	1.78E-10	2.09E-10
D45	D-45 Natural Gas Emergency ICE	1.65E-10	0.00E+00	0.00E+00	0.00E+00	1.65E-10
UGTG	Fuel Dispensing Facility (Gasoline)	7.48E-11	0.00E+00	0.00E+00	0.00E+00	7.48E-11
UGTD	Fuel Dispensing Facility (Diesel)	2.25E-14	0.00E+00	0.00E+00	0.00E+00	2.25E-14
	Total, including Emergency DICEs	2.10E-05	2.44E-06	1.48E-06	3.92E-06	2.49E-05
	Total, excluding Emergency DICEs	2.07E-05	2.44E-06	1.48E-06	3.92E-06	2.46E-05

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Table 10a. Health Risks for Fifty Sensitive Receptors with the Highest Risks (Excluding Risks from Emergency DICEs)
TAMCO Steel Mill
Rancho Cucamonga, California

Receptor No	UTMx	UTMy	Cancer Risk	Chronic HI	Acute HI	Facility Type	Facility Name	Street	City	Zipcode
671	453301	3773901	6.12E-06	1.75E-01	1.56E-01	Child Care	Montessori Child Development Center	8196 Mulberry Avenue	Fontana	92335
248	453348	3773547	5.81E-06	1.66E-01	1.75E-01	Child Care	Lofton Family Child Care	13710 Seville Avenue	Fontana	92335
959	449662	3773587	5.51E-06	1.58E-01	4.01E-01	Senior Center	Oparc Adc-Rancho Cucamonga	8333 Rochester Avenue, #112	Rancho Cucamonga	91730
939	453869	3774248	4.82E-06	1.36E-01	1.29E-01	Child Care	Wright Family Child Care	8032 Tuscany Street	Fontana	92336
265	453810	3773692	4.82E-06	1.37E-01	1.37E-01	Senior Center	Julinda'S Home Care	13945 Ivy Ave.	Fontana	92335
921	453137	3774604	4.78E-06	1.34E-01	1.51E-01	Child Care	Moore Family Child Care	7782 Mckinley Court	Fontana	92336
246	453524	3774674	4.53E-06	1.27E-01	1.38E-01	Public School	West Heritage Elementary	13690 West Constitution Way	Fontana	92336-3884
974	453667	3773225	4.40E-06	1.24E-01	1.49E-01	Senior Center	Stepping Stone Residential Care	8502 Calabash Avenue	Fontana	92335
275	454353	3774368	4.08E-06	1.15E-01	1.17E-01	Child Care	Starks Family Child Care	14182 Sacramento Street	Fontana	92336
946	454410	3773925	3.90E-06	1.10E-01	1.12E-01	Child Care	Fusd Almond Elementary	8172 Almond Avenue	Fontana	92335
277	454470	3774744	3.77E-06	1.05E-01	1.11E-01	Public School	East Heritage Elementary	14250 East Constitution Way	Fontana	92336-3785
923	454706	3774742	3.55E-06	9.88E-02	1.06E-01	Child Care	Aguilera Family Day Care	7811 Placer Street	Fontana	92336
203	452123	3774625	3.39E-06	9.31E-02	2.02E-01	Senior Center	Victoria Guest Home	13100 Riesling Drive	Rancho Cucamonga	91739
664	452684	3774989	3.22E-06	8.81E-02	1.63E-01	Child Care	Water Of Life Preschool	7625 East Avenue	Fontana	92336
926	451873	3774533	3.22E-06	8.87E-02	2.22E-01	Child Care	Rabun Family Child Care	7855 Chablis Place	Rancho Cucamonga	91739
894	453628	3775314	3.21E-06	8.82E-02	1.26E-01	Senior Center	Bright Future Adult Residential Home	7493 Cornell Ct.	Fontana	92336
230	453401	3775276	3.19E-06	8.73E-02	1.31E-01	Child Care	Moreland Family Child Care	13451 Dana Court	Fontana	92336
908	452684	3775024	3.13E-06	8.54E-02	1.61E-01	Community Clinic	Well Of Healing Mobile Medical Clinic	7623 East Ave	Fontana	92336
888	454048	3775409	3.10E-06	8.53E-02	1.15E-01	Child Care	Walker Family Child Care	7422 Cambridge Ct.	Fontana	92336
253	453929	3775436	3.06E-06	8.40E-02	1.15E-01	Public School	Heritage Intermediate	13766 South Heritage Cir.	Fontana	92336
938	455280	3774234	2.95E-06	8.23E-02	9.68E-02	Senior Center	Redwood Guest Home	8024 Redwood Ave.	Fontana	92335
202	452027	3774742	2.87E-06	7.88E-02	2.01E-01	Public School	Perdew Elementary	13051 Miller Ave.	Etiwanda	91739
199	451828	3774629	2.84E-06	7.82E-02	2.20E-01	Child Care	Vanderlinden Family Child Care	12952 Claret Court	Rancho Cucamonga	91739
279	454484	3775686	2.72E-06	7.46E-02	9.97E-02	Child Care	Tutor Time Child Care/Learning Center	14273 Baseline Road	Fontana	92336
240	453106	3775440	2.64E-06	7.19E-02	1.35E-01	Child Care	Kendrix Family Child Care	13597 Sherman Place	Fontana	92336
883	453493	3775595	2.64E-06	7.16E-02	1.21E-01	Child Care	Kindercare Learning Center	7370 W. Liberty Parkway	Fontana	92336
296	455266	3775811	2.46E-06	6.75E-02	8.46E-02	Senior Center	Fontana Manor	14656 Texas Court	Fontana	92336
87	448267	3773685	2.42E-06	6.50E-02	1.74E-01	Senior Center	Crossroads Adult Day Center	11130 White Birch Drive	Rancho Cucamonga	91730
318	456152	3774918	2.35E-06	6.49E-02	7.88E-02	Child Care	Fusd/Hemlock Elementary	15080 Miller Avenue	Fontana	92336
293	455099	3776082	2.27E-06	6.20E-02	8.28E-02	Senior Center	Marsha'S Manor, Inc	14572 Nevada Court	Fontana	92336
903	452344	3775219	2.24E-06	6.10E-02	1.67E-01	Child Care	Hebert Family Child Care	7521 Vista Montana Place	Rancho Cucamonga	91739
978	455312	3773142	2.22E-06	6.12E-02	8.89E-02	Child Care	Fusd/Redwood Elementary	8570 Redwood Avenue	Fontana	92335
237	452893	3775564	2.21E-06	6.02E-02	1.36E-01	Child Care	Kindercare Learning Center	13523 Baseline	Fontana	92336
869	453764	3775994	2.17E-06	5.89E-02	1.06E-01	Child Care	Padilla Family Day Care	7167 Big Sur Street	Fontana	92336
952	448030	3773777	2.16E-06	5.82E-02	1.51E-01	Child Care	Playabilities	8265 White Oak Avenue	Rancho Cucamonga	91730
927	448140	3774638	2.13E-06	6.06E-02	1.47E-01	Public School	Coyote Canyon Elementary	7889 Elm Ave.	Rancho Cucamonga	91730-6839
954	447989	3773763	2.11E-06	5.68E-02	1.51E-01	Home Health Agency	Visiting Home Nurses Inc. - White Oak	8273 White Oak Ave Ste 110	Rancho Cucamonga	91730
963	455903	3773547	2.11E-06	5.81E-02	8.32E-02	Child Care	Sandoval Family Child Care	8379 Maize Court	Fontana	92335
669	448566	3768046	2.10E-06	5.52E-02	4.06E-02	Home Health Agency	Quality Home Health Agency	4375 E Lowell St Ste I	Ontario	91761
668	448555	3768046	2.10E-06	5.51E-02	4.08E-02	Home Health Agency	Allcare Health Services, Inc.	4365 E Lowell St	Ontario	91761
665	448545	3768047	2.09E-06	5.51E-02	4.09E-02	Healthcare	Coram Healthcare Corp. Of So. Ca-E. Lowell-Branch	4355 E. Lowell Street Suite E	Ontario	91761
964	447985	3773402	1.96E-06	5.32E-02	1.53E-01	Home Health Agency	Prime Care Home Health Agency, Inc.	8401 White Oak Ave Ste 102	Rancho Cucamonga	91730
871	453330	3775972	1.96E-06	5.34E-02	1.16E-01	Child Care	Ruelas Family Child Care	7174 Trinity Street	Fontana	92336
77	447957	3773287	1.92E-06	5.25E-02	1.33E-01	Home Health Agency	Prime Care Home Health	10970 Arrow Rte Ste 208	Rancho Cucamonga	91730
329	456919	3775413	1.92E-06	5.28E-02	6.76E-02	Child Care	Peters Family Child Care	15426 Memphis Dr.	Fontana	92336
967	447922	3773430	1.91E-06	5.17E-02	1.52E-01	Home Health Agency	Our Lady Of Lourdes Home Health, Inc.	8439 White Oak Ave	Rancho Cucamonga	91730
69	447775	3773797	1.90E-06	5.12E-02	1.36E-01	General Acute Care Hospital	Rancho Specialty Hospital	10841 White Oak Ave	Rancho Cucamonga	91730
335	456979	3774994	1.89E-06	5.20E-02	6.82E-02	Child Care	Cox Family Child Care	15512 Ramona Avenue	Fontana	92336
878	456983	3775840	1.84E-06	5.03E-02	6.30E-02	Child Care	Rubio Family Child Care	7240 Helena Pl	Fontana	92336
315	455984	3773130	1.81E-06	4.96E-02	7.77E-02	Child Care	Leon Family Child Care	15023 Valencia Avenue	Fontana	92335

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Table 10b. Health Risks for Fifty Sensitive Receptors with the Highest Risks (Including Risks from Emergency DICEs)
TAMCO Steel Mill
Rancho Cucamonga, California

Receptor No	UTMx	UTMy	Cancer Risk	Chronic HI	Acute HI	Facility Type	Facility Name	Street	City	Zipcode
671	453301	3773901	6.15E-06	1.75E-01	1.56E-01	Child Care	Montessori Child Development Center	8196 Mulberry Avenue	Fontana	92335
248	453348	3773547	5.85E-06	1.66E-01	1.75E-01	Child Care	Lofton Family Child Care	13710 Seville Avenue	Fontana	92335
959	449662	3773587	5.56E-06	1.58E-01	4.01E-01	Senior Center	Oparc Adc-Rancho Cucamonga	8333 Rochester Avenue, #112	Rancho Cucamonga	91730
939	453869	3774248	4.84E-06	1.36E-01	1.29E-01	Child Care	Wright Family Child Care	8032 Tuscany Street	Fontana	92336
265	453810	3773692	4.84E-06	1.37E-01	1.37E-01	Senior Center	Julinda'S Home Care	13945 Ivy Ave.	Fontana	92335
921	453137	3774604	4.80E-06	1.34E-01	1.51E-01	Child Care	Moore Family Child Care	7782 Mckinley Court	Fontana	92336
246	453524	3774674	4.55E-06	1.27E-01	1.38E-01	Public School	West Heritage Elementary	13690 West Constitution Way	Fontana	92336-3884
974	453667	3773225	4.43E-06	1.24E-01	1.49E-01	Senior Center	Stepping Stone Residential Care	8502 Calabash Avenue	Fontana	92335
275	454353	3774368	4.10E-06	1.15E-01	1.17E-01	Child Care	Starks Family Child Care	14182 Sacramento Street	Fontana	92336
946	454410	3773925	3.92E-06	1.10E-01	1.12E-01	Child Care	Fusd Almond Elementary	8172 Almond Avenue	Fontana	92335
277	454470	3774744	3.78E-06	1.05E-01	1.11E-01	Public School	East Heritage Elementary	14250 East Constitution Way	Fontana	92336-3785
923	454706	3774742	3.57E-06	9.88E-02	1.06E-01	Child Care	Aguilera Family Day Care	7811 Placer Street	Fontana	92336
203	452123	3774625	3.41E-06	9.31E-02	2.02E-01	Senior Center	Victoria Guest Home	13100 Riesling Drive	Rancho Cucamonga	91739
926	451873	3774533	3.24E-06	8.87E-02	2.22E-01	Child Care	Rabun Family Child Care	7855 Chablis Place	Rancho Cucamonga	91739
664	452684	3774989	3.24E-06	8.81E-02	1.63E-01	Child Care	Water Of Life Preschool	7625 East Avenue	Fontana	92336
894	453628	3775314	3.23E-06	8.82E-02	1.26E-01	Senior Center	Bright Future Adult Residential Home	7493 Cornell Ct.	Fontana	92336
230	453401	3775276	3.21E-06	8.73E-02	1.31E-01	Child Care	Moreland Family Child Care	13451 Dana Court	Fontana	92336
908	452684	3775024	3.14E-06	8.54E-02	1.61E-01	Community Clinic	Well Of Healing Mobile Medical Clinic	7623 East Ave	Fontana	92336
888	454048	3775409	3.11E-06	8.53E-02	1.15E-01	Child Care	Walker Family Child Care	7422 Cambridge Ct.	Fontana	92336
253	453929	3775436	3.07E-06	8.40E-02	1.15E-01	Public School	Heritage Intermediate	13766 South Heritage Cir.	Fontana	92336
938	455280	3774234	2.96E-06	8.23E-02	9.68E-02	Senior Center	Redwood Guest Home	8024 Redwood Ave.	Fontana	92335
202	452027	3774742	2.89E-06	7.88E-02	2.01E-01	Public School	Perdew Elementary	13051 Miller Ave.	Etiwanda	91739
199	451828	3774629	2.86E-06	7.82E-02	2.20E-01	Child Care	Vanderlinden Family Child Care	12952 Claret Court	Rancho Cucamonga	91739
279	454484	3775686	2.73E-06	7.46E-02	9.97E-02	Child Care	Tutor Time Child Care/Learning Center	14273 Baseline Road	Fontana	92336
883	453493	3775595	2.65E-06	7.16E-02	1.21E-01	Child Care	Kindercare Learning Center	7370 W. Liberty Parkway	Fontana	92336
240	453106	3775440	2.65E-06	7.19E-02	1.35E-01	Child Care	Kendrix Family Child Care	13597 Sherman Place	Fontana	92336
296	455266	3775811	2.47E-06	6.75E-02	8.46E-02	Senior Center	Fontana Manor	14656 Texas Court	Fontana	92336
87	448267	3773685	2.43E-06	6.50E-02	1.74E-01	Senior Center	Crossroads Adult Day Center	11130 White Birch Drive	Rancho Cucamonga	91730
318	456152	3774918	2.36E-06	6.49E-02	7.88E-02	Child Care	Fusd/Hemlock Elementary	15080 Miller Avenue	Fontana	92336
293	455099	3776082	2.28E-06	6.20E-02	8.28E-02	Senior Center	Marsha'S Manor, Inc	14572 Nevada Court	Fontana	92336
903	452344	3775219	2.25E-06	6.10E-02	1.67E-01	Child Care	Hebert Family Child Care	7521 Vista Montana Place	Rancho Cucamonga	91739
978	455312	3773142	2.23E-06	6.12E-02	8.89E-02	Child Care	Fusd/Redwood Elementary	8570 Redwood Avenue	Fontana	92335
237	452893	3775564	2.22E-06	6.02E-02	1.36E-01	Child Care	Kindercare Learning Center	13523 Baseline	Fontana	92336
869	453764	3775994	2.18E-06	5.89E-02	1.06E-01	Child Care	Padilla Family Day Care	7167 Big Sur Street	Fontana	92336
952	448030	3773777	2.17E-06	5.82E-02	1.51E-01	Child Care	Playabilities	8265 White Oak Avenue	Rancho Cucamonga	91730
927	448140	3774638	2.15E-06	6.06E-02	1.47E-01	Public School	Coyote Canyon Elementary	7889 Elm Ave.	Rancho Cucamonga	91730-6839
963	455903	3773547	2.12E-06	5.81E-02	8.32E-02	Child Care	Sandoval Family Child Care	8379 Maize Court	Fontana	92335
954	447989	3773763	2.12E-06	5.68E-02	1.51E-01	Home Health Agency	Visiting Home Nurses Inc. - White Oak	8273 White Oak Ave Ste 110	Rancho Cucamonga	91730
669	448566	3768046	2.11E-06	5.52E-02	4.06E-02	Home Health Agency	Quality Home Health Agency	4375 E Lowell St Ste I	Ontario	91761
665	448545	3768047	2.10E-06	5.51E-02	4.09E-02	Healthcare	Coram Healthcare Corp. Of So. Ca-E. Lowell-Branch	4355 E. Lowell Street Suite E	Ontario	91761
668	448555	3768046	2.10E-06	5.51E-02	4.08E-02	Home Health Agency	Allcare Health Services, Inc.	4365 E Lowell St	Ontario	91761
964	447985	3773402	1.98E-06	5.32E-02	1.53E-01	Home Health Agency	Prime Care Home Health Agency, Inc.	8401 White Oak Ave Ste 102	Rancho Cucamonga	91730
871	453330	3775972	1.97E-06	5.34E-02	1.16E-01	Child Care	Ruelas Family Child Care	7174 Trinity Street	Fontana	92336
77	447957	3773287	1.93E-06	5.25E-02	1.33E-01	Home Health Agency	Prime Care Home Health	10970 Arrow Rte Ste 208	Rancho Cucamonga	91730
329	456919	3775413	1.93E-06	5.28E-02	6.76E-02	Child Care	Peters Family Child Care	15426 Memphis Dr.	Fontana	92336
967	447922	3773430	1.92E-06	5.17E-02	1.52E-01	Home Health Agency	Our Lady Of Lourdes Home Health, Inc.	8439 White Oak Ave	Rancho Cucamonga	91730
69	447775	3773797	1.91E-06	5.12E-02	1.36E-01	General Acute Care Hospital	Rancho Specialty Hospital	10841 White Oak Ave	Rancho Cucamonga	91730
335	456979	3774994	1.89E-06	5.20E-02	6.82E-02	Child Care	Cox Family Child Care	15512 Ramona Avenue	Fontana	92336
878	456983	3775840	1.85E-06	5.03E-02	6.30E-02	Child Care	Rubio Family Child Care	7240 Helena Pl	Fontana	92336
315	455984	3773130	1.82E-06	4.96E-02	7.77E-02	Child Care	Leon Family Child Care	15023 Valencia Avenue	Fontana	92335

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Table 11. MEIR Chronic Hazard Index without Background by Chemical
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	CAS No.	Cardio-vascular System	Central Nervous System	Develop-mental System	Endo-crine System	Eye	Gastroint estinal-Liver	Immune System	Kidney	Repro-ductive System	Respir-atory System	Skin	Blood	Max
Mercury	7439976	0.00E+00	2.67E-01	2.67E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-01	2.67E-01	0.00E+00	0.00E+00	0.00E+00	2.67E-01
Manganese	7439965	0.00E+00	2.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-01
Arsenic	7440382	7.75E-02	7.75E-02	7.75E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.75E-02	7.75E-02	7.75E-02	0.00E+00	7.75E-02
Toluene	108883	0.00E+00	3.32E-06	3.32E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-06	3.32E-06	0.00E+00	0.00E+00	3.32E-06
m-Xylene	108383	0.00E+00	7.66E-07	0.00E+00	0.00E+00	7.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.66E-07	0.00E+00	0.00E+00	7.66E-07
o-Xylene	95476	0.00E+00	2.67E-07	0.00E+00	0.00E+00	2.67E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-07	0.00E+00	0.00E+00	2.67E-07
Selenium	7782492	2.45E-07	2.45E-07	0.00E+00	0.00E+00	0.00E+00	2.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-07
Xylenes	1330207	0.00E+00	1.93E-07	0.00E+00	0.00E+00	1.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-07	0.00E+00	0.00E+00	1.93E-07
Hexane	110543	0.00E+00	2.69E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-08
Styrene	100425	0.00E+00	1.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-08
Carbon Tetrachloride	56235	0.00E+00	2.47E-10	2.47E-10	0.00E+00	0.00E+00	2.47E-10	0.00E+00	0.00E+00	2.47E-10	0.00E+00	0.00E+00	0.00E+00	2.47E-10
Methylene Chloride	75092	5.73E-11	5.73E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-11
Dioxin and Furan	1086	0.00E+00	0.00E+00	9.80E-04	9.80E-04	0.00E+00	9.80E-04	0.00E+00	0.00E+00	9.80E-04	9.80E-04	0.00E+00	9.80E-04	9.80E-04
Fluorides	1101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-02	0.00E+00	0.00E+00	1.43E-02
Lead	7439921	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	7440020	0.00E+00	0.00E+00	1.02E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-03	6.38E-02	0.00E+00	6.38E-02	6.38E-02
Beryllium	7440417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.97E-06	3.59E-04	0.00E+00	0.00E+00	3.59E-04	0.00E+00	0.00E+00	3.59E-04
Cadmium	7440439	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-02	0.00E+00	2.93E-02	0.00E+00	0.00E+00	4.38E-02
Chromium	7440473	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	7440508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zinc	7440666	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cr(VI)	18540299	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-04	0.00E+00	1.12E-05	2.38E-04
PAHs, total	1151	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	50000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.15E-05	0.00E+00	0.00E+00	5.15E-05
Benzene	71432	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-04	1.52E-04
Acetaldehyde	75070	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-07	0.00E+00	0.00E+00	7.94E-07
Naphthalene	91203	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-06	0.00E+00	0.00E+00	2.00E-06
Ethyl Benzene	100414	0.00E+00	0.00E+00	1.13E-07	1.13E-07	0.00E+00	1.13E-07	0.00E+00	1.13E-07	1.13E-07	0.00E+00	0.00E+00	0.00E+00	1.13E-07
Acrolein	107028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	0.00E+00	0.00E+00	1.12E-04
Ammonia	7664417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-04	0.00E+00	0.00E+00	1.18E-04
Diesel Exhaust PM	9901	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-03	0.00E+00	0.00E+00	1.94E-03
Methanol	67561	0.00E+00	0.00E+00	2.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-08	0.00E+00	0.00E+00	0.00E+00	2.16E-08
Chloroform	67663	0.00E+00	0.00E+00	2.55E-11	0.00E+00	0.00E+00	2.55E-11	0.00E+00	2.55E-11	2.55E-11	0.00E+00	0.00E+00	0.00E+00	2.55E-11
Vinyl Chloride	75014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2-Dichloropropane	78875	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane	79005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2,2-Tetrachloroethane	79345	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene dibromide	106934	0.00E+00	0.00E+00	1.48E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-08	0.00E+00	0.00E+00	0.00E+00	1.48E-08
1,3-Butadiene	106990	0.00E+00	0.00E+00	5.02E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.02E-05	0.00E+00	0.00E+00	0.00E+00	5.02E-05
Ethylene dichloride	107062	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-11
1,3-Dichloropropene	542756	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	95636	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cumene	98828	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	110827	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	7440393	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	7440484	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	7440622	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aluminum	7429905	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	7440224	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	7440280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440360	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	78933	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Tert-Butyl Ether	1634044	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-08	2.81E-08	0.00E+00	2.81E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-08
Chlorine	7782505	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-04	0.00E+00	0.00E+00	2.49E-04
Total, including Emergency DICEs		7.75E-02	5.47E-01	3.47E-01	9.80E-04	1.25E-06	9.86E-04	3.59E-04	3.11E-01	3.47E-01	1.89E-01	7.75E-02	6.50E-02	5.47E-01
Total, excluding Emergency DICEs		7.75E-02	5.47E-01	3.47E-01	9.80E-04	1.25E-06	9.86E-04	3.59E-04	3.11E-01	3.47E-01	1.89E-01	7.75E-02	6.50E-02	5.47E-01

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Table 12. MEIR Chronic Hazard Index without Background by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Source Name	Cardio-vascular System	Central Nervous System	Develop-mental System	Endo-crine System	Eye	Gastrointestinal-Liver	Immune System	Kidney	Repro-ductive System	Respir-atory System	Skin	Blood	Max
BH	EAF Baghouse Vents	2.51E-02	2.26E-01	1.88E-01	5.93E-04	0.00E+00	5.94E-04	7.68E-05	1.87E-01	1.88E-01	7.60E-02	2.51E-02	2.47E-02	2.26E-01
MSFUG	Melt Shop Fugitive Emissions	1.64E-02	1.48E-01	1.22E-01	3.87E-04	0.00E+00	3.88E-04	5.01E-05	1.22E-01	1.22E-01	4.96E-02	1.64E-02	1.61E-02	1.48E-01
VP's & VU's	Entrained Road Dusts	2.56E-02	1.46E-01	2.61E-02	0.00E+00	0.00E+00	2.37E-06	1.40E-04	8.35E-04	2.61E-02	4.77E-02	2.56E-02	2.14E-02	1.46E-01
SLAGH	Slag Handling And Storage Pile Fugitives	9.04E-04	1.45E-02	9.17E-04	0.00E+00	0.00E+00	4.69E-07	2.79E-05	5.42E-06	9.17E-04	1.64E-03	9.04E-04	7.08E-04	1.45E-02
RF	Billet Reheat Furnace - Process Emissions	5.35E-03	5.51E-03	5.35E-03	0.00E+00	0.00E+00	7.55E-07	3.76E-05	7.78E-05	5.35E-03	5.68E-03	5.35E-03	2.45E-04	5.68E-03
SCS	Spray Chamber Stack	3.04E-03	3.45E-03	3.04E-03	0.00E+00	0.00E+00	4.29E-07	2.20E-05	6.22E-05	3.04E-03	3.27E-03	3.04E-03	1.67E-04	3.45E-03
SCRAPH	Scrap Handling	1.07E-03	2.52E-03	1.11E-03	0.00E+00	0.00E+00	4.94E-08	2.92E-06	4.80E-05	1.11E-03	2.48E-03	1.07E-03	1.38E-03	2.52E-03
SLAGCRU	Slag Crushing	6.75E-05	1.08E-03	6.85E-05	0.00E+00	0.00E+00	3.51E-08	2.09E-06	4.06E-07	6.85E-05	1.23E-04	6.75E-05	5.29E-05	1.08E-03
SCCVY	Screw Conveyor	5.59E-05	3.15E-04	5.65E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.40E-05	5.65E-05	1.48E-04	5.59E-05	2.88E-05	3.15E-04
GICE	Gasoline Internal Combustion Engines (219 exempt)	0.00E+00	7.80E-06	5.33E-05	9.05E-08	1.06E-06	1.19E-07	0.00E+00	1.19E-07	5.33E-05	3.85E-04	0.00E+00	1.64E-04	3.85E-04
EAFNG	Electric Arc Furnace - External Natural Gas Combustion	0.00E+00	2.09E-07	1.64E-07	6.14E-09	5.02E-08	6.14E-09	0.00E+00	6.14E-09	1.64E-07	4.50E-05	0.00E+00	3.44E-06	4.50E-05
SLHNG	South Ladle Heater - External Natural Gas Combustion	0.00E+00	1.51E-07	1.18E-07	4.45E-09	3.63E-08	4.45E-09	0.00E+00	4.45E-09	1.18E-07	3.26E-05	0.00E+00	2.49E-06	3.26E-05
NLHNG	North Ladle Heater - External Natural Gas Combustion	0.00E+00	1.42E-07	1.11E-07	4.17E-09	3.41E-08	4.17E-09	0.00E+00	4.17E-09	1.11E-07	3.05E-05	0.00E+00	2.34E-06	3.05E-05
VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	0.00E+00	7.81E-08	6.12E-08	2.29E-09	1.88E-08	2.29E-09	0.00E+00	2.29E-09	6.12E-08	1.68E-05	0.00E+00	1.29E-06	1.68E-05
RFNG	Reheat Furnace Burner Stack	0.00E+00	6.89E-08	5.39E-08	2.00E-09	1.66E-08	2.00E-09	0.00E+00	2.00E-09	5.39E-08	3.74E-05	0.00E+00	1.13E-06	3.74E-05
UGTG	Fuel Dispensing Facility (Gasoline)	0.00E+00	6.36E-08	4.57E-08	1.33E-09	1.90E-08	1.33E-09	0.00E+00	1.33E-09	4.57E-08	6.33E-08	0.00E+00	1.14E-06	1.14E-06
NTUND	North Tundish Heater	0.00E+00	2.22E-08	1.74E-08	6.53E-10	5.35E-09	6.53E-10	0.00E+00	6.53E-10	1.74E-08	3.55E-06	0.00E+00	3.67E-07	3.55E-06
STUND	South Tundish Heater	0.00E+00	2.20E-08	1.72E-08	6.47E-10	5.31E-09	6.47E-10	0.00E+00	6.47E-10	1.72E-08	3.53E-06	0.00E+00	3.64E-07	3.53E-06
219RM	Rolling Mill Heater	0.00E+00	1.67E-08	1.31E-08	4.91E-10	4.02E-09	4.91E-10	0.00E+00	4.91E-10	1.31E-08	2.67E-06	0.00E+00	2.77E-07	2.67E-06
219MS	Melt Shop Heater - External Natural Gas Combustion	0.00E+00	1.11E-08	8.68E-09	3.25E-10	2.66E-09	3.25E-10	0.00E+00	3.25E-10	8.68E-09	1.77E-06	0.00E+00	1.83E-07	1.77E-06
D45	D-45 Emergency Natural Gas ICE	5.73E-11	1.50E-09	2.01E-07	6.91E-12	1.55E-10	2.95E-10	0.00E+00	3.24E-11	2.01E-07	5.48E-06	0.00E+00	2.93E-07	5.48E-06
UGTD	Fuel Dispensing Facility (Diesel)	0.00E+00	6.50E-10	1.33E-10	6.32E-12	5.23E-10	6.32E-12	0.00E+00	6.32E-12	1.33E-10	6.50E-10	0.00E+00	0.00E+00	6.50E-10
D37	D-37 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-05	0.00E+00	0.00E+00	4.03E-05
D41	D-41 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.43E-05	0.00E+00	0.00E+00	7.43E-05
DICE	Diesel Internal Combustion Engines (219 exempt)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-04	0.00E+00	0.00E+00	3.63E-04
LS#1 - LS#6	Light Towers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-03	0.00E+00	0.00E+00	1.46E-03
	Total, including Emergency DICEs	7.75E-02	5.47E-01	3.47E-01	9.80E-04	1.25E-06	9.86E-04	3.59E-04	3.11E-01	3.47E-01	1.89E-01	7.75E-02	6.50E-02	5.47E-01
	Total, excluding Emergency DICEs	7.75E-02	5.47E-01	3.47E-01	9.80E-04	1.25E-06	9.86E-04	3.59E-04	3.11E-01	3.47E-01	1.89E-01	7.75E-02	6.50E-02	5.47E-01

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Table 13. MEIW Chronic Hazard Index without Background by Chemical
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	CAS No.	Cardio-vascular System	Central Nervous System	Develop-mental System	Endo-crine System	Eye	Gastroint estinal-Liver	Immune System	Kidney	Repro-ductive System	Respir-atory System	Skin	Blood	Max
Manganese	7439965	0.00E+00	2.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E+00
Arsenic	7440382	4.86E-01	4.86E-01	4.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.86E-01	4.86E-01	4.86E-01	0.00E+00	4.86E-01
Mercury	7439976	0.00E+00	4.34E-01	4.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.34E-01	4.34E-01	0.00E+00	0.00E+00	0.00E+00	4.34E-01
Toluene	108883	0.00E+00	1.97E-05	1.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-05	1.97E-05	0.00E+00	0.00E+00	1.97E-05
m-Xylene	108383	0.00E+00	4.90E-06	0.00E+00	0.00E+00	4.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.90E-06	0.00E+00	0.00E+00	4.90E-06
Selenium	7782492	2.29E-06	2.29E-06	0.00E+00	0.00E+00	0.00E+00	2.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-06
o-Xylene	95476	0.00E+00	1.71E-06	0.00E+00	0.00E+00	1.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-06	0.00E+00	0.00E+00	1.71E-06
Xylenes	1330207	0.00E+00	7.27E-07	0.00E+00	0.00E+00	7.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.27E-07	0.00E+00	0.00E+00	7.27E-07
Hexane	110543	0.00E+00	1.60E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-07
Styrene	100425	0.00E+00	1.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-07
Carbon Tetrachloride	56235	0.00E+00	3.37E-09	3.37E-09	0.00E+00	0.00E+00	3.37E-09	0.00E+00	0.00E+00	3.37E-09	0.00E+00	0.00E+00	0.00E+00	3.37E-09
Methylene Chloride	75092	7.82E-10	7.82E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.82E-10
Dioxin and Furan	1086	0.00E+00	0.00E+00	1.58E-03	1.58E-03	0.00E+00	1.58E-03	0.00E+00	0.00E+00	1.58E-03	1.58E-03	0.00E+00	1.58E-03	1.58E-03
Fluorides	1101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-02	0.00E+00	0.00E+00	3.86E-02
Lead	7439921	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	7440020	0.00E+00	0.00E+00	3.74E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.74E-03	3.76E-01	0.00E+00	3.76E-01	3.76E-01
Beryllium	7440417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.40E-05	3.41E-03	0.00E+00	0.00E+00	3.41E-03	0.00E+00	0.00E+00	3.41E-03
Cadmium	7440439	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.24E-02	0.00E+00	8.41E-02	0.00E+00	0.00E+00	9.24E-02
Chromium	7440473	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	7440508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zinc	7440666	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cr(VI)	18540299	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.80E-04	0.00E+00	2.51E-05	6.80E-04
PAHs, total	1151	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	50000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-04	0.00E+00	0.00E+00	3.17E-04
Benzene	71432	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.39E-04	9.39E-04
Acetaldehyde	75070	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.80E-06	0.00E+00	0.00E+00	4.80E-06
Naphthalene	91203	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	0.00E+00	0.00E+00	1.25E-05
Ethyl Benzene	100414	0.00E+00	0.00E+00	6.64E-07	6.64E-07	0.00E+00	6.64E-07	0.00E+00	6.64E-07	6.64E-07	0.00E+00	0.00E+00	0.00E+00	6.64E-07
Acrolein	107028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.30E-04	0.00E+00	0.00E+00	6.30E-04
Ammonia	7664417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.02E-04	0.00E+00	0.00E+00	6.02E-04
Diesel Exhaust PM	9901	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.92E-03	0.00E+00	0.00E+00	5.92E-03
Methanol	67561	0.00E+00	0.00E+00	1.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-07	0.00E+00	0.00E+00	0.00E+00	1.41E-07
Chloroform	67663	0.00E+00	0.00E+00	3.48E-10	0.00E+00	0.00E+00	3.48E-10	0.00E+00	3.48E-10	3.48E-10	0.00E+00	0.00E+00	0.00E+00	3.48E-10
Vinyl Chloride	75014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2-Dichloropropane	78875	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane	79005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2,2-Tetrachloroethane	79345	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene dibromide	106934	0.00E+00	0.00E+00	2.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-07	0.00E+00	0.00E+00	0.00E+00	2.02E-07
1,3-Butadiene	106990	0.00E+00	0.00E+00	3.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-04	0.00E+00	0.00E+00	0.00E+00	3.23E-04
Ethylene dichloride	107062	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-10
1,3-Dichloropropene	542756	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	95636	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cumene	98828	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	110827	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	7440393	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	7440484	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	7440622	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aluminum	7429905	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	7440224	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	7440280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440360	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	78933	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Tert-Butyl Ether	1634044	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-07	1.80E-07	0.00E+00	1.80E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-07
Chlorine	7782505	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-03	0.00E+00	0.00E+00	1.59E-03
Total, including Emergency DICEs		4.86E-01	3.48E+00	9.25E-01	1.58E-03	7.52E-06	1.63E-03	3.41E-03	5.26E-01	9.25E-01	1.00E+00	4.86E-01	3.79E-01	3.48E+00
Total, excluding Emergency DICEs		4.86E-01	3.48E+00	9.25E-01	1.58E-03	7.52E-06	1.63E-03	3.41E-03	5.26E-01	9.25E-01	9.99E-01	4.86E-01	3.79E-01	3.48E+00

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Table 14. MEIW Chronic Hazard Index without Background by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Source Name	Cardio-vascular System	Central Nervous System	Develop-mental System	Endo-crine System	Eye	Gastrointes tinal-Liver	Immune System	Kidney	Repro-ductive System	Respir-atory System	Skin	Blood	Max
VP's & VU's	Entrained Road Dusts	3.34E-01	2.68E+00	3.37E-01	0.00E+00	0.00E+00	3.41E-05	2.58E-03	7.36E-03	3.37E-01	6.04E-01	3.34E-01	2.62E-01	2.68E+00
BH	EAF Baghouse Vents	5.29E-02	3.89E-01	2.93E-01	8.71E-04	0.00E+00	8.74E-04	1.89E-04	2.85E-01	2.93E-01	1.77E-01	5.29E-02	6.00E-02	3.89E-01
MSFUG	Melt Shop Fugitive Emissions	4.31E-02	3.16E-01	2.38E-01	7.09E-04	0.00E+00	7.10E-04	1.53E-04	2.32E-01	2.38E-01	1.44E-01	4.31E-02	4.88E-02	3.17E-01
RF	Billet Reheat Furnace - Process Emissions	4.84E-02	5.01E-02	4.85E-02	0.00E+00	0.00E+00	6.48E-06	3.96E-04	6.03E-04	4.85E-02	5.20E-02	4.84E-02	2.58E-03	5.20E-02
SLAGH	Slag Handling And Storage Pile Fugitives	1.43E-03	2.65E-02	1.45E-03	0.00E+00	0.00E+00	6.74E-07	5.13E-05	6.86E-06	1.45E-03	2.79E-03	1.43E-03	1.30E-03	2.65E-02
SCRAPH	Scrap Handling	1.98E-03	5.06E-03	2.02E-03	0.00E+00	0.00E+00	8.28E-08	6.26E-06	7.23E-05	2.02E-03	4.99E-03	1.98E-03	2.95E-03	5.06E-03
SCS	Spray Chamber Stack	4.01E-03	4.64E-03	4.01E-03	0.00E+00	0.00E+00	5.33E-07	3.37E-05	7.02E-05	4.01E-03	4.36E-03	4.01E-03	2.56E-04	4.64E-03
SLAGCRU	Slag Crushing	1.00E-04	1.85E-03	1.01E-04	0.00E+00	0.00E+00	4.73E-08	3.60E-06	4.81E-07	1.01E-04	1.95E-04	1.00E-04	9.13E-05	1.85E-03
SCCVY	Screw Conveyor	1.60E-04	1.02E-03	1.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-04	1.61E-04	4.65E-04	1.60E-04	9.59E-05	1.02E-03
GICE	Gasoline Internal Combustion Engines (219 exempt)	0.00E+00	4.99E-05	3.40E-04	5.79E-07	6.79E-06	7.58E-07	0.00E+00	7.58E-07	3.40E-04	2.46E-03	0.00E+00	1.05E-03	2.46E-03
RFNG	Reheat Furnace Burner Stack	0.00E+00	7.25E-07	5.68E-07	2.10E-08	1.74E-07	2.10E-08	0.00E+00	2.10E-08	5.68E-07	3.94E-04	0.00E+00	1.19E-05	3.94E-04
EAFNG	Electric Arc Furnace - External Natural Gas Combustion	0.00E+00	6.32E-07	4.95E-07	1.86E-08	1.52E-07	1.86E-08	0.00E+00	1.86E-08	4.95E-07	1.36E-04	0.00E+00	1.04E-05	1.36E-04
SLHNG	South Ladle Heater - External Natural Gas Combustion	0.00E+00	4.57E-07	3.58E-07	1.35E-08	1.10E-07	1.35E-08	0.00E+00	1.35E-08	3.58E-07	9.86E-05	0.00E+00	7.54E-06	9.86E-05
NLHNG	North Ladle Heater - External Natural Gas Combustion	0.00E+00	4.29E-07	3.36E-07	1.26E-08	1.03E-07	1.26E-08	0.00E+00	1.26E-08	3.36E-07	9.22E-05	0.00E+00	7.08E-06	9.22E-05
VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	0.00E+00	2.36E-07	1.85E-07	6.94E-09	5.68E-08	6.94E-09	0.00E+00	6.94E-09	1.85E-07	5.10E-05	0.00E+00	3.89E-06	5.10E-05
UGTG	Fuel Dispensing Facility (Gasoline)	0.00E+00	2.12E-07	1.52E-07	4.43E-09	6.34E-08	4.43E-09	0.00E+00	4.43E-09	1.52E-07	2.11E-07	0.00E+00	3.80E-06	3.80E-06
219RM	Rolling Mill Heater	0.00E+00	1.06E-07	8.34E-08	3.12E-09	2.56E-08	3.12E-09	0.00E+00	3.12E-09	8.34E-08	1.70E-05	0.00E+00	1.76E-06	1.70E-05
NTUND	North Tundish Heater	0.00E+00	6.26E-08	4.90E-08	1.84E-09	1.51E-08	1.84E-09	0.00E+00	1.84E-09	4.90E-08	9.98E-06	0.00E+00	1.03E-06	9.98E-06
STUND	South Tundish Heater	0.00E+00	6.20E-08	4.85E-08	1.82E-09	1.50E-08	1.82E-09	0.00E+00	1.82E-09	4.85E-08	9.94E-06	0.00E+00	1.02E-06	9.94E-06
219MS	Melt Shop Heater - External Natural Gas Combustion	0.00E+00	3.35E-08	2.63E-08	9.83E-10	8.05E-09	9.83E-10	0.00E+00	9.83E-10	2.63E-08	5.35E-06	0.00E+00	5.54E-07	5.35E-06
D45	D-45 Natural Gas Emergency ICE	7.82E-10	2.05E-08	2.74E-06	9.42E-11	2.12E-09	4.03E-09	0.00E+00	4.42E-10	2.74E-06	7.47E-05	0.00E+00	4.00E-06	7.47E-05
UGTD	Fuel Dispensing Facility (Diesel)	0.00E+00	2.17E-09	4.43E-10	2.11E-11	1.74E-09	2.11E-11	0.00E+00	2.11E-11	4.43E-10	2.17E-09	0.00E+00	0.00E+00	2.17E-09
D37	D-37 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.49E-05	0.00E+00	0.00E+00	8.49E-05
D41	D-41 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-04	0.00E+00	0.00E+00	6.03E-04
DICE	Diesel Internal Combustion Engines (219 exempt)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-03	0.00E+00	0.00E+00	2.32E-03
LS#1 - LS#6	Light Towers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-03	0.00E+00	0.00E+00	2.91E-03
	Total, including Emergency DICEs	4.86E-01	3.48E+00	9.25E-01	1.58E-03	7.52E-06	1.63E-03	3.41E-03	5.26E-01	9.25E-01	1.00E+00	4.86E-01	3.79E-01	3.48E+00
	Total, excluding Emergency DICEs	4.86E-01	3.48E+00	9.25E-01	1.58E-03	7.52E-06	1.63E-03	3.41E-03	5.26E-01	9.25E-01	9.99E-01	4.86E-01	3.79E-01	3.48E+00

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Table 15. MEIR Acute Hazard Index without Background by Chemical
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	CAS No.	Cardio-vascular System	Central Nervous System	Develop-mental System	Eye	Gastrointestinal-Liver	Immune System	Repro-ductive System	Respir-atory System	Blood	Max
Nickel	7440020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-01	0.00E+00	0.00E+00	0.00E+00	3.82E-01
Benzene	71432	0.00E+00	0.00E+00	8.46E-03	0.00E+00	0.00E+00	8.46E-03	8.46E-03	0.00E+00	8.46E-03	8.46E-03
Dioxin and Furan	1086	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluorides	1101	0.00E+00	0.00E+00	0.00E+00	3.07E-02	0.00E+00	0.00E+00	0.00E+00	3.07E-02	0.00E+00	3.07E-02
Lead	7439921	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	7439965	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	7439976	0.00E+00	7.71E-02	7.71E-02	0.00E+00	0.00E+00	0.00E+00	7.71E-02	0.00E+00	0.00E+00	7.71E-02
Arsenic	7440382	1.17E-02	1.17E-02	1.17E-02	0.00E+00	0.00E+00	0.00E+00	1.17E-02	0.00E+00	0.00E+00	1.17E-02
Beryllium	7440417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	7440439	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium	7440473	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	7440508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-03	0.00E+00	2.64E-03
Zinc	7440666	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cr(VI)	18540299	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	7782492	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PAHs, total	1151	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	50000	0.00E+00	0.00E+00	0.00E+00	4.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-03
Acetaldehyde	75070	0.00E+00	0.00E+00	0.00E+00	1.11E-04	0.00E+00	0.00E+00	0.00E+00	1.11E-04	0.00E+00	1.11E-04
Naphthalene	91203	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethyl Benzene	100414	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	107028	0.00E+00	0.00E+00	0.00E+00	6.01E-03	0.00E+00	0.00E+00	0.00E+00	6.01E-03	0.00E+00	6.01E-03
Toluene	108883	0.00E+00	1.24E-05	1.24E-05	1.24E-05	0.00E+00	0.00E+00	1.24E-05	1.24E-05	0.00E+00	1.24E-05
Hexane	110543	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1330207	0.00E+00	5.95E-07	0.00E+00	5.95E-07	0.00E+00	0.00E+00	0.00E+00	5.95E-07	0.00E+00	5.95E-07
Ammonia	7664417	0.00E+00	0.00E+00	0.00E+00	5.40E-04	0.00E+00	0.00E+00	0.00E+00	5.40E-04	0.00E+00	5.40E-04
Diesel Exhaust PM	9901	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene dibromide	106934	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	106990	0.00E+00	0.00E+00	8.25E-05	0.00E+00	0.00E+00	0.00E+00	8.25E-05	0.00E+00	0.00E+00	8.25E-05
Ethylene dichloride	107062	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene	542756	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	56235	0.00E+00	7.09E-09	7.09E-09	0.00E+00	7.09E-09	0.00E+00	7.09E-09	0.00E+00	0.00E+00	7.09E-09
Methanol	67561	0.00E+00	1.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-06
Chloroform	67663	0.00E+00	6.93E-08	6.93E-08	0.00E+00	0.00E+00	0.00E+00	6.93E-08	6.93E-08	0.00E+00	6.93E-08
Vinyl Chloride	75014	0.00E+00	3.02E-11	0.00E+00	3.02E-11	0.00E+00	0.00E+00	0.00E+00	3.02E-11	0.00E+00	3.02E-11
Methylene Chloride	75092	2.23E-09	2.23E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-09
1,2-Dichloropropane	78875	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane	79005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2,2-Tetrachloroethane	79345	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	100425	0.00E+00	0.00E+00	4.02E-07	4.02E-07	0.00E+00	0.00E+00	4.02E-07	4.02E-07	0.00E+00	4.02E-07
1,2,4-Trimethylbenzene	95636	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cumene	98828	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	110827	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	7440393	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	7440484	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	7440622	0.00E+00	0.00E+00	0.00E+00	1.19E-03	0.00E+00	0.00E+00	0.00E+00	1.19E-03	0.00E+00	1.19E-03
Aluminum	7429905	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	7440224	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	7440280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440360	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	78933	0.00E+00	0.00E+00	0.00E+00	2.99E-07	0.00E+00	0.00E+00	0.00E+00	2.99E-07	0.00E+00	2.99E-07
o-Xylene	95476	0.00E+00	4.58E-06	0.00E+00	4.58E-06	0.00E+00	0.00E+00	0.00E+00	4.58E-06	0.00E+00	4.58E-06
m-Xylene	108383	0.00E+00	1.31E-05	0.00E+00	1.31E-05	0.00E+00	0.00E+00	0.00E+00	1.31E-05	0.00E+00	1.31E-05
Methyl Tert-Butyl Ether	1634044	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	7782505	0.00E+00	0.00E+00	0.00E+00	1.27E-04	0.00E+00	0.00E+00	0.00E+00	1.27E-04	0.00E+00	1.27E-04
Total		1.17E-02	8.88E-02	9.73E-02	4.28E-02	7.09E-09	3.90E-01	9.73E-02	4.14E-02	8.46E-03	3.90E-01

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Table 16. MEIR Acute Hazard Index without Background by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Source Name	Cardio-vascular System	Central Nervous System	Develop-mental System	Eye	Gastroint estinal-Liver	Immune System	Repro-ductive System	Respir-atory System	Blood	Max
VP's & VU's	Entrained Road Dusts	5.85E-03	6.04E-03	6.04E-03	6.15E-04	0.00E+00	2.07E-01	6.04E-03	1.28E-03	0.00E+00	2.07E-01
BH	EAF Baghouse Vents	1.68E-03	4.44E-02	4.44E-02	1.71E-02	0.00E+00	6.11E-02	4.44E-02	1.79E-02	0.00E+00	6.11E-02
MSFUG	Melt Shop Fugitive Emissions	1.34E-03	3.55E-02	3.55E-02	1.36E-02	0.00E+00	4.89E-02	3.55E-02	1.44E-02	0.00E+00	4.89E-02
SLAGH	Slag Handling And Storage Pile Fugitives	1.31E-03	1.32E-03	1.32E-03	5.28E-04	0.00E+00	3.85E-02	1.32E-03	7.76E-04	0.00E+00	3.85E-02
SCRAPH	Scrap Handling	4.51E-04	4.71E-04	4.71E-04	1.89E-05	0.00E+00	2.17E-02	4.71E-04	6.74E-05	0.00E+00	2.17E-02
GICE	Gasoline Internal Combustion Engines (219 exempt)	0.00E+00	3.12E-05	8.37E-03	8.62E-03	0.00E+00	9.24E-03	8.37E-03	4.94E-03	8.27E-03	9.24E-03
SLAGCRU	Slag Crushing	6.56E-05	6.62E-05	6.62E-05	2.65E-05	0.00E+00	1.92E-03	6.62E-05	3.89E-05	0.00E+00	1.92E-03
RF	Billet Reheat Furnace - Process Emissions	5.66E-04	5.66E-04	5.66E-04	0.00E+00	0.00E+00	9.68E-04	5.66E-04	4.20E-05	0.00E+00	9.68E-04
SCS	Spray Chamber Stack	3.99E-04	3.99E-04	3.99E-04	0.00E+00	0.00E+00	8.16E-04	3.99E-04	3.44E-05	0.00E+00	8.16E-04
SCCVY	Screw Conveyor	1.06E-05	1.08E-05	1.08E-05	7.90E-07	0.00E+00	2.05E-04	1.08E-05	5.05E-06	0.00E+00	2.05E-04
EAFNG	Electric Arc Furnace - External Natural Gas Combustion	0.00E+00	3.96E-07	5.31E-05	5.68E-04	0.00E+00	5.29E-05	5.31E-05	5.13E-04	5.29E-05	5.68E-04
D45	D-45 Natural Gas Emergency ICE	2.23E-09	1.80E-07	4.52E-05	1.08E-03	7.09E-09	4.44E-05	4.52E-05	8.02E-04	4.44E-05	1.08E-03
UGTG	Fuel Dispensing Facility (Gasoline)	0.00E+00	1.94E-07	2.56E-05	1.94E-07	0.00E+00	2.55E-05	2.56E-05	1.94E-07	2.55E-05	2.56E-05
SLHNG	South Ladle Heater - External Natural Gas Combustion	0.00E+00	1.04E-07	1.39E-05	1.50E-04	0.00E+00	1.39E-05	1.39E-05	1.35E-04	1.39E-05	1.50E-04
NLHNG	North Ladle Heater - External Natural Gas Combustion	0.00E+00	1.04E-07	1.39E-05	1.50E-04	0.00E+00	1.39E-05	1.39E-05	1.35E-04	1.39E-05	1.50E-04
VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	0.00E+00	7.56E-08	1.01E-05	1.09E-04	0.00E+00	1.01E-05	1.01E-05	9.81E-05	1.01E-05	1.09E-04
219RM	Rolling Mill Heater	0.00E+00	3.76E-08	5.00E-06	4.05E-05	0.00E+00	4.99E-06	5.00E-06	3.53E-05	4.99E-06	4.05E-05
NTUND	North Tundish Heater	0.00E+00	3.49E-08	4.65E-06	3.76E-05	0.00E+00	4.63E-06	4.65E-06	3.28E-05	4.63E-06	3.76E-05
STUND	South Tundish Heater	0.00E+00	3.43E-08	4.57E-06	3.70E-05	0.00E+00	4.56E-06	4.57E-06	3.23E-05	4.56E-06	3.70E-05
RFNG	Reheat Furnace Burner Stack	0.00E+00	2.89E-08	3.85E-06	8.47E-05	0.00E+00	3.84E-06	3.85E-06	8.07E-05	3.84E-06	8.47E-05
219MS	Melt Shop Heater - External Natural Gas Combustion	0.00E+00	1.76E-08	2.34E-06	1.89E-05	0.00E+00	2.33E-06	2.34E-06	1.65E-05	2.33E-06	1.89E-05
D37	D-37 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
D41	D-41 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UGTD	Fuel Dispensing Facility (Diesel)	0.00E+00	3.56E-09	2.06E-10	3.56E-09	0.00E+00	0.00E+00	2.06E-10	3.56E-09	0.00E+00	3.56E-09
DICE	Diesel Internal Combustion Engines (219 exempt)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LS#1 - LS#6	Light Towers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total	1.17E-02	8.88E-02	9.73E-02	4.28E-02	7.09E-09	3.90E-01	9.73E-02	4.14E-02	8.46E-03	3.90E-01

P:\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\HARP\[Results summary_rev2015.xlsx]t16 (2)

Table 17. PMI and MEIW Acute Hazard Index without Background by Chemical
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	CAS No.	Cardio-vascular System	Central Nervous System	Develop-mental System	Eye	Gastrointestinal-Liver	Immune System	Repro-ductive System	Respir-atory System	Blood	Max
Nickel	7440020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E+00	0.00E+00	0.00E+00	0.00E+00	2.99E+00
Benzene	71432	0.00E+00	0.00E+00	4.87E-02	0.00E+00	0.00E+00	4.87E-02	4.87E-02	0.00E+00	4.87E-02	4.87E-02
Dioxin and Furan	1086	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluorides	1101	0.00E+00	0.00E+00	0.00E+00	3.02E-01	0.00E+00	0.00E+00	0.00E+00	3.02E-01	0.00E+00	3.02E-01
Lead	7439921	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	7439965	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	7439976	0.00E+00	7.58E-01	7.58E-01	0.00E+00	0.00E+00	0.00E+00	7.58E-01	0.00E+00	0.00E+00	7.58E-01
Arsenic	7440382	8.06E-02	8.06E-02	8.06E-02	0.00E+00	0.00E+00	0.00E+00	8.06E-02	0.00E+00	0.00E+00	8.06E-02
Beryllium	7440417	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	7440439	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium	7440473	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	7440508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-02	0.00E+00	2.12E-02
Zinc	7440666	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cr(VI)	18540299	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	7782492	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PAHs, total	1151	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	50000	0.00E+00	0.00E+00	0.00E+00	2.75E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-02
Acetaldehyde	75070	0.00E+00	0.00E+00	0.00E+00	7.05E-04	0.00E+00	0.00E+00	0.00E+00	7.05E-04	0.00E+00	7.05E-04
Naphthalene	91203	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethyl Benzene	100414	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	107028	0.00E+00	0.00E+00	0.00E+00	4.82E-02	0.00E+00	0.00E+00	0.00E+00	4.82E-02	0.00E+00	4.82E-02
Toluene	108883	0.00E+00	7.19E-05	7.19E-05	7.19E-05	0.00E+00	0.00E+00	7.19E-05	7.19E-05	0.00E+00	7.19E-05
Hexane	110543	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1330207	0.00E+00	7.34E-06	0.00E+00	7.34E-06	0.00E+00	0.00E+00	0.00E+00	7.34E-06	0.00E+00	7.34E-06
Ammonia	7664417	0.00E+00	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	0.00E+00	5.96E-03	0.00E+00	5.96E-03
Diesel Exhaust PM	9901	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	56235	0.00E+00	1.43E-07	1.43E-07	0.00E+00	1.43E-07	0.00E+00	1.43E-07	0.00E+00	0.00E+00	1.43E-07
Methanol	67561	0.00E+00	1.07E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-05
Chloroform	67663	0.00E+00	1.40E-06	1.40E-06	0.00E+00	0.00E+00	0.00E+00	1.40E-06	1.40E-06	0.00E+00	1.40E-06
Vinyl Chloride	75014	0.00E+00	6.08E-10	0.00E+00	6.08E-10	0.00E+00	0.00E+00	0.00E+00	6.08E-10	0.00E+00	6.08E-10
Methylene Chloride	75092	4.49E-08	4.49E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-08
1,2-Dichloropropane	78875	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane	79005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,2,2-Tetrachloroethane	79345	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	100425	0.00E+00	0.00E+00	2.25E-06	2.25E-06	0.00E+00	0.00E+00	2.25E-06	2.25E-06	0.00E+00	2.25E-06
Ethylene dibromide	106934	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	106990	0.00E+00	0.00E+00	4.71E-04	0.00E+00	0.00E+00	0.00E+00	4.71E-04	0.00E+00	0.00E+00	4.71E-04
Ethylene dichloride	107062	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Dichloropropene	542756	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	95636	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cumene	98828	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	110827	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	7440393	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	7440484	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	7440622	0.00E+00	0.00E+00	0.00E+00	3.93E-03	0.00E+00	0.00E+00	0.00E+00	3.93E-03	0.00E+00	3.93E-03
Aluminum	7429905	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	7440224	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	7440280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440360	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	78933	0.00E+00	0.00E+00	0.00E+00	1.67E-06	0.00E+00	0.00E+00	0.00E+00	1.67E-06	0.00E+00	1.67E-06
o-Xylene	95476	0.00E+00	2.55E-05	0.00E+00	2.55E-05	0.00E+00	0.00E+00	0.00E+00	2.55E-05	0.00E+00	2.55E-05
m-Xylene	108383	0.00E+00	7.33E-05	0.00E+00	7.33E-05	0.00E+00	0.00E+00	0.00E+00	7.33E-05	0.00E+00	7.33E-05
Methyl Tert-Butyl Ether	1634044	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	7782505	0.00E+00	0.00E+00	0.00E+00	7.09E-04	0.00E+00	0.00E+00	0.00E+00	7.09E-04	0.00E+00	7.09E-04
Total		8.06E-02	8.39E-01	8.88E-01	3.89E-01	1.43E-07	3.04E+00	8.88E-01	3.83E-01	4.87E-02	3.04E+00

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Table 18. PMI and MEIW Acute Hazard Index without Background by Source
TAMCO Steel Mill
Rancho Cucamonga, California

Source ID	Source Name	Cardio-vascular System	Central Nervous System	Develop-mental System	Eye	Gastroint estinal-Liver	Immune System	Repro-ductive System	Respir-atory System	Blood	Max
VP's & VU's	Entrained Road Dusts	3.97E-02	4.13E-02	4.13E-02	2.59E-03	0.00E+00	1.71E+00	4.13E-02	6.94E-03	0.00E+00	1.71E+00
MSFUG	Melt Shop Fugitive Emissions	1.66E-02	4.39E-01	4.39E-01	1.69E-01	0.00E+00	6.04E-01	4.39E-01	1.77E-01	0.00E+00	6.04E-01
BH	EAF Baghouse Vents	1.32E-02	3.48E-01	3.48E-01	1.34E-01	0.00E+00	4.78E-01	3.48E-01	1.40E-01	0.00E+00	4.78E-01
SCRAPH	Scrap Handling	1.92E-03	2.01E-03	2.01E-03	8.04E-05	0.00E+00	9.22E-02	2.01E-03	2.87E-04	0.00E+00	9.22E-02
SLAGH	Slag Handling And Storage Pile Fugitives	2.95E-03	2.98E-03	2.98E-03	1.19E-03	0.00E+00	8.70E-02	2.98E-03	1.75E-03	0.00E+00	8.70E-02
GICE	Gasoline Internal Combustion Engines (219 exempt)	0.00E+00	1.74E-04	4.67E-02	4.80E-02	0.00E+00	5.15E-02	4.67E-02	2.75E-02	4.61E-02	5.15E-02
RF	Billet Reheat Furnace - Process Emissions	4.28E-03	4.28E-03	4.28E-03	0.00E+00	0.00E+00	7.31E-03	4.28E-03	3.17E-04	0.00E+00	7.31E-03
SLAGCRU	Slag Crushing	1.49E-04	1.50E-04	1.50E-04	6.00E-05	0.00E+00	4.36E-03	1.50E-04	8.82E-05	0.00E+00	4.36E-03
SCS	Spray Chamber Stack	1.82E-03	1.82E-03	1.82E-03	0.00E+00	0.00E+00	3.71E-03	1.82E-03	1.56E-04	0.00E+00	3.71E-03
D45	D-45 Natural Gas Emergency ICE	4.49E-08	3.62E-06	9.11E-04	2.18E-02	1.43E-07	8.94E-04	9.11E-04	1.61E-02	8.94E-04	2.18E-02
EAFNG	Electric Arc Furnace - External Natural Gas Combustion	0.00E+00	4.89E-06	6.56E-04	7.02E-03	0.00E+00	6.54E-04	6.56E-04	6.34E-03	6.54E-04	7.02E-03
UGTG	Fuel Dispensing Facility (Gasoline)	0.00E+00	3.24E-06	4.26E-04	3.24E-06	0.00E+00	4.25E-04	4.26E-04	3.24E-06	4.25E-04	4.26E-04
SCCVY	Screw Conveyor	1.88E-05	1.91E-05	1.91E-05	1.40E-06	0.00E+00	3.63E-04	1.91E-05	8.95E-06	0.00E+00	3.63E-04
SLHNG	South Ladle Heater - External Natural Gas Combustion	0.00E+00	1.29E-06	1.72E-04	1.85E-03	0.00E+00	1.72E-04	1.72E-04	1.67E-03	1.72E-04	1.85E-03
NLHNG	North Ladle Heater - External Natural Gas Combustion	0.00E+00	1.29E-06	1.72E-04	1.85E-03	0.00E+00	1.72E-04	1.72E-04	1.67E-03	1.72E-04	1.85E-03
VLHNG	Vertical Ladle Heater - External Natural Gas Combustion	0.00E+00	9.34E-07	1.25E-04	1.34E-03	0.00E+00	1.25E-04	1.25E-04	1.21E-03	1.25E-04	1.34E-03
RFNG	Reheat Furnace Burner Stack	0.00E+00	2.19E-07	2.91E-05	6.39E-04	0.00E+00	2.90E-05	2.91E-05	6.09E-04	2.90E-05	6.39E-04
219MS	Melt Shop Heater - External Natural Gas Combustion	0.00E+00	2.17E-07	2.89E-05	2.34E-04	0.00E+00	2.88E-05	2.89E-05	2.04E-04	2.88E-05	2.34E-04
219RM	Rolling Mill Heater	0.00E+00	2.03E-07	2.71E-05	2.19E-04	0.00E+00	2.70E-05	2.71E-05	1.91E-04	2.70E-05	2.19E-04
NTUND	North Tundish Heater	0.00E+00	8.85E-08	1.18E-05	9.55E-05	0.00E+00	1.18E-05	1.18E-05	8.32E-05	1.18E-05	9.55E-05
STUND	South Tundish Heater	0.00E+00	8.10E-08	1.08E-05	8.74E-05	0.00E+00	1.08E-05	1.08E-05	7.62E-05	1.08E-05	8.74E-05
D37	D-37 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
D41	D-41 Emergency ICE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UGTD	Fuel Dispensing Facility (Diesel)	0.00E+00	5.93E-08	3.44E-09	5.93E-08	0.00E+00	0.00E+00	3.44E-09	5.93E-08	0.00E+00	5.93E-08
DICE	Diesel Internal Combustion Engines (219 exempt)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LS#1 - LS#6	Light Towers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total	8.06E-02	8.39E-01	8.88E-01	3.89E-01	1.43E-07	3.04E+00	8.88E-01	3.83E-01	4.87E-02	3.04E+00

Figures

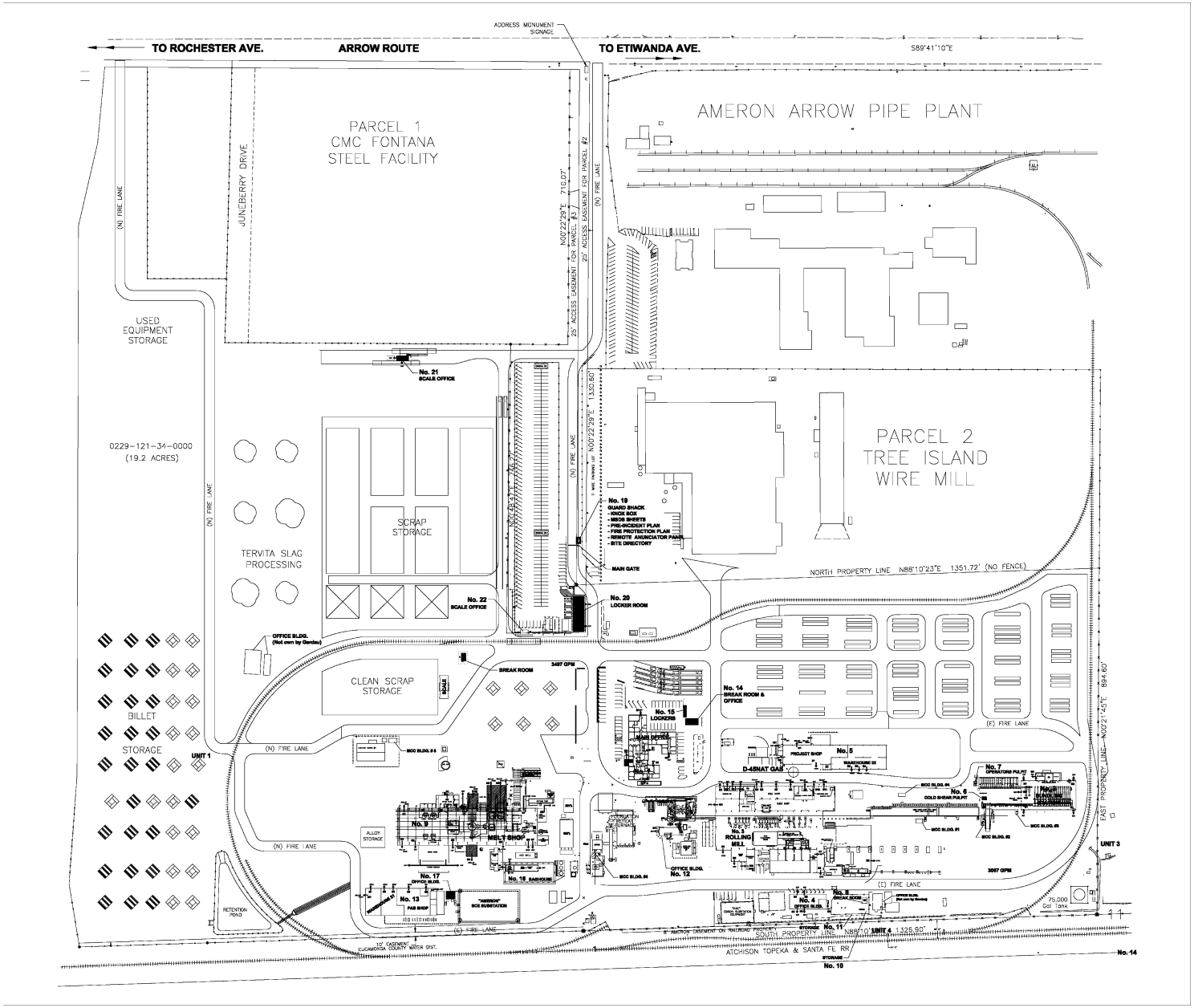
ENVIRON

Site Location

12459-B Arrow Route
Rancho Cucamonga, California

Figure
1

UPDATED BY: XZLiu | DATE: 9/6/2013 | PROJECT: 05-28453C



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ENVIRON

UPDATED BY: XZLiu | DATE: 9/19/2013

Plot Plan

12459-B Arrow Route
Rancho Cucamonga, California

Figure
2

PROJECT: 05-28453C

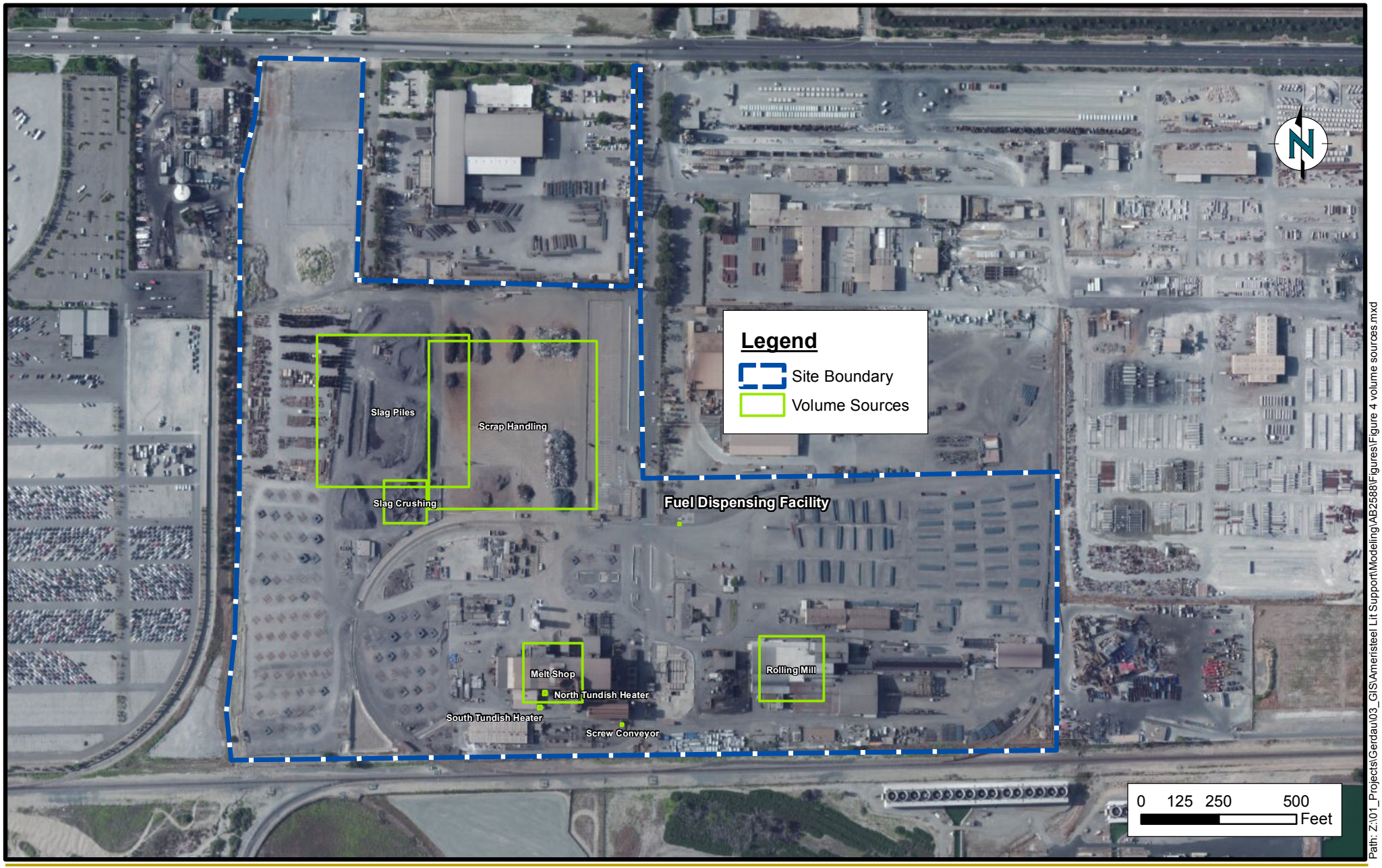
ENVIRON

Modeled Point Sources for Toxic Air Contaminants

12459-B Arrow Route
Rancho Cucamonga, California

Figure
3

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E



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ENVIRON

Modeled Volume Sources for Toxic Air Contaminants

12459-B Arrow Route
Rancho Cucamonga, California

Figure
4

UPDATED BY: XZLiu | DATE: 9/6/2013 | PROJECT: 05-28453C

Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures\Figure 5 area sources.mxd

ENVIRON

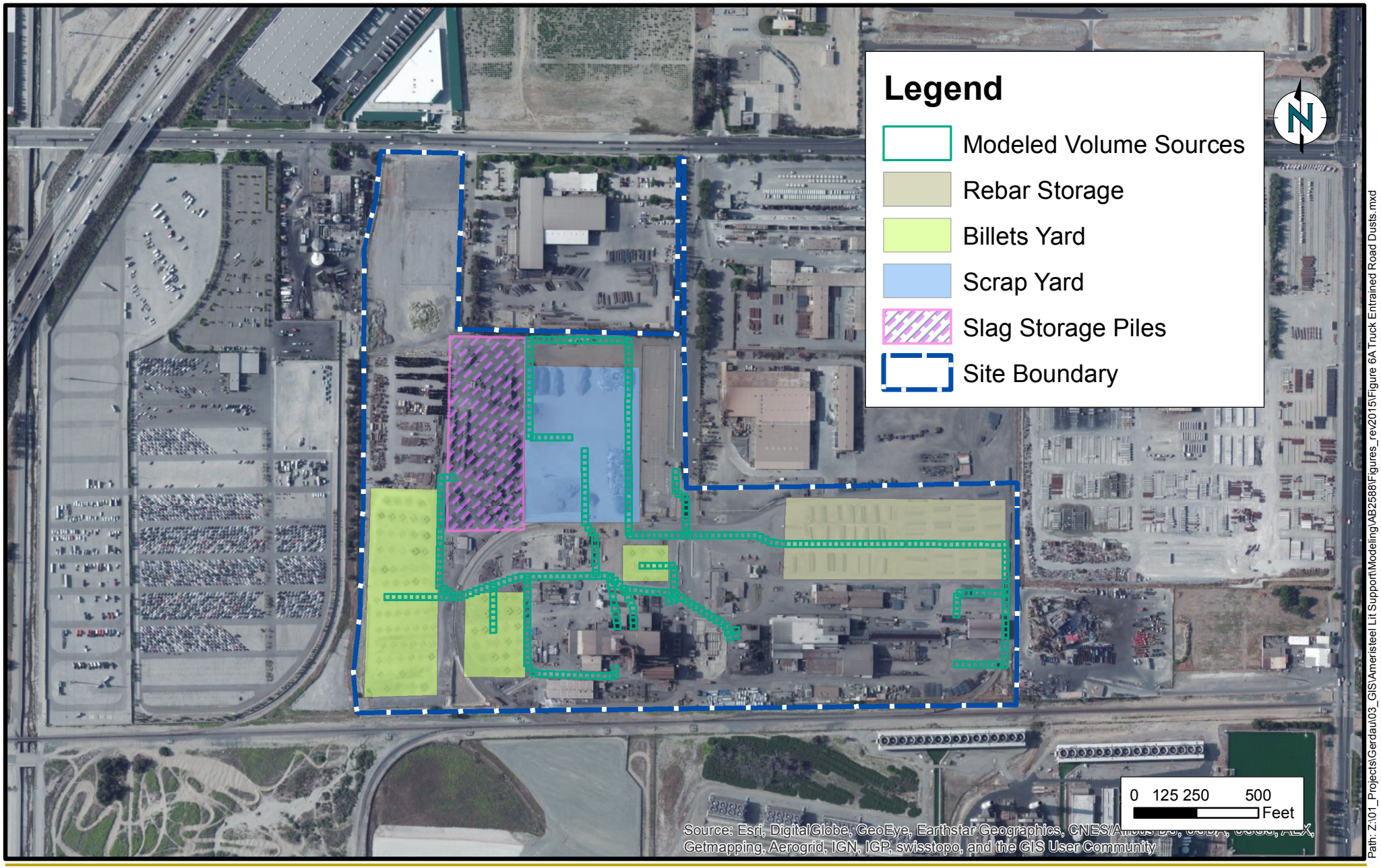
UPDATED BY: XZLiu | DATE: 9/6/2013

Modeled Area Source for Toxic Air Contaminants from Portable Engines

12459-B Arrow Route
Rancho Cucamonga, California

Figure
5

PROJECT: 05-28453C



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 6A Truck Entrained Road Dusts.mxd

ENVIRON

UPDATED BY: XZLiu | DATE: 1/8/2015

Modeled Volume Sources for Toxic Air Contaminants from Entrained Road Dusts

12459-B Arrow Route
Rancho Cucamonga, California

Figure
6A

PROJECT: 05-28453C

ENVIRON

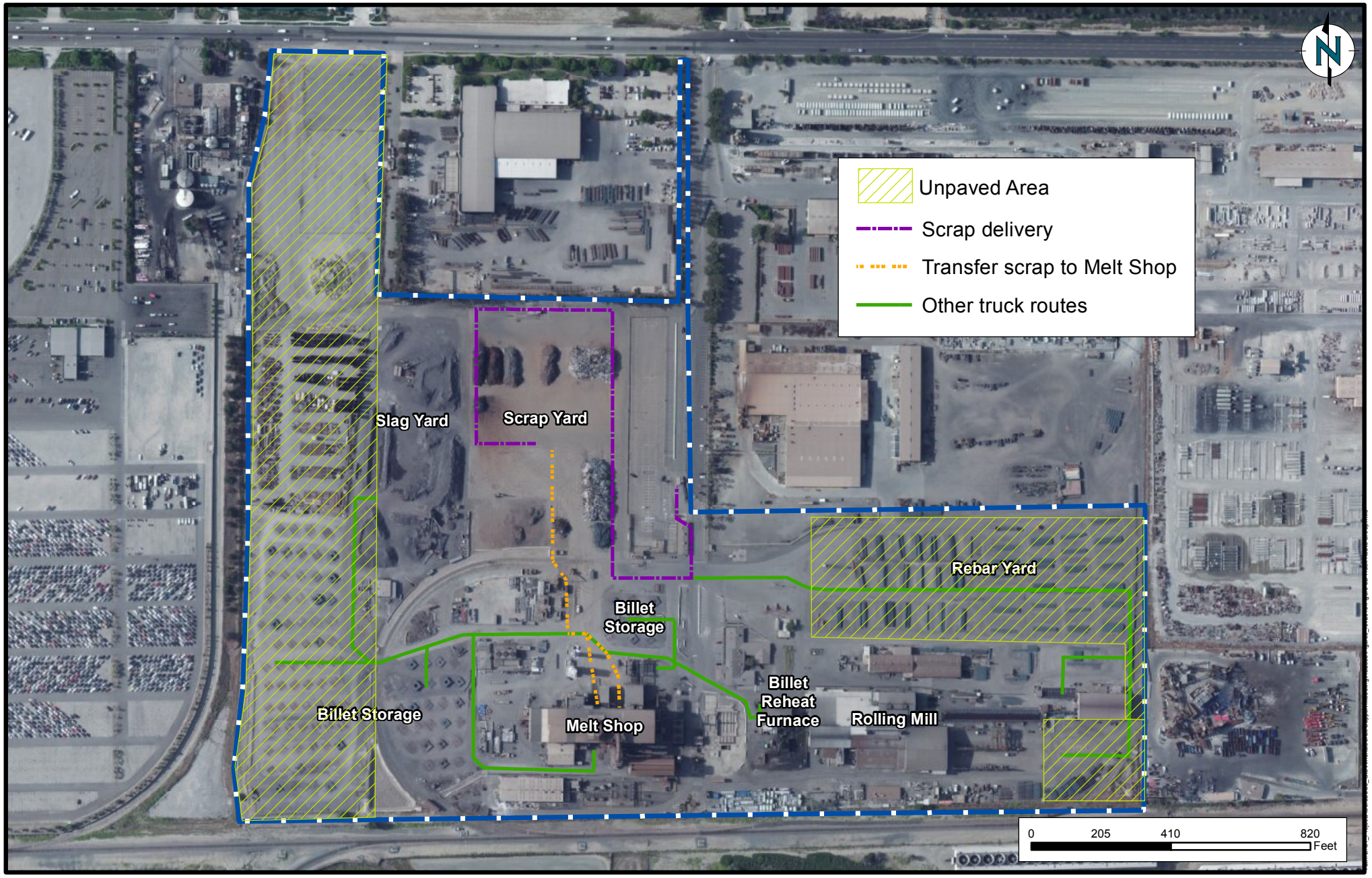
Truck Travel Pathways

12459-B Arrow Route
Rancho Cucamonga, California

Figure
6B

UPDATED BY: Slee | DATE: 1/8/2015 | PROJECT: 05-28453C

Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 6A Truck Routes.mxd



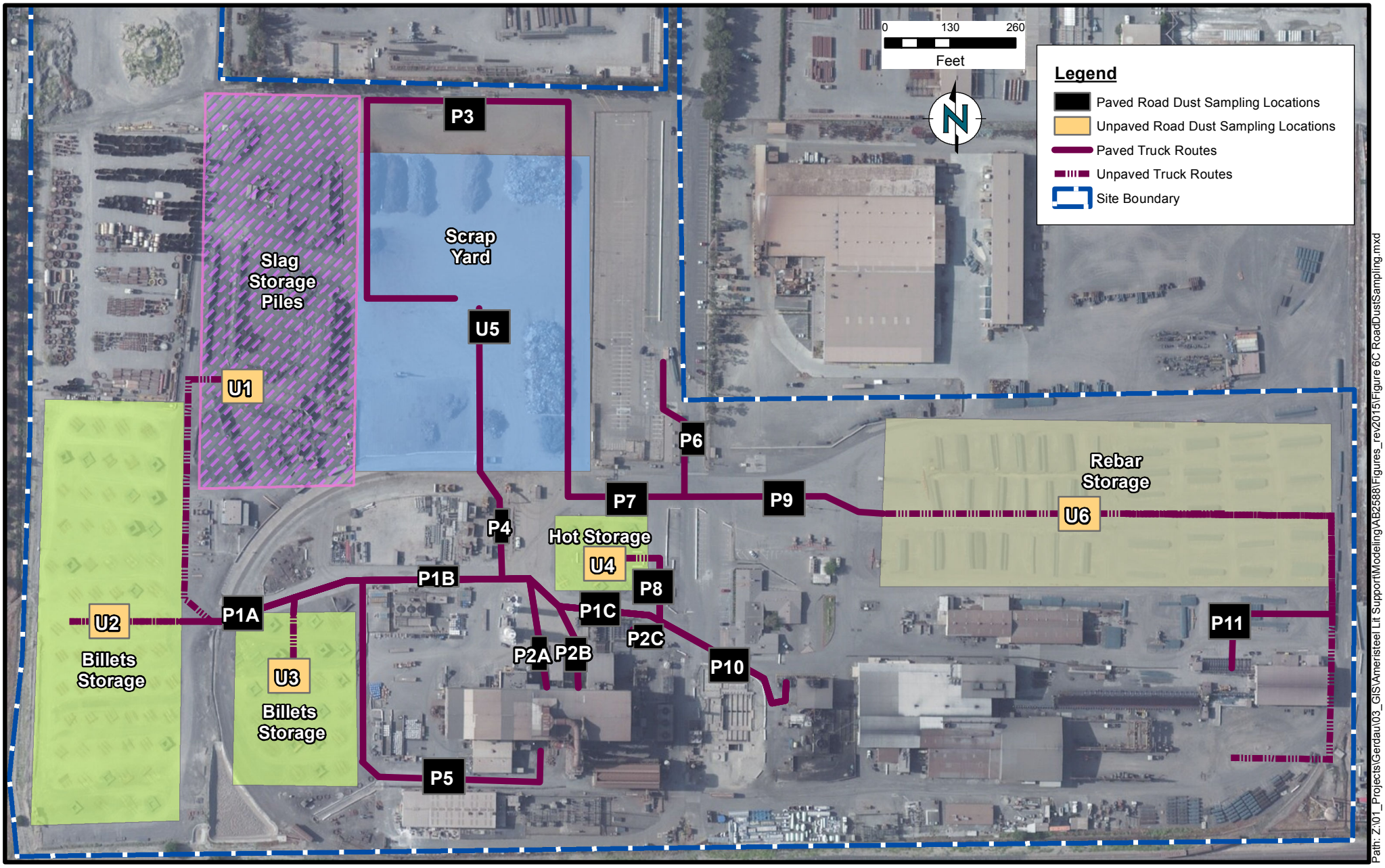
ENVIRON

Truck Route Groups

12459-B Arrow Route
Rancho Cucamonga, California

Figure
6C

UPDATED BY: XZLiu | DATE: 1/8/2015 | PROJECT: 05-28453E



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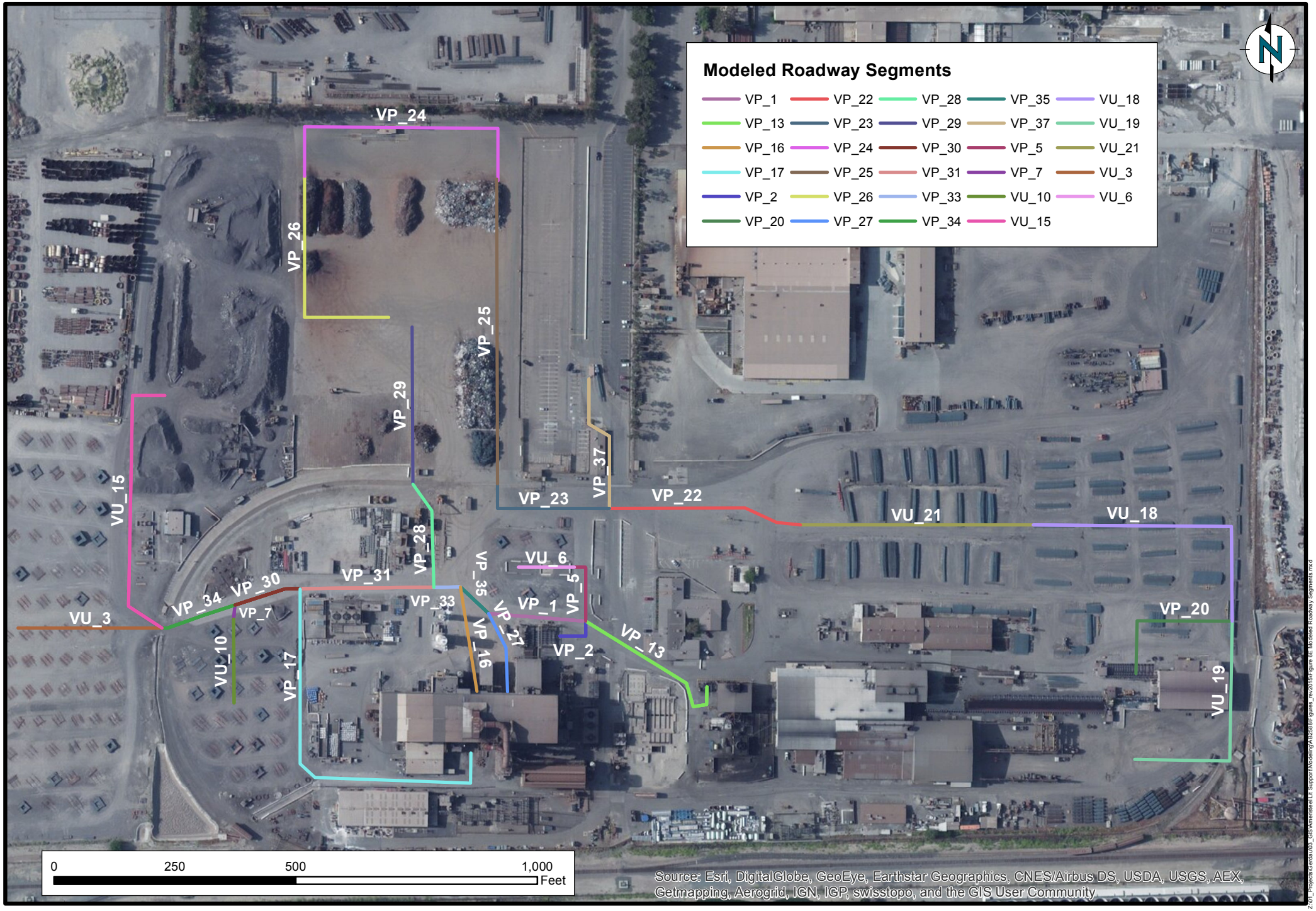
ENVIRON

Road Dust Sampling Locations

12459-B Arrow Route
Rancho Cucamonga, California

Figure
6D

DRAFTED BY: SLee/MGrover | Date: 1/8/2015 | PROJECT: 05-28453E



ENVIRON

DRAFTED BY: SLee

Date: 1/8/2015

Modeled Roadway Segements for the Entrained Road Dust Emissions

12459-B Arrow Route
Rancho Cucamonga, California

Figure
6E

PROJECT: 05-28453E

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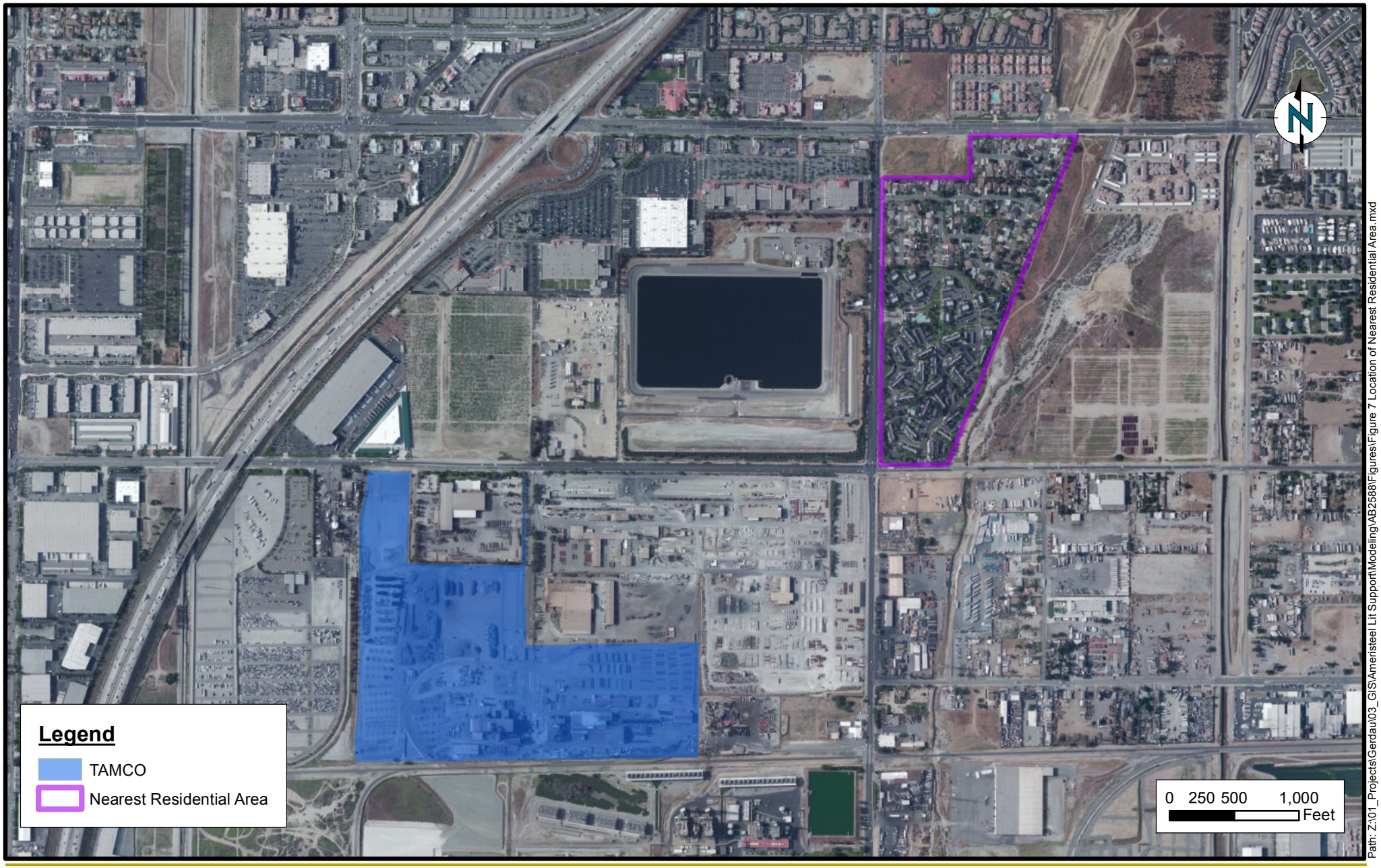


Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures\Figure 7 Location of Nearest Residential Area.mxd

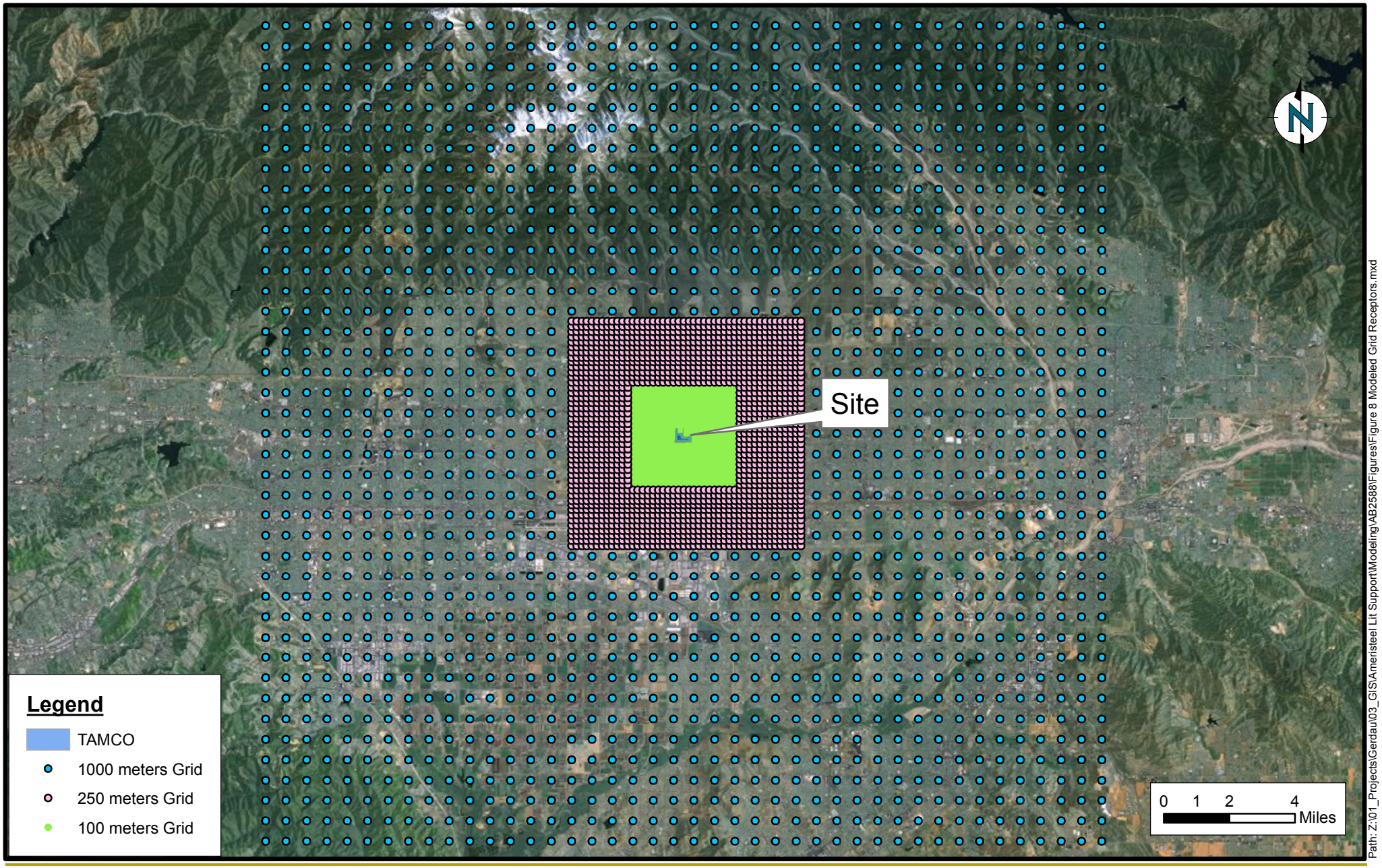
ENVIRON

Location of Nearest Residential Area

12459-B Arrow Route
Rancho Cucamonga, California

Figure
7

UPDATED BY: XZLiu | DATE: 9/6/2013 | PROJECT: 05-28453C



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures\Figure 8 Modeled Grid Receptors.mxd

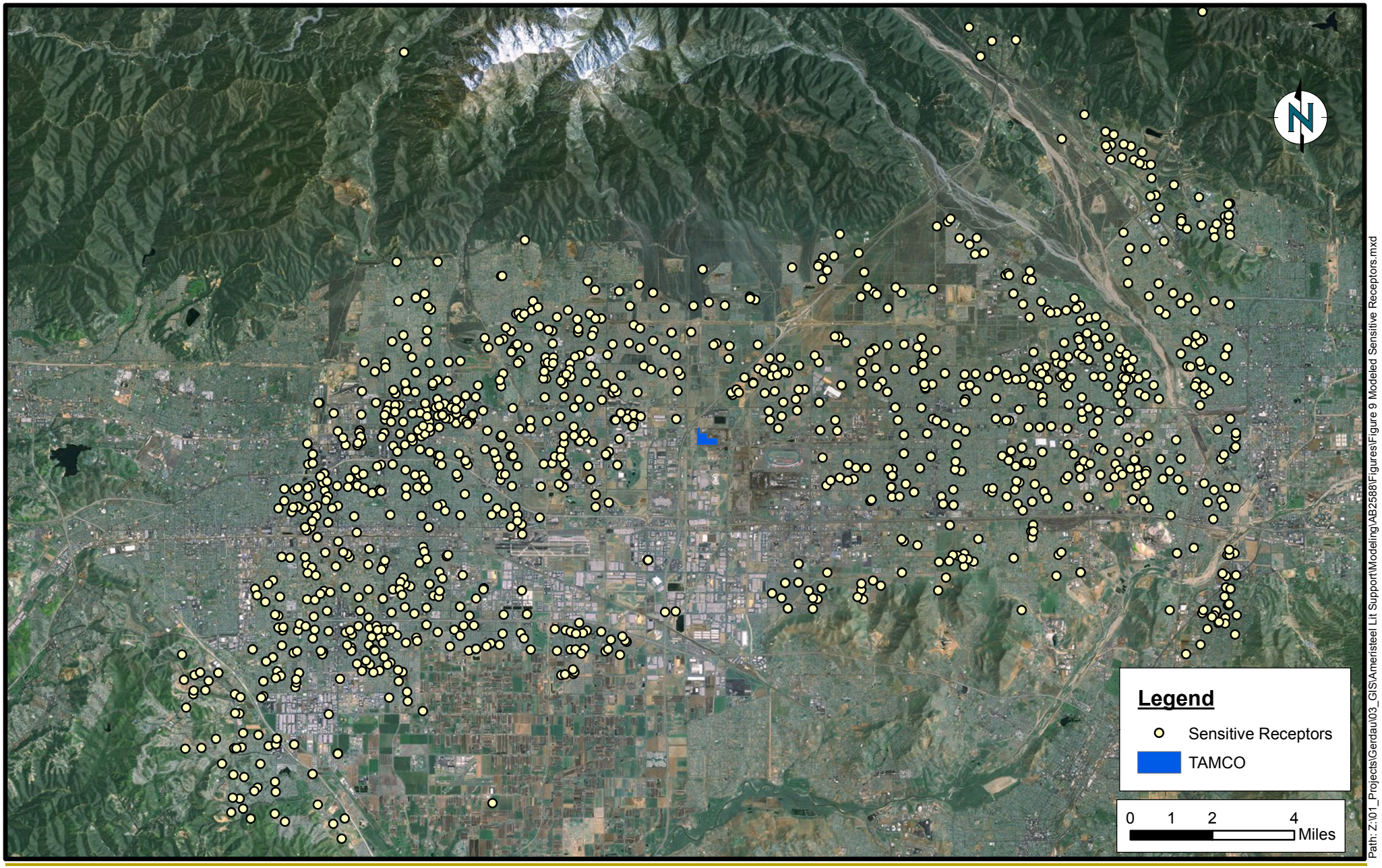
ENVIRON

Modeled Grid Receptors

12459-B Arrow Route
Rancho Cucamonga, California

Figure
8

UPDATED BY: XZLiu | DATE: 9/6/2013 | PROJECT: 05-28453C



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures\Figure 9 Modeled Sensitive Receptors.mxd

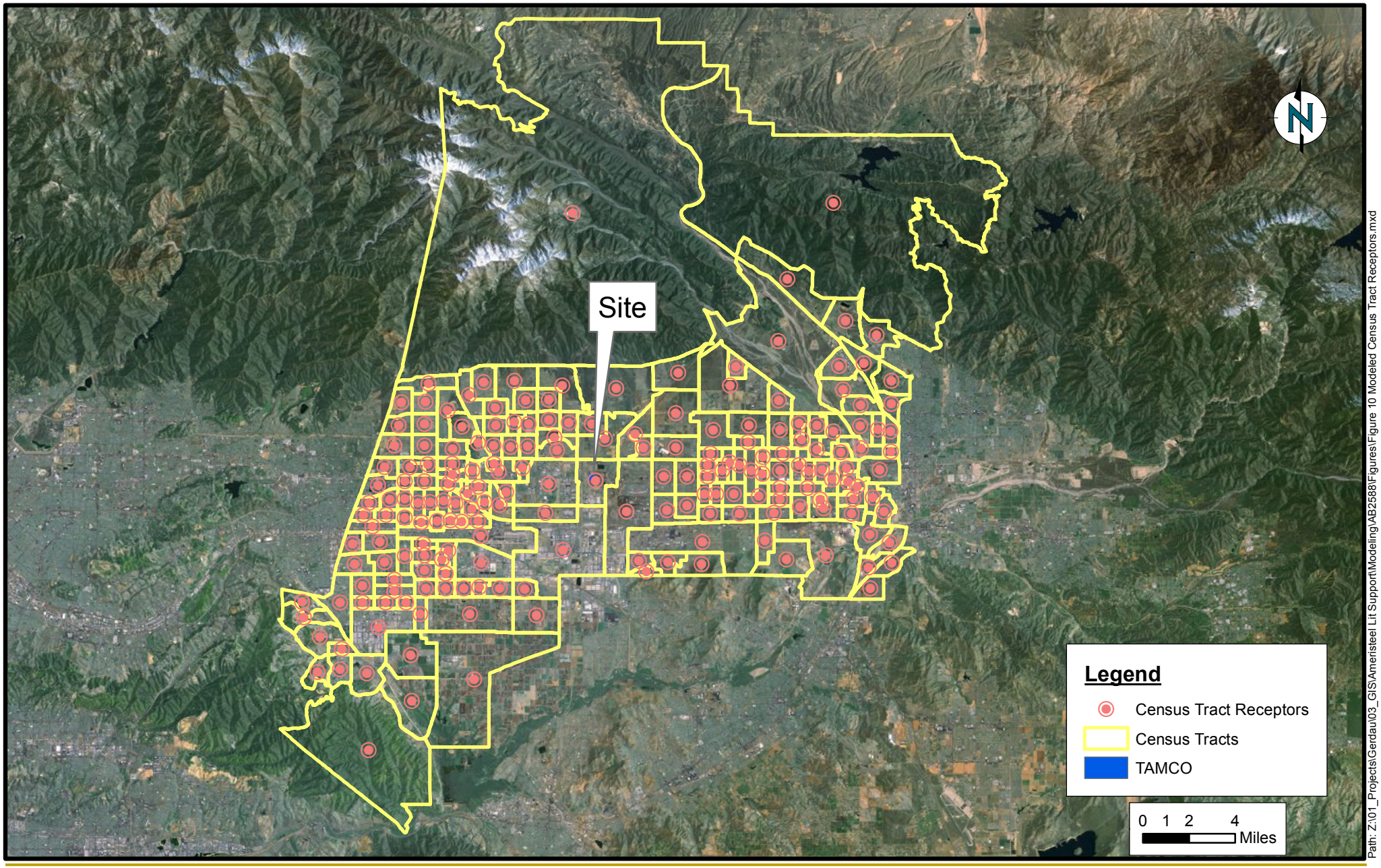
ENVIRON

Modeled Sensitive Receptors

12459-B Arrow Route
Rancho Cucamonga, California

Figure
9

UPDATED BY: XZLiu | DATE: 9/4/2013 | PROJECT: 05-28453C



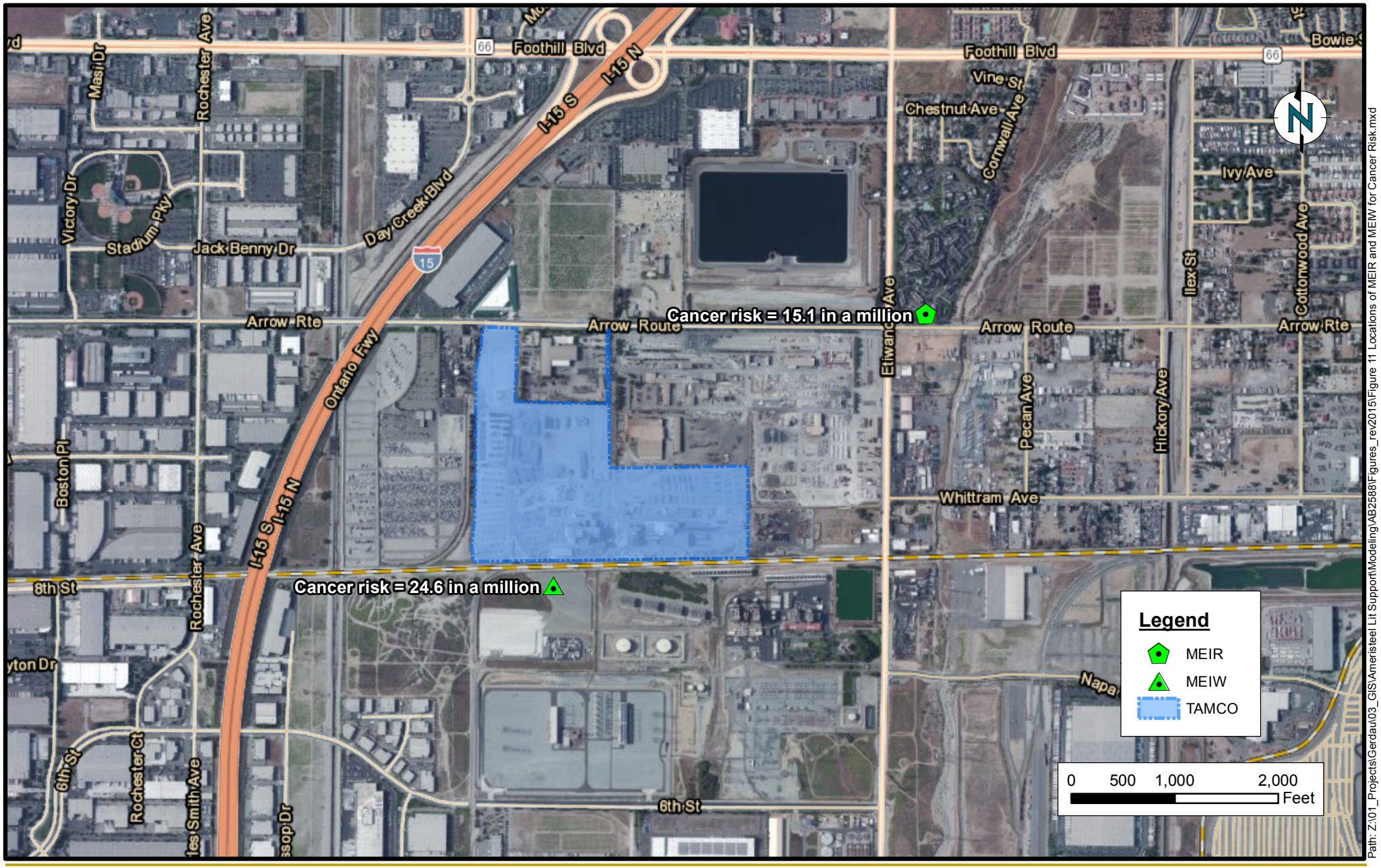
ENVIRON

Modeled Census Tract Receptors

12459-B Arrow Route
Rancho Cucamonga, California

Figure
10

UPDATED BY: XZLiu | DATE: 9/6/2013 | PROJECT: 05-28453C



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 11 Locations of MEIR and MEIW for Cancer Risk.mxd

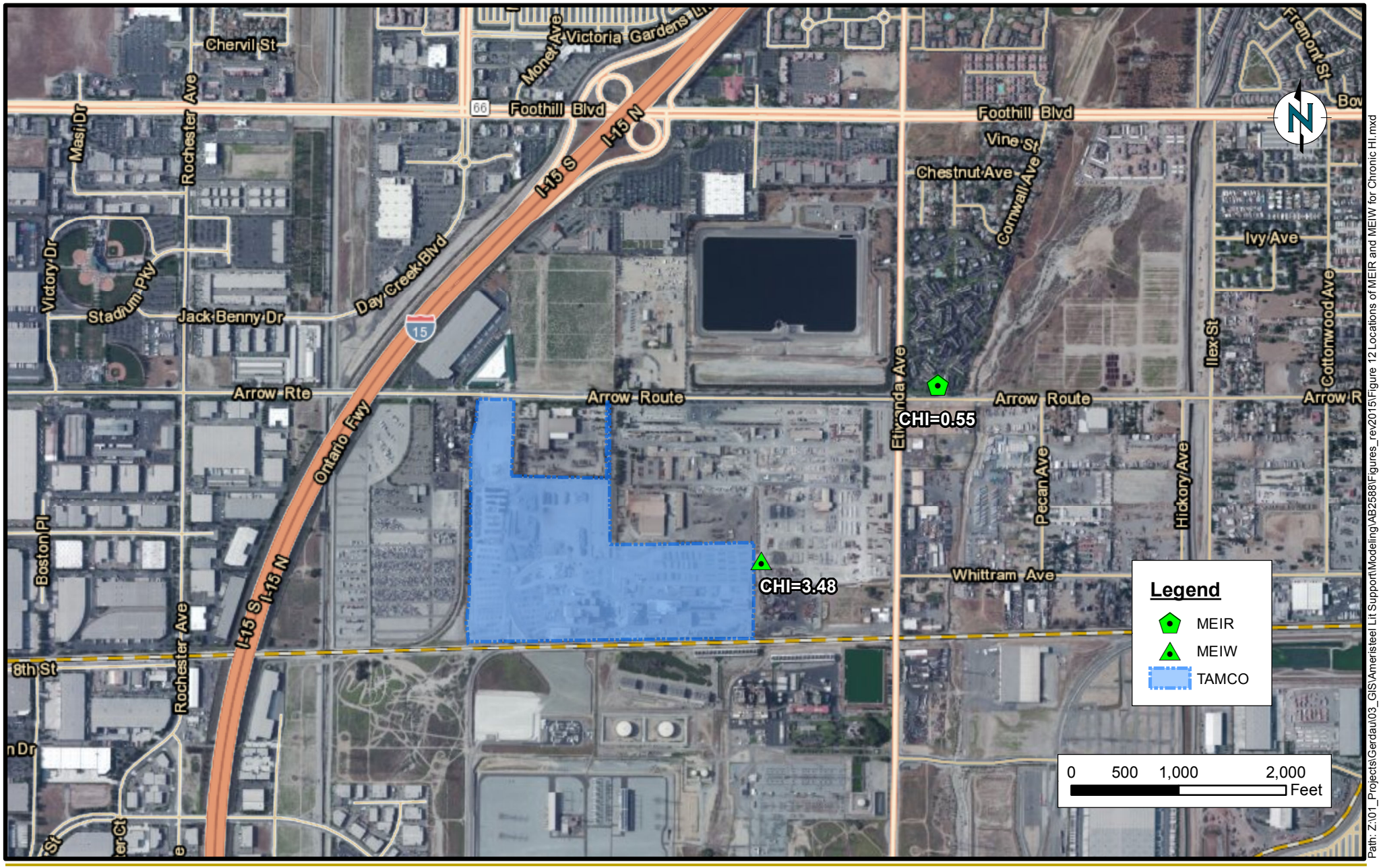
ENVIRON

Locations of MEIR and MEIW for Cancer Risk

12459-B Arrow Route
Rancho Cucamonga, California

Figure
11

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 12 Locations of MEIR and MEIW for Chronic HI.mxd

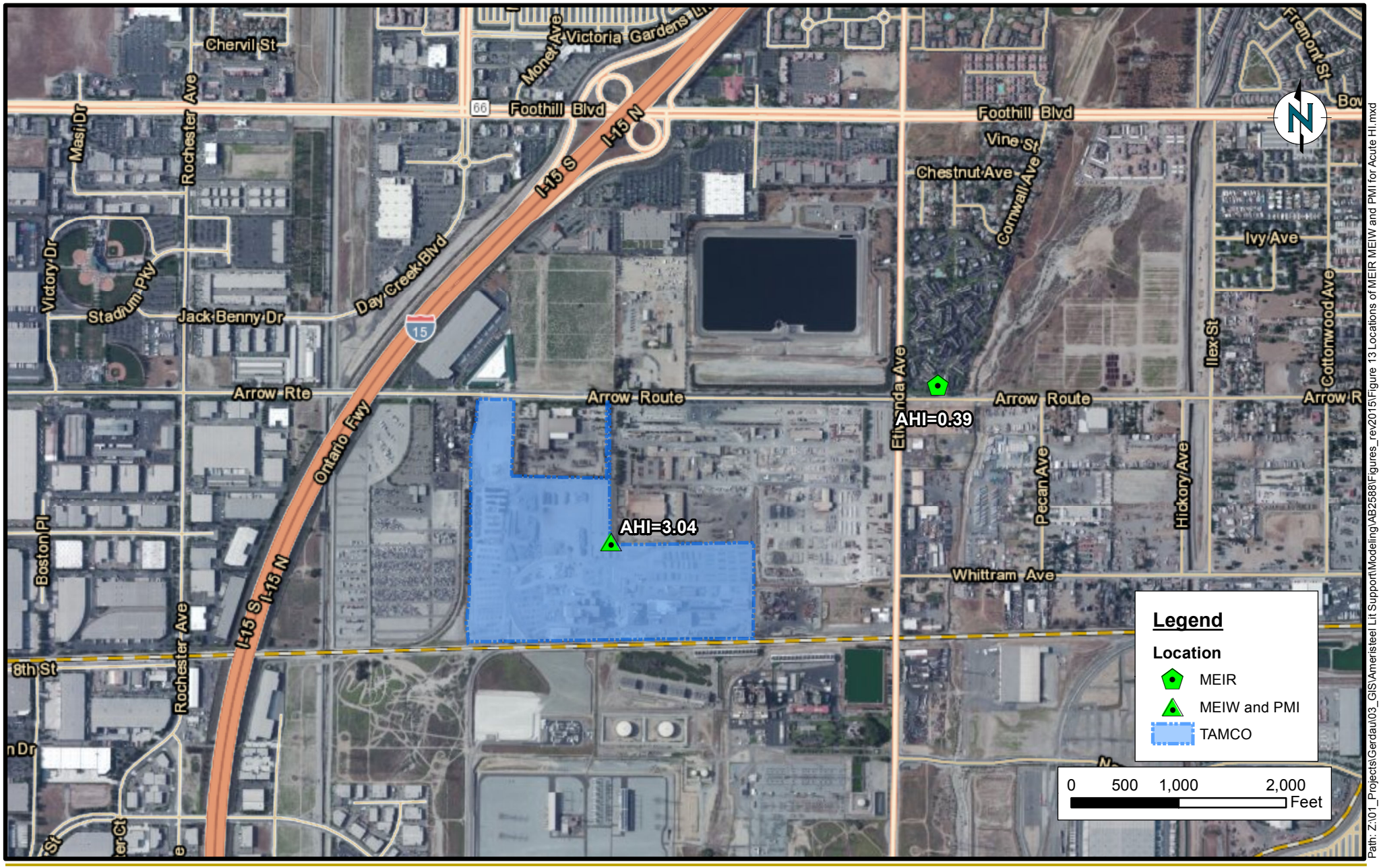
ENVIRON

Locations of MEIR and MEIW for Chronic Hazard Index

12459-B Arrow Route
Rancho Cucamonga, California

Figure
12

UPDATED BY: XZLiu | DATE: 4/21/2014 | PROJECT: 05-28453E



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 13 Locations of MEIR MEIW and PMI for Acute HI.mxd

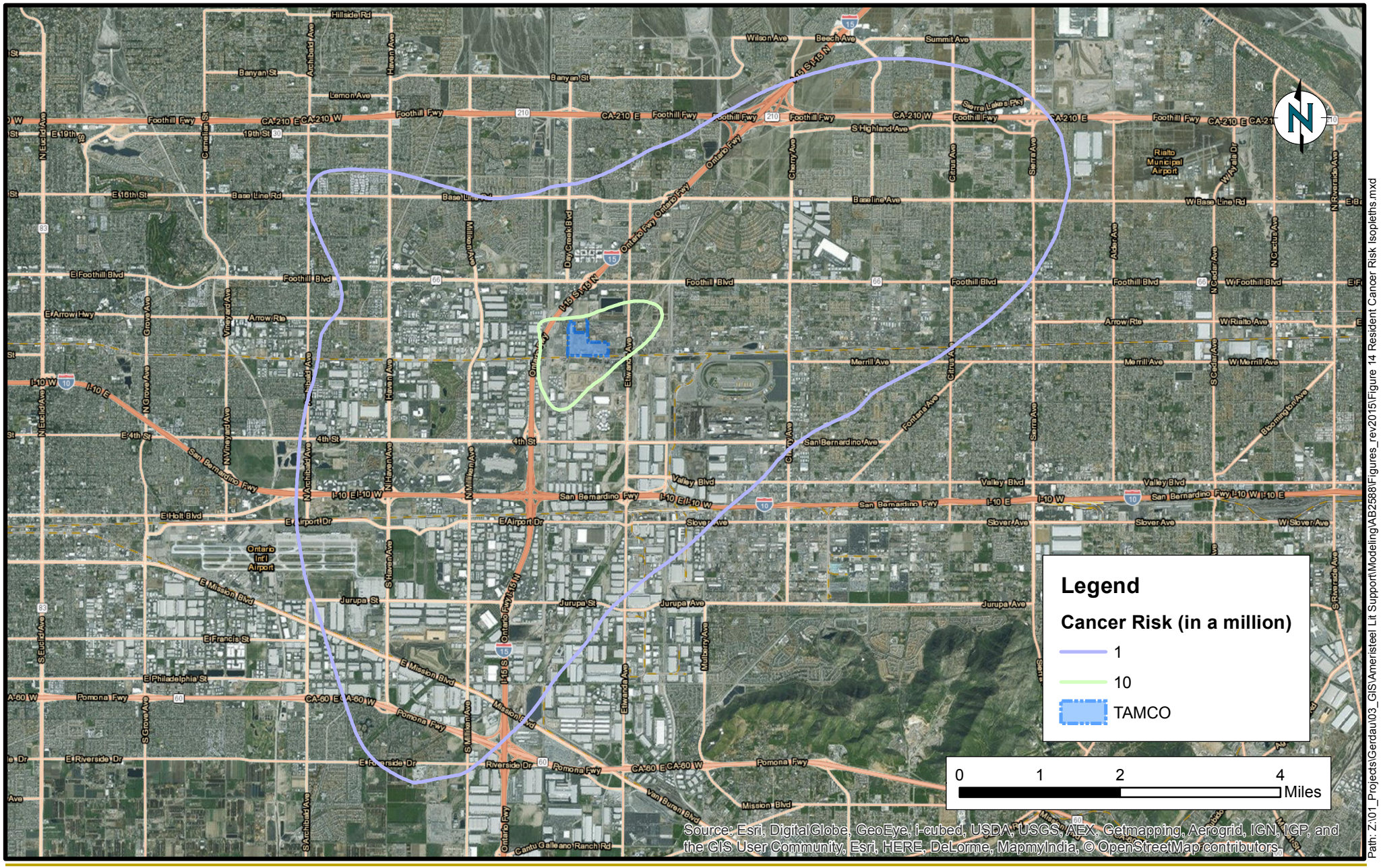
ENVIRON

Locations of MEIR, MEIW, and PMI for Acute Hazard Index

12459-B Arrow Route
Rancho Cucamonga, California

Figure
13

UPDATED BY: XZLiu | DATE: 4/21/2014 | PROJECT: 05-28453E



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 14 Resident Cancer Risk Isopleths.mxd

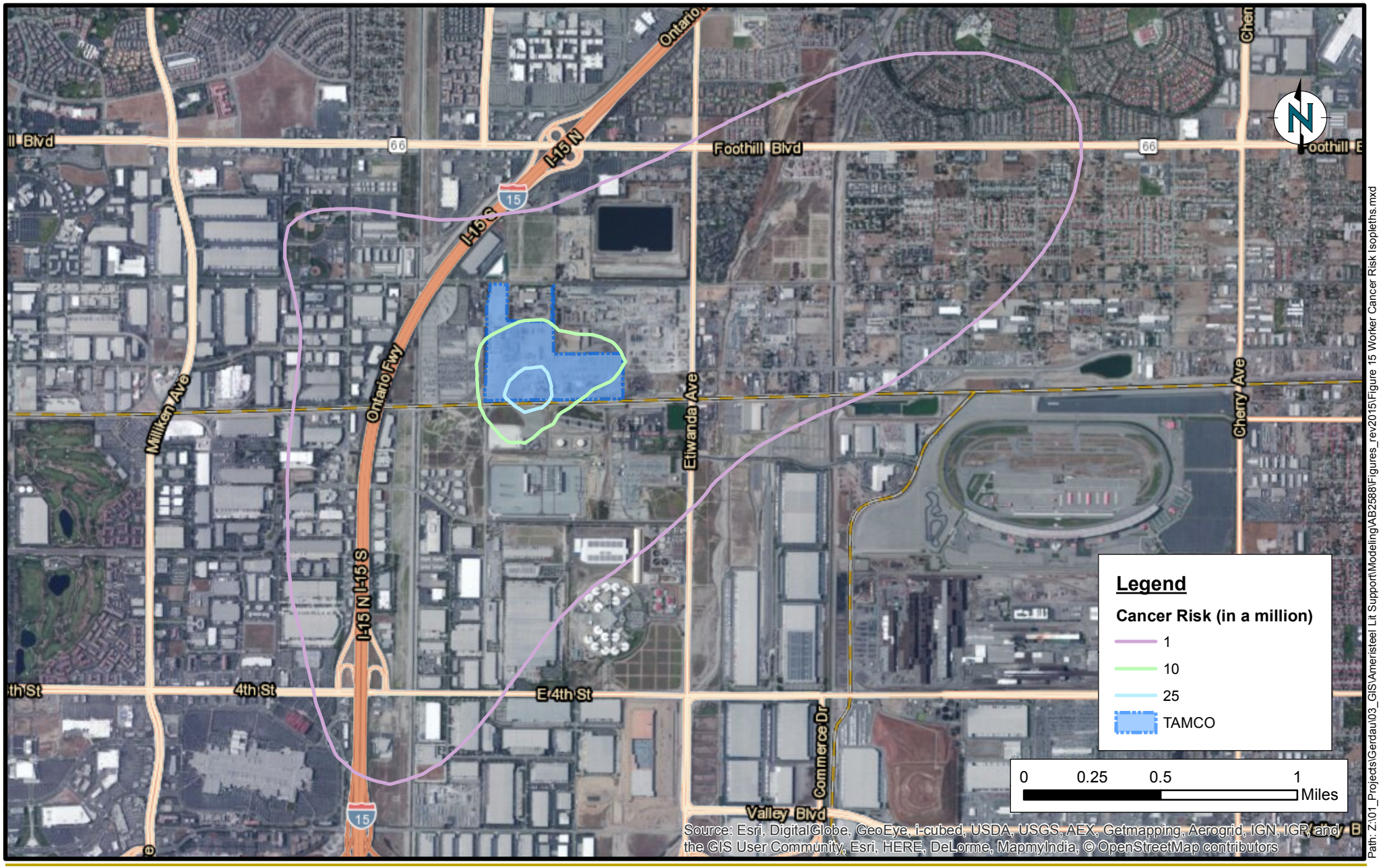
ENVIRON

Residential Cancer Risk Isopleths

12459-B Arrow Route
Rancho Cucamonga, California

Figure
14

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E



Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 15 Worker Cancer Risk Isopleths.mxd

ENVIRON

Worker Cancer Risk Isopleths

12459-B Arrow Route
Rancho Cucamonga, California

Figure
15

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E

Path: Z:\01_Projects\Gerdau\03_GIS\Ameristeel Lit Support\Modeling\AB2588\Figures_rev2015\Figure 16 Resident Chronic HI Isopleths.mxd

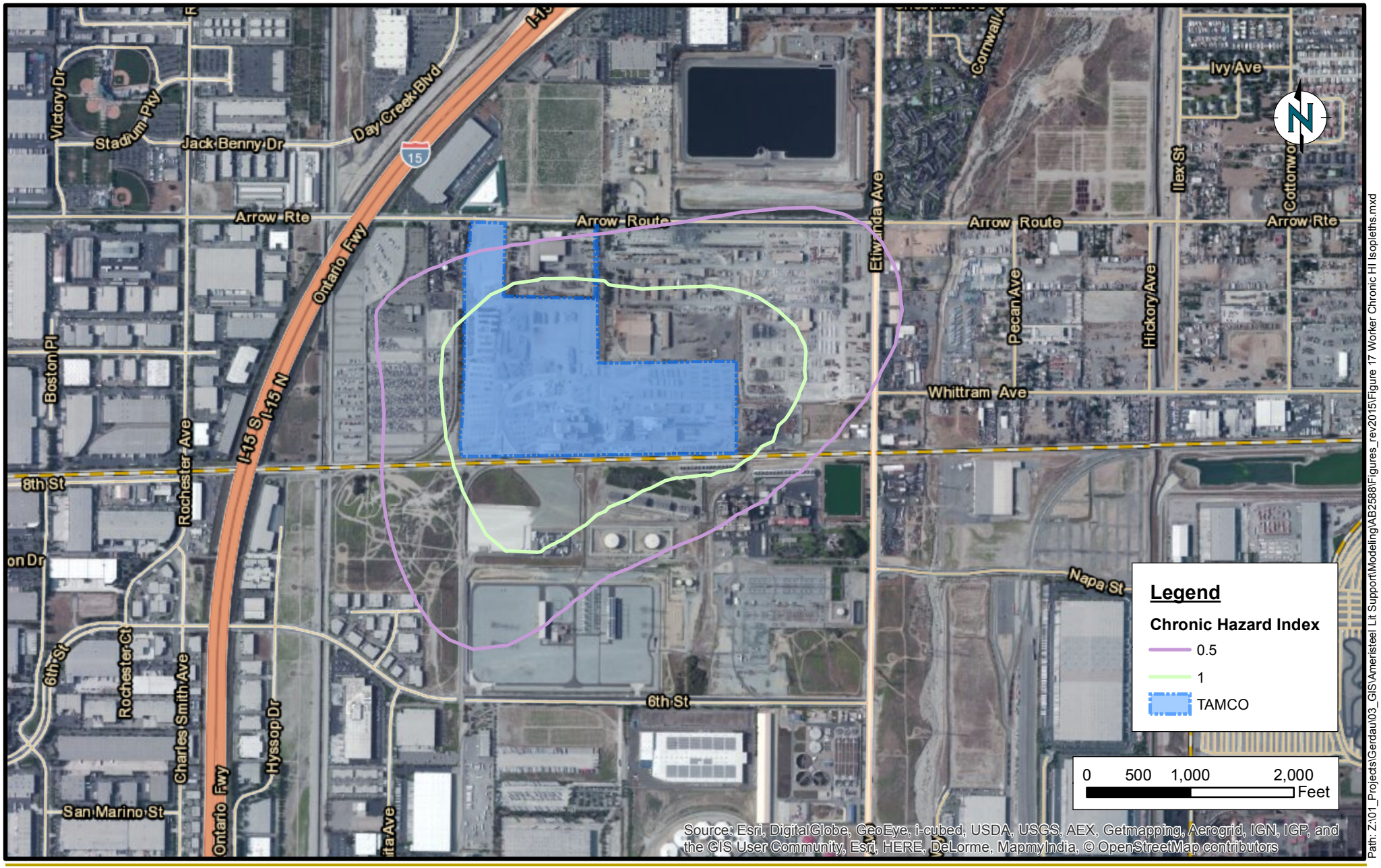
ENVIRON

Residential Chronic Hazard Index Isopleths

12459-B Arrow Route
Rancho Cucamonga, California

Figure
16

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E



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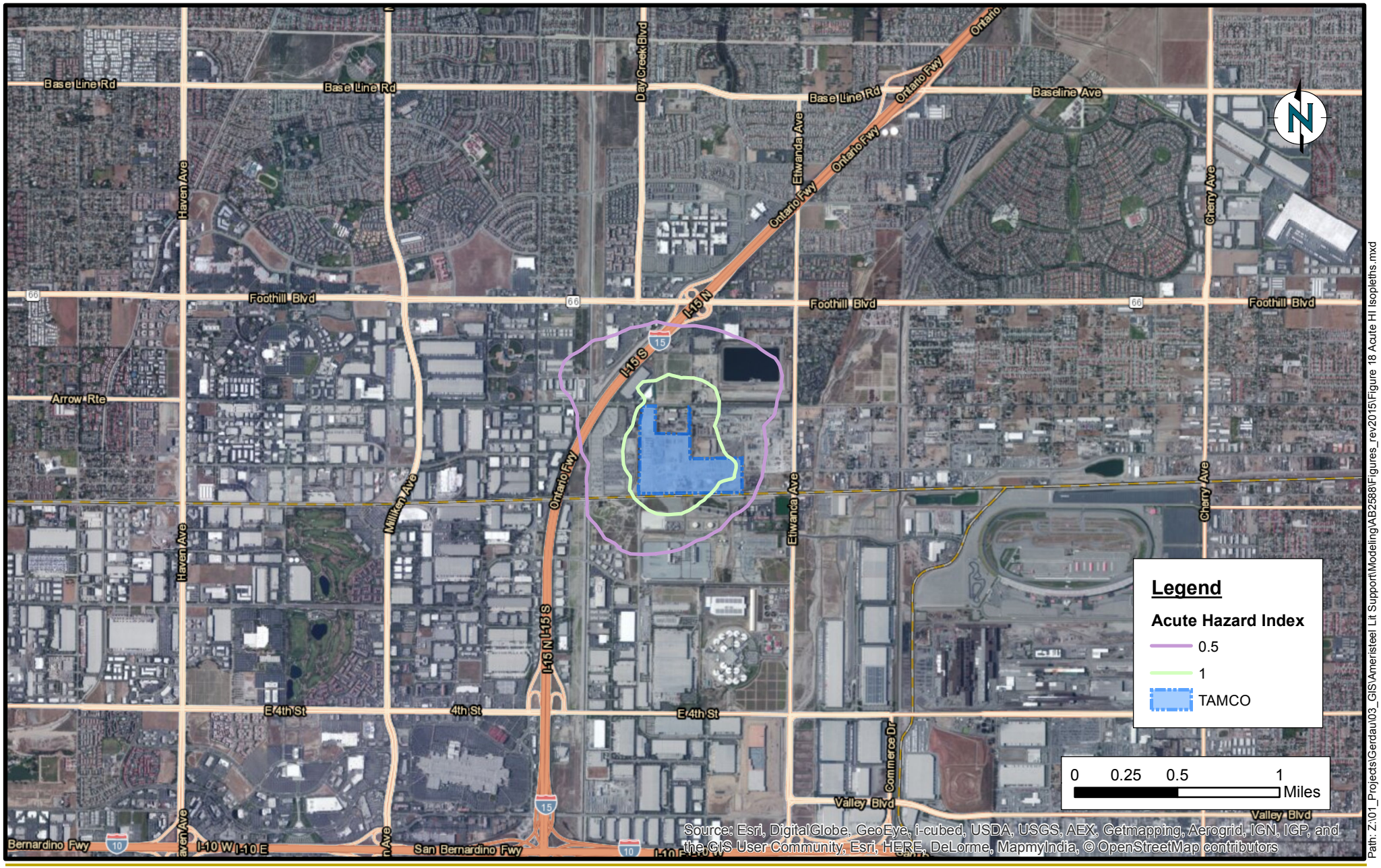
ENVIRON

Worker Chronic Hazard Index Isopleths

12459-B Arrow Route
Rancho Cucamonga, California

Figure
17

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E



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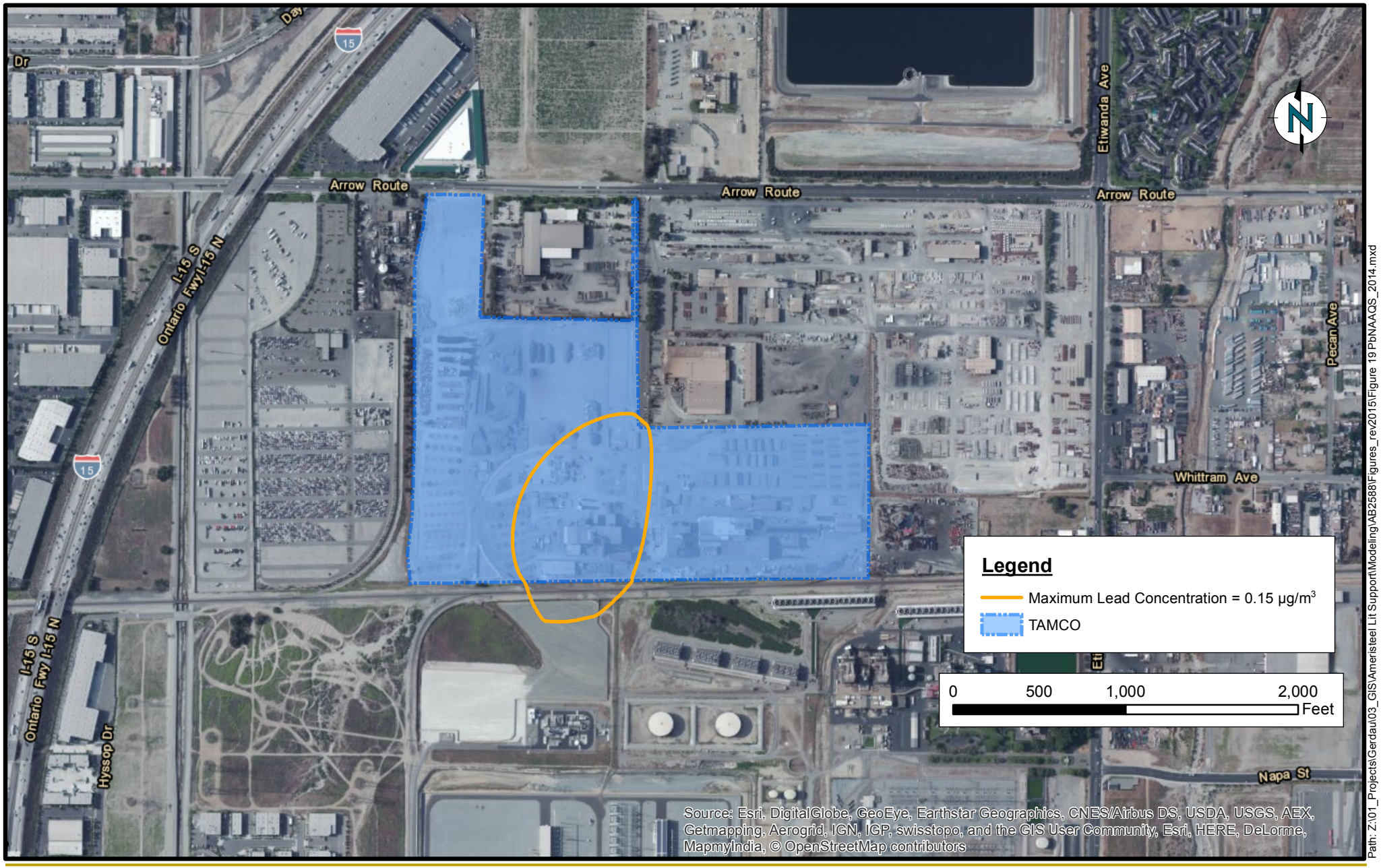
ENVIRON

Acute Hazard Index Isopleths

12459-B Arrow Route
Rancho Cucamonga, California

Figure
18

UPDATED BY: XZLiu | DATE: 1/14/2015 | PROJECT: 05-28453E



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ENVIRON

Lead Concentration Contour - Rolling 3-month Averages

12459-B Arrow Route
Rancho Cucamonga, California

Figure
19

UPDATED BY: XZLIU | DATE: 1/19/2015 | PROJECT: 05-28453e

Appendix A

Responses to the SCAQMD Comments on the HRA

Appendix A
Responses to SCAQMD comments on the Health Risk Assessment

1) Facility Throughput

The HRA assumes a scrap throughput rate of 247,000 tons per year based on reported throughput for 2011. In a recent phone call, Jeff Dambrun (October 17, 2014) from Gerdau indicated that the facility throughput was reduced due to the recent recession, but that recent years have shown a partial rebound. Further, Gerdau is expected to process ~400,000 tons per year in 2015, and that they should reach their permitted capacity of 614,520 tons per year in the near future. The pre-recession average throughput reported in AER reports to SCAQMD is approximately 469,000 tons per year from 2000 through 2008 with a peak of 541,000 tons per year in 2003-2004 (see chart below). The revised HRA should continue to use the 2011 calendar year emission inventory, however because of the historical and projected future higher throughputs (and emissions), the risk reduction plan that will be prepared following approval of an HRA should consider utilizing a higher throughput that is more reflective of expected activity. In addition, the AB2588 program is an ongoing process and the SCAQMD staff will be continually prioritizing facilities, including TAMCO.[1] Selecting risk reduction options that maximize risk reductions in anticipation of throughput increases relative to 2011 may minimize and even avoid additional risk reductions needed under the AB2588 program. This historical variation in throughput/emissions should also be discussed during public notification. In addition, OEHHA has proposed new risk assessment guidelines that will increase risks due to increased understanding of how pollutants affect children. Although this risk assessment does not need to utilize these new draft guidelines, future risk based actions required from TAMCO and other facilities will need to utilize these updated procedures beginning sometime next year. SCAQMD staff recommends that facilities begin to plan for this change now.

Responses

The emission inventory used in the revised HRA is based on the 2011 throughput as directed by the SCAQMD and as required by AB2588. Gerdau is aware that 2011 is one of the lower production years historically and hopes to increase the production in the near future. Thus, Gerdau has filed a permit application to construct a new, larger baghouse replace the existing ridge vent baghouse, with the request to increase the feed rate at 80,000 tons scrap per month if the emissions meet expectations. ENVIRON will address the changes in risk as a result of the throughput increase, the new baghouse, and the proposed new OEHHA risk assessment guidelines in the Risk Reduction Plan.

2) Dioxins and Furans Source Test

The HRA uses a dioxins and furans source test conducted at Gerdau's facility in Ontario Canada. Appendix A in the HRA contains this source test; however, the HRA does not contain sufficient information to determine if the operating conditions of this source test are similar to conditions that occur at the Gerdau facility in Rancho Cucamonga. The revised HRA should provide a discussion of conditions at each facility and determine if conditions are sufficiently similar at the two facilities. In particular, the revised HRA should discuss:

a) the quality/grade of scrap used in the Ontario source test and whether the feedstock is similar to feedstock for the Rancho Cucamonga facility, and

Responses

To be provided later.

b) how the furnace operating conditions at the Ontario facility during the dioxins/furans source test compare to operating conditions at the Rancho Cucamonga facility (e.g., furnace size, stack height, diameter, operating temperature, controls, etc.)

Responses

To be provided later.

c) The dioxins/furans emissions should be adjusted to account for standard temperatures based on the comments within the SCAQMD Evaluation of Source Test Report dated July 3, 2014.

Responses

ENVIRON has used the updated dioxins and furans emissions in the revised HRA calculated based on the SCAQMD standard temperature of 60°F instead of those calculated based on 77°F (25°C) referenced in the Canadian source test report. The emission calculations for the updated dioxins and furans are presented in Table B-1b.

d) The Toxicity Equivalency Factors (TEF's) used in the dioxins source test do not correspond to TEF's promulgated by OEHHA for use in Hot Spots Assessments, and are too high by approximately 10% on average. The TEF's should be updated using Appendix C of the Cancer Potency Factors Technical Support Document.

Responses

In addition to the emission updates to account for the temperature adjustment as described above, ENVIRON has revised the Toxicity Equivalent (TEQ) emission factors for dioxins and furans using the TEF_{WHO-05} promulgated by OEHHA for use in risk assessments conducted under the Air Toxics Hot Spots program. The emission calculations for the updated dioxins and furans are presented in Table B-1b.

3) Non-Carcinogenic Health Impacts from Lead

a) The HRA did not evaluate non-carcinogenic impacts from lead. Non-cancer health risks from lead are not assessed using the standard Hazard Index approach. Instead, in 2001 ARB prepared an alternate risk assessment methodology, *Risk Management Guidelines for New, Modified, and Existing Sources of Lead* (Lead RM Guidelines), which is referred to in Appendix F of the OEHHA *Air Toxics Hot Spots Program Risk Assessment Guidelines* (2003). Traditionally, this guidance should be followed for lead-emitting facilities conducting an AB 2588 HRA. However, the Lead RM Guidelines were issued prior to the development of the lead National Ambient Air Quality Standard (NAAQS) in 2008. This newer federal NAAQS (0.15 $\mu g/m^3$ lead averaged over a rolling 3-month average) is more stringent than the state AAQS, or the pre-2008 lead NAAQS that were in force when the Lead RM Guidelines were issued.

Due to these more recent developments since the Lead RM Guidelines were issued, the revised HRA should determine the areas where emissions from the facility have the potential to exceed 0.15 µg/m^3 (averaged over a rolling 3-month period) anywhere offsite. We note that recent monitoring conducted onsite near the baghouse has found rolling 3-month average concentrations that exceed the 0.15 µg/m^3 level.

In order to ensure our air basin meets the 2008 NAAQS, SCAQMD staff is developing a rule (1420.2) that will address lead emissions from medium sources. This rule will address lead emissions from facilities, including Gerdau. This rule is currently scheduled to be considered by the SCAQMD Governing Board in February, 2014.

Responses

ENVIRON has conducted lead NAAQS modeling to calculate rolling 3-month average lead concentrations. Figure 19 shows the offsite area that exceeds the 2008 lead NAQQS of 0.15 µg/m^3.

ENVIRON used AERMOD Version 14134 to estimate the monthly average lead concentrations at boundary receptors and grid receptors around the facility. ENVIRON assumes that emission rates for the EAF operational sources are linear with fan amps, as described in Section 3.3 of the revised HRA. To account for the seasonal variation of emission rates for EAF in 2011, we set up an hourly emission rate file in AERMOD based on the fraction of maximum hourly fan amps multiplied by the maximum hourly emission factor from the source test for EAF operational sources. AERMOD models the emission rates for each hour based on these variable emission rates and calculate the monthly average. Then we used LEADPOST to calculate the rolling 3-month average and report the maximum rolling 3-mnth average at each receptor. For other sources, we conservatively used maximum hourly emission rates for 24 hours per day and 7 days per week operation. Figure 19 shows the contour of 0.15 µg/m3 maximum rolling 3-month average lead concentrations.

4) Clarification of Text in HRA

a) Page 21 of the HRA states that several proposed modifications "would reduce the fugitive TAC emissions from the Melt Shop close to zero." While the proposed modification should reduce TAC emissions, significant fugitive emissions from this building will remain without further mitigation. In particular, based on observations from SCAQMD staff's site visit, the slag loading operation on the north side of the Melt Shop has significant visible fugitive emissions that would not be controlled by the proposed modifications. Additional evaluation of potential mitigation measures will need to be discussed in the Risk Reduction Plan that will be required based on the risks presented in this draft HRA.

Responses

To clarify, ENVIRON does include fugitive emissions from various onsite operations such as the Melt Shop, as well as the slag processing and crushing, and scrap handling as described in Section 2.2.2 of the HRA. The new baghouse has substantially higher airflow, and the project encloses the slag loading operation and other parts of the melt shop. There are many other improvements to the capture system. We therefore expect that the proposed new baghouse and

enclosure system would reduce the fugitive emissions from the Melt Shop close to zero because the in-draft velocities will be far greater than 300 feet per minute (fpm) and provide complete capture of fugitive emissions within the Melt Shop for venting to the new baghouse for emission control. The table below shows the velocities during the three different wind conditions dealt with in the Melt Shop Enclosure Practice, which requires that the TAMCO operators close more openings as the wind speeds get higher.

Parameter	**Normal Weather** **(Wind gusts < 10mph)**	**Moderate Wind** **(Sustained Winds > 10 mph; gusts > 25 mph)**	**Extreme Wind** **(Sustained Winds > 25 mph; gusts > 30 mph)**
Baghouse Flow, acfm	1,200,000	1,200,000	1,200,000
Inward flow through open areas, acfm	756,594	756,594	756,594
Open Area, ft^2	1,189	973	555
In-draft Velocity, fpm	636	778	1,363

b) The revised HRA should include a description of the Melt Shop Enclosure Policy mentioned on page 21, how it works, and how it is implemented and enforced.

Responses

As part of the Rule 1420 Compliance Plan, TAMCO has implemented the Melt Shop Enclosure Practice (Attachment A1 of this Appendix) as one of the housekeeping measures to help control fugitive emissions from the Melt Shop. By implementing the Practice, TAMCO is maintaining the doorways in the Melt Shop so that the open area generates an inward velocity when the Electric Arc Furnace (EAF) is operating in order to contain the EAF particulate emissions within the Melt Shop where they will be vented to the baghouse. Door positions and wind speed are recorded once at the start of each operating shift and each time the door positions are changed due to significant changes in wind conditions.

The three ladle heaters have been modified to vent outside the Melt Shop, which removes flow and more significantly heat into the Melt Shop and allows the existing baghouse to better control fugitive emissions from the Melt Shop.

c) Emergency engine (D45) is not mentioned on page 6 of the amended HRA. The revised HRA should include this source in the text.

Responses

ENVIRON has updated the text in Section 2.2.1 of the revised HRA to include the discussion of the natural gas emergency engine (D45).

d) In the revised HRA, emergency diesel engines should be given an acronym that is different from other diesel engines. DICE should refer to diesel engines included in the final risk values used to determine exceedance of AB2588 thresholds, and EGEN or Emergency DICE should refer to emergency diesel engines whose risk is calculated, but separated from comparison against AB2588 thresholds. This terminology should be

consistent throughout the text of the HRA, the emission calculations, tables, and dispersion modeling files.

Responses

ENVIRON has made a global change in the revised HRA to use DICE for Rule 219 exempt diesel engines and Emergency DICE for emergency diesel engines.

e) In the section 5.2 “Maximally Exposed Individual Worker”, this paragraph instead describes the residential cancer risk. The revised HRA should clarify this text.

Responses

ENVIRON has changed the typo MEIR to MEIW and confirmed that the risk presented in the Section 5.2 “Maximally Exposed Individual Worker” describes the worker cancer.

f) Page 21 of the HRA states that the HIC and HIA at the MEIW decrease from 5.00 to 3.76 and from 6.08 to 5.91, respectively. It is unclear how this was determined. The revised HRA should provide the justification for this reduced risk, including any modeling, emission calculations, and monitor-model reconciliation used to achieve this result.

Responses

ENVIRON has included all the emission calculations, the risk reports, and the supporting files for the mitigated scenarios in Appendix F.

g) The revised HRA should discuss if there are any locomotives that operate at any time onsite. If so, the emissions from this onsite locomotive activity must be included in the revised HRA as they are not considered a “motor vehicle”.

Responses

TAMCO does not operate a traditional locomotive. However, it has a diesel Rail King mobile railcar mover to transport cars throughout the facility. The Rail King has rubber tires and rail wheels so it is driven both on stationary rails and off of the rails as needed throughout the facility. It is not used exclusively on stationary tracks. According to the AB2588 regulation and the California Vehicle Code:

> “670. A vehicle" is a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.”

Thus, we did not include the Rail King in the revised HRA.

h) The revised HRA should explain why the baghouse was modeled as 15 point sources while there are only nine baghouse chambers.

Responses

The modeling parameters for the baghouse were kept consistent with past practice. However, given the SCAQMD's request, ENVIRON has modified the baghouse emissions by placing two rows of 8 point sources along the north and south edges of the open top baghouse. Because the middle part of the open-top area (approximately 25% of the top area) does not get much velocity due to the cap located inside the vent, the stack exit velocity was calculated based on the stack flow rate divided by 75% of the open area.

i) In Table 1 of the amended HRA, the DICE diesel exhaust PM is incorrectly reported as 3.79 lbs/year. The correct emission rate is 37.9 lbs/year.

Responses

ENVIRON has corrected this typo in Table 1 of the revised HRA.

j) There are no diesel exhaust PM emissions from the emergency diesel engines in the .EMS file. The .EMS file for the revised HRA should include the diesel exhaust PM emissions from the routine maintenance hours for these emergency diesel engines. For HRA, please calculate health risks with and without emergency diesel engines.

Responses

Previously ENVIRON provided separate .EMS files for the emergency diesel engines (Emergency DICE) only and non-Emergency DICE sources. We have included all sources in a single .EMS file in the revised HRA report. We have also reported risks with and without Emergency DICE in Sections 5.2 and 5.3 and the Tables 6 – 18 of the revised HRA.

5) Emission Rate Calculations

a) In Tables B-11, B-13, the footnotes state that the slag concentrations were based on the average analytical results for slag samples taken in 2005, 2011, and 2012. However, the values in the table and in the modeling only considered the Slag Base of 2012 and ignored the other three 2012 samples (Slag 1, Slag B and Slag C) and averaged this with the values from 2005 and 2011. The revised HRA should include all of the analytical results in the average or provide sufficient justification for why certain analyses should be excluded.

Responses

As shown in Table B-5e of the revised HRA, ENVIRON has revised the calculations for the TAC concentrations used for slag handling and process emissions based on the average analytical results for slag samples taken in 2005, 2011, and 2012, including Slag Base, Slag 1, Slag B and Slag C.

b) The metal concentrations in Table B-5 and Table B-15 were based on the dust sampling conducted in June 2013. The data from this dust sampling is contained in Attachment A9 "Analytical Results for the Road Dust Samples" of the amended HRA. There is no explanation provided for how the raw dust sampling data has been converted into the concentrations and emission rates presented in Table B-5 and B-15. The revised HRA

should include a discussion of how the values in Table B-5 and B-15 were calculated, including with example calculations.

Responses

As discussed in Section 2.2.2 of the HRA, we classified the on-site roadways into three groups of the routes: scrap deliver, scrap transfer to Melt Shop, and other based on the different nature of the hauling materials (raw vs. process products). To calculate the average metal concentration presented in Table B-5d (previous Table B-5) and Table B-15 in the revised HRA, we mapped each road dust sample to a route group according to Table B-5a and averaged the raw metal concentrations in our dust samples (Table B-5c) by the route group. Figure 6B shows different truck routes and Figure 6C shows the truck route groups. Figure 6D shows the locations for the dust samples collected by ENVIRON in 2013.

Next, we assigned the route group to each modeled roadway segment (as shown in Table B-5b) to calculate their TAC emissions from the entrained road dusts using the PM_{10} AP-42 emission factors multiplied by the average metal concentrations of the dust. Figure 6E shows the modeled roadway segments in AERMOD.

c) The calculation for unpaved and paved road emissions in the HRA includes an assumption of precipitation for both long term and short term emission rates. The calculation of short term (i.e. hourly) emission rates in the revised HRA should assume dry conditions for use in estimating acute risks.

Responses

ENVIRON has assumed dry conditions for estimating the maximum hourly mission factors for the paved and unpaved roads in the revised HRA.

d) The HRA assumed that there was 40 rainy days with at least 0.254 mm (0.01 in) of precipitation in 2011. Please provide information to support this assumption.

Responses

The 40 rainy days used in the HRA was based on the AP-42 default for this region. However, ENVIRON has revised the controlled emission factors for the paved and the unpaved roads using 27 rainy days with at least 0.254 mm (0.01 in) of precipitation based on the 2011 precipitation data collected at TAMCO's onsite meteorological station[1] (see Table B-6a).

6) Operating Hours

a) On page 11 of the HRA, it states that Gerdau is permitted to operate 24 hours/day and 365 days/year. The lead monitoring data for the baghouse site show that the highest peak daily concentrations primarily occur on weekdays. The revised HRA should therefore evaluate which sources may have increased activity on weekdays in comparison to weekends and adjust the modeling accordingly.

[1] Data downloaded from http://www.wunderground.com/personal-weather-station/dashboard?ID=KCARANCH30

Responses

The EAF operated mostly during the nighttime and on weekdays in 2011. Although ENVIRON assumes most sources operate 24 hours per day and 365 days per year, we did not assume this schedule for the sources related to the EAF operations (baghouse, the Melt Shop fugitives, the Spray Chamber Stack), and the diesel light towers. This has been clarified in the revised HRA.

ENVIRON assumes that emission rate for the EAF operational sources is linear with fan amps. While this may not be the case over the fans entire operating range, the fans operate at about 65%-100% capacity when they are operating. Within this operating range, assuming a linear relationship between emissions and fan amps is a reasonable estimate.

Inherent in the assumption that the emissions are linear with fan amps is that the concentration of the metals in the exhaust is constant during fan operations, regardless of the production at the EAF. It is likely that the outlet concentration decreases when the baghouse inlet loading is reduced, absent emission data at reduced inlet loading, assuming constant outlet exhaust concentration is reasonable and conservative.

We derived a temporal profile for the EAF operational sources based on the fraction of the 2011 fan amps for a given month (January – December), day of the week, and hour of the day (see Table B-1d). This temporal profile allows AERMOD to model variable emission rates by month, day of the week, and hour of the day.

For the light towers, we assumed that these sources operate from 7 p.m. to 6 a.m., 5 days per week to model the annual concentrations.

For other emission sources, we assume they operate 24 hours per day and 365 days per year. Given these sources operate mostly during daytime, we believe this is a conservative assumption by modeling their emissions at night, which would result in higher concentration due to less air dispersion.

Note that we only apply the temporal profile discussed above to calculate the annual-average concentrations. We set up separate AERMOD runs to calculate one-hour concentrations for the above sources with variable emission rates to ensure the maximum acute impacts are captured correctly when applying the maximum hourly emission rates in HARP.

b) Table B-1 of the HRA shows that emissions from the EAF baghouse are based on a calculated value of 3,768 hours/year, less than a 24 hour, seven day per week operation. It is also not clear how the annual emission rate calculated over this 3,768 hours should be applied in the dispersion modeling. The revised HRA should explain how this calculation is performed and how these emissions are incorporated into the dispersion model.

Responses

As discussed in the Air Toxic Inventory Report (ATIR) prepared for this AB2588 HRA, the north and the south fans draw exhaust gases from the Melt Shop and send them to the baghouse. The fans normally run at full speed when the EAF is in operation, slower when just the caster is

operating, and slower yet when just the ladle heaters are operating. The fans are shut down when all of the equipment is shut down, which includes most weekends in 2011. We estimated the 2011 full load equivalent operating hours by summing ten-minute average ampere (amp) values from these fans, and dividing the result by the 95th percentile value of the fan amps. This was done to avoid the large amp draw that occurs when the fans are started up. The amp values are used by the RECLAIM CEMS to calculate the stack flow for the EAF (see Table B-1c). ENVIRON calculated the annual emissions based on the hourly emission factors measured during the source test conducted by SCAQMD in June 2012 multiplied by full load equivalent annual operating hours (3,768 hours) in 2011 for the EAF baghouse. The calculated annual emissions were then distributed based on the temporal schedule as discussed in the response to comment 6a). This has been clarified in the revised HRA.

7) Portable Diesel Powered Engines

a) For the portable diesel light towers, please provide us the manufacturer's specifications (Kubota D905) to prove that the fuel consumption rate is 200 grams/hp/hr.

Responses

The manufacturer's specifications for Kubota D905 is included in Attachment A2 of Appendix A.

b) The HRA reports 37.9 lbs/yr of diesel exhaust PM from DICEs (portable diesel engines) in the .EMS file. In addition to the 6 diesel light towers, the revised HRA should describe all other portable diesel engines at the facility, and the rationale for including or excluding them in the HRA.

Responses

TAMCO reported 11.3 thousand gallons of diesel usage for all the portable engines in the 2011 Annual Emissions Report (AER). Approximately 90% of this usage is due to portable light towers, and the other 10% is due to portable welders, which we modeled as DICE in AERMOD. We did not exclude any portable engines in the HRA.

8) Slag piles

To determine the potential fugitive dust impacts from wind erosion of slag piles, the HRA assumes that there are 2.74 acres of slag pile storage onsite (Table B-11). The revised HRA should clarify how this acreage corresponds to the amount of slag storage onsite in 2011 and currently, how the amount of slag storage onsite is expected to change in the future, and what should be considered a routine and predictable amount of storage onsite. The routine and predictable storage amount should be used to determine long term impacts, whereas short term impacts should use larger storage piles, such as those that may be found onsite currently.

Responses

ENVIRON assumed that 50% of the slag storage area (approximately 2.74 acres) was covered by the slag in 2011 based on the 2011 aerial photo from Google™ Earth. We calculated the weight of the slag pile assuming a typical slag pile is approximately 12 feet and an average unit

weight of 117 lbs/ft^3 for EAF slag.[2] Compared to the amount of slag in 2011 (80,276 tons/year, including both back log material and the fresh slag), the calculated slag weight (around 84,000 tons/year) is on the same order of magnitude. To account for the short-term impacts, we have assumed all daily erosion happens in an hour as explained in Table B-11.

The slag piles that have existed over the past years were created because Tervita, the slag processing contractor, was unable to operate. Tervita is now in full operation and is processing the piles in addition to the amount of slag generated. For the future operation, TAMCO will obtain the amount of the slag on the ground from Tervita once they have processed all of the back log material. ENVIRON expects it to be a minimal amount (about 25% of the slag storage area vs. the 50% from 2011) as Tervita has a better slag sales contract than TAMCO had back in 2011.

9) Road Dust

Further clarification is required for the road dust emissions in the HRA. In particular, a figure should be provided that labels each road segment that corresponds to the various road categories identified in tables B-5 through B-9.

Responses

ENVIRON has added the following Figures in the revised HRA to help clarify the road dust emission calculations.

- Figure 6B: Truck Routes
- Figure 6C: Truck Route Groups
- Figure 6D: Road Dust Sampling Locations
- Figure 6E: Modeled Roadway Segments for the Entrained Road Dust Emissions

a) The revised HRA should explain why Route Segment 37A (paved roads) and Route Segment 22 (paved roads) are in the same group [Rebar from/to Rebar Yard to/from Gate] with the same truck weights (28.75 tons), but they have different annual and hourly emissions in Table B-9.

Responses

ENVIRON evaluated the type of trucks and their routes for the purposes of calculating the average vehicle weight for the road segments and applied these to the AERMOD modeling. The table below explains the terminologies used in Table B-7.

Segment ID:	Represents unique spatial location for a segment
Route/Route ID:	Describes how the trucks travel and what material is hauled from one processing area to another

[2] The unit weight were 16.8-20.0 kN/m^3 or 107 – 127 lb/ft^3 based on the test results of EAF slag samples from the "Use of Steel Slag in Subgrade Applications" study available at http://docs.lib.purdue.edu/jtrp/1133/

Route Group:	The Route is further divided into three groups based on different nature of the hauling material for the purpose of calculating the average metal concentrations 1 - Scrap delivery 2 - Scrap transfer to the Melt Shop 3 - Other (billet, slag, and rebar transfer)
AERMOD source Group:	Represents source group names used in the AERMOD modeling and they were named based on the Segment ID

As shown in Table B-7, Segment 37 is used by both scrap and rebar delivery trucks. Scrap delivery trucks belong to Route Group 1, and rebar delivery trucks belong to Route Group 3. We conservatively applied the metal concentrations for Route Group 1 to Segment 37 because of the higher average metal concentration compared to Route Group 3. In addition, while Route IDs 37A and 22 are both used by the rebar delivery trucks and have the same average vehicle weight and thus the same PM_{10} emission factors, different metal concentrations are applied to calculate the TAC emissions in Table B-9.

b) The HRA states in Appendix A that the road dust emissions from the east side of the property have been increased four times above the AP-42 calculated emissions in order to reconcile the monitoring to the modeling. The revised HRA should state exactly which road segments were assumed to have higher emissions and to discuss why the emissions from these roads (and not others) may be higher than calculated.

Responses

Since submission of the HRA, ENVIRON has discovered that a few road segments on the east side of the property were not included in the previous modeling. We have added these segments back into the model and compared the annual modeled plus background concentrations[3] to the annual monitored concentrations at TAMCO monitors. We found that that the average ratio of modeled to monitored concentration for lead (Pb), manganese (Mn) and nickel (Ni) for all monitors is 1; thus there are no emission changes needed to calibrate the modeling results in the revised HRA. Table C-1 shows the comparison of the modeled to the monitored concentration.

c) In Table B-5, the metal concentrations are based on the analytical results from ENVIRON's dust samples collected in June 2013. There are many test data from different samples in the test report. Please explain how Table B-5 was derived from all the test data in Attachment A9.

Responses

In the revised HRA, ENVIRON has summarized the dust sample results and the corresponding route group in Table B-5c. Table B-5a shows how we mapped these dust samples as shown in Figure 6D to different route group (Figure 6B). Table B-5b provides information on how we mapped different route groups (Figure 6B) to the modeled road segments (Figure 6E). We have

[3] We obtained the background concentration from the MATES IV study.

also provided how we calculated the average metal concentrations in Table B-5d (previous Table B-5) in the responses to comment 5b) above.

10) Trade Secrets

The revised HRA should mark the portions of the HRA that should be considered “trade secret” pursuant to Health and Safety Code 44346. We request that only those portions of the HRA that are truly “trade secret” be marked as such. Should SCAQMD receive a public records act request, this initial step will reduce any potential complications and delays.

Attachment A1

Melt Shop Enclosure Policy

OBJECTIVE: Provide basic guidelines to ensure continuous melt shop operation during various weather conditions.

EXPECTED RESULTS:

Any visual dust or smoke escaping the building is unacceptable. Melt shop operations may be ceased if expected results are not attained.

RESPONSIBLE FOR CONTROL:

Overall program: Melt shop superintendent
Functional: Furnace operators, Facilitators

REFERENCE MATERIALS:

1) Melt shop drawing – MELT SHOP ENCLOSURE DOORS (attached)

GENERAL GUIDELINES:

1) All man doors must be closed at all times of operation
2) Local weather station data should be used to determine wind speeds
3) During the event of a door breakdown, the door shall be repaired within 3 business days. Failure to repair within 3 business days shall constitute a reportable breakdown.
4) For unplanned maintenance activities, limit doorway opening to 4 hours and ensure no visible emissions exist from open doorways.

NORMAL WEATHER CONITIONS (WIND GUSTS BELOW 10 MPH)

LOCATION	DOOR	CONDITION	NOTES
Scrap - East	1	OPEN	
Scrap - West	2	CLOSED	Normal operations with 1 scrap bay door closed. Both doors may be opened periodically, but 1 should remain closed when not in use.
Slag Pit	3	OPEN	
West Bay - North	4	CLOSED	
West Bay - South	5	CLOSED	
Green Room - West	6	CLOSED	Open only for equipment entering/exiting.
Green Room - East	7	OPEN	
Tapping Pit	8	CLOSED	Open for pit cleaning only.
Center Pit	9	CLOSED	Open for pit cleaning only.
South East	10	CLOSED	Open only for equipment entering/exiting.

MODERATE WIND CONITIONS (SUSTAINED WINDS ABOVE 10 MPH AND GUSTS ABOVE 25 MPH)

LOCATION	DOOR	CONDITION	NOTES
Scrap - East	1	OPEN	
Scrap - West	2	CLOSED	Only operate 1 scrap bay door (EAST or WEST)
Slag Pit	3	OPEN	
West Bay - North	4	CLOSED	
West Bay - South	5	CLOSED	
Green Room - West	6	CLOSED	Intermittent for material access.
Green Room - East	7	CLOSED	
Tapping Pit	8	CLOSED	Open for pit cleaning only.
Center Pit	9	CLOSED	Open for pit cleaning only. Close scrap doors when cleaning.
South East	10	CLOSED	Open only for equipment entering/exiting.

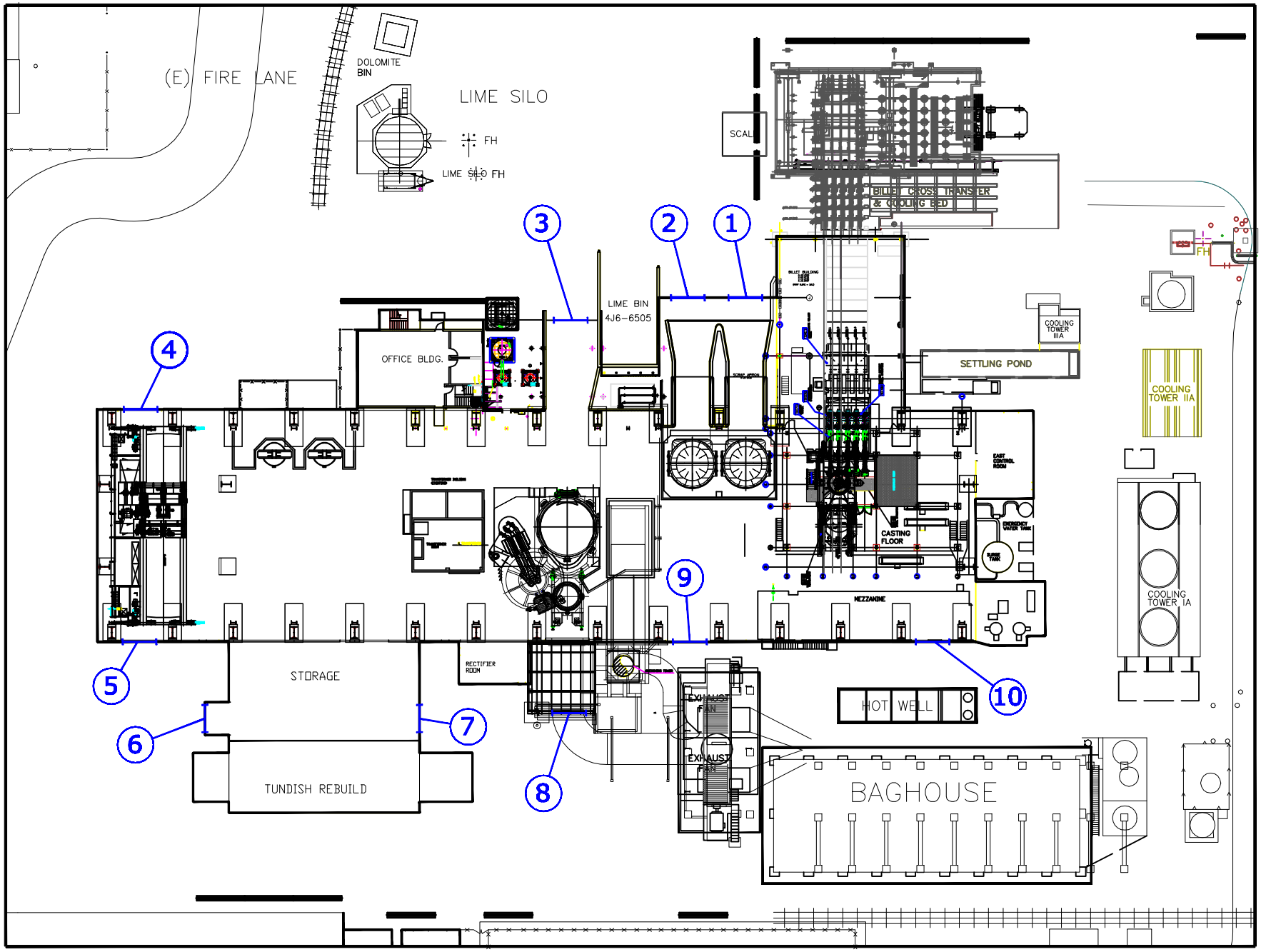
EXTREME WIND CONITIONS (SUSTAINED WINDS ABOVE 25 MPH AND GUSTS ABOVE 30 MPH)

LOCATION	DOOR	CONDITION	NOTES
Scrap - East	1	OPEN	Operate remotely, keep both closed when dumping scrap.
Scrap - West	2	CLOSED	Only operate 1 scrap bay door (EAST or WEST)
Slag Pit	3	CLOSED	Open only when pit cleaning.
West Bay - North	4	CLOSED	
West Bay - South	5	CLOSED	
Green Room - West	6	CLOSED	Intermittent for material access.
Green Room - East	7	CLOSED	
Tapping Pit	8	CLOSED	
Center Pit	9	CLOSED	Refrain from pit cleaning until wind subsides.
South East	10	CLOSED	Open only for equipment entering/exiting.

REVISION HISTORY

Rev. #	Rev. Date	Description of Change
0	12/11/2012	Initial development.
1	5/23/2013	Modify “Normal” operation; add language for door breakdowns

MELT SHOP ENCLOSURE DOORS



Attachment A2

Manufacturer Specifications for Light Stand Engine (Kubota D905)

Models

D905

Water Cooled Vertical Diesel Engine

The D905-E Three Cylinder water cooled engine belongs to the 05 Series with Kubota's original Triple Vortex Combustion System Indirect Injection.
Light weight and compact.

- Highly Reliable Engine: With one piece tunnel block construction, low piston speed and low piston pressure, the engine promises great reliability and long service life with the flexibility to meet any application
- Low Noise: Noise levels are kept to a minimum with Kubota's E-TVCS Indirect Injection Combustion System
- Low Exhaust Emissions: Kubota produces engines which exceed the requirements of EPA Tier 1 and EU Tier 2 Exhaust Emission Regulations for Off Road Diesel Engines below 19 kW Gross
- Quick Start Ups:Super Glow system comes as standard equipment to shorten pre heat time and quicken engine starting in cold weather
- Sturdy Design: A truly Industrial engine with gear driven top end and cams.

Click here for more information

SPECIFICATIONS

Type	Water Cooled Vertical Diesel Engine
Number of Cylinders	3
Bore & Stroke mm	72.0 x 73.6
Total Displacement L	0.898
Combustion System	E-TVCS
Intake System	Naturally Aspirated
Max Output Net Intermittent kW/rpm (hp/rpm)	14.9/3000 (20.3/3000)
Maximum Output Continuous kW/rpm; (hp/rpm)	13.0/3000 (17.6/3000)
Continuous Output Generator Spec kW/rpm; (hp/rpm)	6.6/1500 (8.9/1500)
Fuel Consumption Full Load (g/hp/Hr)	200
Starting System	Electric Start
Housing Options	SAE #5 61/2" Housing/Flywheel or Std Kubota Flywheel /Back Plate Only

OPTIONS

Full Power Pack Options (KIKS)

There are many options available.

Please contact your Kubota Power Center

DEALERS

Dealers for this product

» EMAIL THIS PRODUCT **» PRINTABLE VERSION**

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Appendix B

Emission Calculations

Table B-1a. Toxic Air Contaminant (TAC) Emissions from the EAF Baghouse and Meltshop
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical (analyzed in the source tests)	CAS	Run No. 1 June 26 - 27	Run No. 2 June 27 - 28	Run No. 3 June 28 - 29 [1]	Average Calculated Emission Factor	Annual Operating Hours	Annual Emissions [3]	Run No. 1 Calculated Emission Factor	Run No. 2/3 Calculated Emission Factor	Average Calculated Emission Factor	Hourly throughput [5]	Hourly Emissions [3]	Baghouse Emission Rate per Vent[8]		Meltshop Fugitive Emissions [4]	
		lb/hr	lb/hr	lb/hr	lb/hr	hr/yr	lb/yr	lb/ton	lb/ton	lb/ton	ton/hr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Arsenic	7440382	2.83E-04	6.64E-04		4.74E-04		1.78E+00	3.04E-06	6.65E-06	4.85E-06		6.49E-04	1.12E-01	4.06E-05	1.78E-01	6.49E-05
Cadmium	7440439	1.47E-02	2.03E-02		1.75E-02		6.59E+01	1.58E-04	2.03E-04	1.81E-04		2.42E-02	4.12E+00	1.51E-03	6.59E+00	2.42E-03
Chromium (total)	7440473	2.57E-02	2.79E-02		2.68E-02		1.01E+02	2.76E-04	2.79E-04	2.78E-04		3.72E-02	6.31E+00	2.33E-03	1.01E+01	3.72E-03
Lead	7439921	2.19E-01	3.37E-01		2.78E-01		1.048E+03	2.35E-03	3.38E-03	2.86E-03		3.84E-01	6.55E+01	2.40E-02	1.05E+02	3.84E-02
Manganese	7439965	1.71E-01	1.89E-01	-	1.80E-01	3,768	6.78E+02	1.84E-03	1.89E-03	1.87E-03		2.50E-01	4.24E+01	1.56E-02	6.78E+01	2.50E-02
Nickel	7440020	1.76E-02	1.63E-02		1.70E-02		6.39E+01	1.89E-04	1.63E-04	1.76E-04		2.36E-02	3.99E+00	1.48E-03	6.39E+00	2.36E-03
Zinc	7440666	2.67E+00	3.99E+00		3.33E+00		1.25E+04	2.87E-02	4.00E-02	3.43E-02		4.60E+00	7.84E+02	2.88E-01	1.25E+03	4.60E-01
Copper	7440508	4.04E-02	2.10E-01		1.25E-01		4.72E+02	4.34E-04	2.10E-03	1.27E-03		1.70E-01	2.95E+01	1.06E-02	4.72E+01	1.70E-02
Mercury	7439976	3.78E-03	6.97E-02		3.67E-02		1.38E+02	4.06E-05	6.98E-04	3.69E-04	134	4.95E-02	8.65E+00	3.09E-03	1.38E+01	4.95E-03
Chromium VI	18540299	NA	NA	1.43E-03	1.43E-03		5.39E+00	NA	1.49E-05	1.49E-05		2.00E-03	3.37E-01	1.25E-04	5.39E-01	2.00E-04

Chemical (not analyzed in the source tests)	CAS	Emission Factor [2, 6]	Annual Throughput[9]	Annual Emissions	Hourly Emissions	Emission Rate per Vent		Meltshop Fugitive Emissions	
		lb/ton	ton/yr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Beryllium	7440417	2.80E-07	2.47E+05	1.02E-01	3.75E-05	6.34E-03	2.35E-06	1.02E-02	3.75E-06
Fluoride	1101	5.90E-02	2.47E+05	2.14E+04	7.91E+00	1.34E+03	4.94E-01	2.14E+03	7.91E-01
Dioxins and Furans	1086/1080	1.58E-09	2.47E+05	3.90E-04	2.12E-07	2.44E-05	1.32E-08	3.90E-05	2.12E-08

P:\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\Emissions\[2011 Gerdau HARP emissions_rev2015.xlsx]T-B1 Emission Baghouse

Notes:

1. The emission rates in lb/hr for the various TACs, except Beryllium, Fluoride, Dioxins and Furans are from source tests conducted by AQMD between June 26-29, 2012. Hexavalent Chromium was tested separately.
2. Emission Factor for Beryllium and Fluoride is from US EPA AP-42; Table 12.5.1-9.
3. Annual emissions were calculated based on the hourly emission rates from the source test and multiplied by the annual operating hours. "Annual Operating Hours" is a calculated value to reflect full fan amp-hours in an attempt to quantify emissions during non-EAF operational periods. For Beryllium, Fluoride, Dioxin and Furances where emission factors on the hourly basis are not available from the source test, ENVIRON calculated the emission factors in lb/hr using the AP-42 emission factor (lb/ton) multiplied the production rate (ton/hr) during the source test. This would result in more conservative emission estimates than those calculated based on the AP-42 emission factor (lb/ton) and annual throughput (ton/yr) directly as both emissions during EAF and non-EAF opeartion hours were included. Hourly emissions were calculated based on the emission factors in lb/ton derived using the source test data and multiplied by the maximum hourly throughput.
4. The melting shop fugitive emissions were calculated assuming that they were 10% of the baghouse vent emissions. This percentage was derived through a calibration process that compared the modeled monthly average lead air concentrations with the monthly averages of air monitor readings for lead.
5. Based on the conversation with Jeff Dambrun at Gerdau, ENVIRON used hourly throughput data for the 2007 source test, which represent the maximum hourly throughput for the recent testing.
6. Emission factor for the dioxins and furans was based on the stack test results of Gerdau's Canadian plant provided by Gerdau.
7. SCAQMD incorrectly listed EAF tons/hour in their report. The correct process rates in tons/hr (listed below) were used based on the production reports for the testing, obtained from Gerdau.
8. Calculated as the total baghouse emissions divided by the total number of baghouse vents (16).
9. This represents the billets (ton) produced in 2011 from the 2011 Annual Emissions Reporting (AER).

Run No. 1	Run No.2	Run No.3
9.30E+01	9.98E+01	9.58E+01

Calculation Factors

16 number of baghouse vents
10% fugitive emissions is 10% of the baghouse vent emissions

ENVIRON

Table B-1b. Dioxin and Furan Emissions from the EAF Baghouse and Meltshop
TAMCO Steel Mill
Rancho Cucamonga, California

Congener Emission Rate[1]		Test #1	Test #2	Test #3	Average	TEF_{WHO-05}[2]
		23-Nov-10	24-Nov-10	25-Nov-10		
2,3,7,8-TCDD	lb/hr	9.47E-09	1.23E-08	7.07E-09	9.61E-09	1
1,2,3,7,8-PeCDD	lb/hr	2.42E-08	1.56E-08	1.19E-08	1.72E-08	1
1,2,3,4,7,8-HxCDD	lb/hr	6.25E-09	4.69E-09	3.41E-09	4.78E-09	0.1
1,2,3,6,7,8-HxCDD	lb/hr	2.01E-08	1.69E-08	9.87E-09	1.56E-08	0.1
1,2,3,7,8,9-HxCDD	lb/hr	1.91E-08	1.47E-08	8.25E-09	1.40E-08	0.1
1,2,3,4,6,7,8-HpCDD	lb/hr	2.12E-08	2.71E-08	2.18E-08	2.34E-08	0.01
OCDD	lb/hr	1.37E-08	6.48E-09	1.06E-08	1.03E-08	0.0003
2,3,7,8-TCDF	lb/hr	1.51E-07	1.07E-07	7.60E-08	1.11E-07	0.1
1,2,3,7,8-PeCDF	lb/hr	1.13E-07	6.56E-08	5.00E-08	7.62E-08	0.03
2,3,4,7,8-PeCDF	lb/hr	1.20E-07	8.04E-08	7.11E-08	9.05E-08	0.3
1,2,3,4,7,8-HxCDF	lb/hr	7.58E-08	6.90E-08	5.69E-08	6.72E-08	0.1
1,2,3,6,7,8-HxCDF	lb/hr	3.92E-08	3.73E-08	3.14E-08	3.60E-08	0.1
2,3,4,6,7,8-HxCDF	lb/hr	2.60E-08	2.56E-08	2.16E-08	2.44E-08	0.1
1,2,3,7,8,9-HxCDF	lb/hr	1.87E-09 <	1.37E-09 <	2.52E-09	1.92E-09	0.1
1,2,3,4,6,7,8-HpCDF	lb/hr	3.41E-08	5.45E-08	3.87E-08	4.24E-08	0.01
1,2,3,4,7,8,9-HpCDF	lb/hr	5.64E-09	7.13E-09	7.39E-09	6.72E-09	0.01
OCDF	lb/hr	9.67E-09	1.27E-08	1.56E-08	1.27E-08	0.0003
Toxicity Equivalent (TEQ) Emission Rate						
TEQ Emission Rate	lb/hr	1.08E-07	8.25E-08	6.35E-08	8.45E-08	
Toxicity Equivalent (TEQ) Emission Rate						
TEQ Emission Factor	lb/ton	2.03E-09	1.58E-09	1.13E-09	1.58E-09	
Production Data[3]						
Rate of Steel	tonne/hr	4.80E+01	4.74E+01	5.11E+01	4.88E+01	
Rate of Steel	ton/hr	5.29E+01	5.22E+01	5.63E+01	5.38E+01	

\\wclaofps1\projects\G\Gerdau\0528453C Ameristeel Lit Support\ATIR\[Dioxin and Furan Emission Rates.xlsx]Table B-1b Dioxins and Furans

Conversion Factors

1.102311 short ton/tonne

Notes:

1. Based on the stack test results of Gerdau's Cambridge Mill in Cambridge, Ontario, Canada (dated November 2010). The results were adjusted to account for standard temperature of 60°F and the Toxicity Equivalency Factors (TEF's) promulgated by OEHHA per SCAQMD Evaluation of Souce Test Report dated July 3, 2014.
2. TEF stands for Toxicity Equivalency Factors. The OEHHA proposed to use the TEF_{WHO-05} table of equivalency values in place of the previous I-TEF or TEFWHO-97 versions in risk assessments conducted under the Air Toxics Hot Spots program according to the Appendix C of the Cancer Potency Factors Technical Support Document avaialble at http://oehha.ca.gov/air/hot_spots/2009/AppendixCdioxinTEFs.pdf, accessed in December 2014.
3. Based on the production rate during the stack test of Gerdau's Cambridge Mill in Cambridge, Ontario, Canada.

Table B-1c. Full Load Equivalent Annual Operating Hours for EAF Baghouse
TAMCO Steel Mill
Rancho Cucamonga, California

Month	# Days	2011 Fan Amps[1]		95th Per Max Amps		Equiv Max Hrs (at 95th Per)	
		North	South	North	South	North	South
Jan	31	449,786	421,145	230.9	224.5	324.66	312.65
Feb	28	318,402	386,544	229.9	221.4	230.83	290.98
Mar	31	295,186	362,254	233.0	225.4	211.15	267.89
Apr	30	233,855	288,148	231.0	223.1	168.73	215.23
May	31	327,733	330,924	231.8	225.8	235.64	244.26
Jun	30	428,315	551,507	235.9	235.2	302.61	390.81
Jul	31	458,447	452,012	236.1	229.2	323.62	328.69
Aug	31	567,790	625,218	236.3	236.5	400.47	440.60
Sep	30	544,758	561,395	231.9	230.4	391.52	406.19
Oct	31	456,021	575,011	229.7	226.6	330.88	422.93
Nov	30	460,648	543,207	229.5	224.6	334.53	403.09
Dec	31	332,563	391,688	227.4	222.5	243.74	293.40

\wclaofps1\projects\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\Report\App B - emission calculations\[Table B-1c.xlsx]Summary

Annual	4,873,505	5,489,052	232.0	226.7	**3,501**	**4,035**
					Average =	**3,768**

Conversion Factors
Hours/day = 24
Readings/hour = 6

Notes:
1. Data was provided by Gerdau.

Table B-1d. Temporal Allocation for the EAF Baghouse Emissions by Month, Day of the Week, and Hour of the Day
TAMCO Steel Mill
Rancho Cucamonga, California

2011 Baghouse Fan Amps by Month, Day of the Week, and Hour of the Day [1]

Day of Week	Hour	AERMOD Hour	Month												Grand Total
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	
Sun	00	1	0	2,582	0	0	0	8,076	8,078	8,004	10,764	10,732	5,239	2,662	56,138
Sun	01	2	0	2,373	0	0	0	8,038	8,113	8,088	10,778	10,619	7,922	2,650	58,580
Sun	02	3	0	497	0	0	0	8,133	8,091	8,114	10,764	10,569	5,311	2,653	54,132
Sun	03	4	0	0	0	0	0	8,155	8,097	8,090	10,776	10,647	5,308	2,655	53,728
Sun	04	5	124	0	0	0	0	8,179	8,166	8,108	10,833	10,780	5,318	2,645	54,153
Sun	05	6	869	0	0	0	0	8,180	8,157	8,101	10,801	10,806	5,342	2,646	54,903
Sun	06	7	1,491	0	0	0	0	8,220	8,188	8,082	10,570	10,811	5,343	2,667	55,372
Sun	07	8	1,866	0	0	0	0	7,972	8,015	8,038	10,793	10,788	5,339	2,627	55,439
Sun	08	9	2,235	0	0	0	0	7,099	7,709	7,753	10,313	10,449	5,600	2,616	53,774
Sun	09	10	2,262	0	0	0	0	4,740	5,508	6,439	8,584	8,981	6,097	2,632	45,242
Sun	10	11	2,440	0	0	0	0	1,828	3,590	3,568	3,657	6,094	6,102	2,636	29,915
Sun	11	12	2,562	0	0	0	0	1,787	2,462	2,242	2,686	4,719	6,056	2,678	25,192
Sun	12	13	2,730	0	0	0	0	1,219	1,661	1,307	903	2,012	6,019	2,600	18,451
Sun	13	14	2,827	0	0	0	0	1,419	995	594	0	1,727	5,400	1,676	14,637
Sun	14	15	2,906	0	0	0	0	1,420	0	0	0	1,096	4,078	827	10,327
Sun	15	16	3,576	0	0	0	0	1,420	0	261	0	936	3,847	372	10,412
Sun	16	17	3,513	0	0	0	0	1,420	0	249	0	874	2,485	0	8,541
Sun	17	18	3,497	0	0	249	0	1,420	0	0	0	769	1,740	0	7,674
Sun	18	19	3,498	0	0	745	0	1,377	0	0	0	745	2,376	0	8,741
Sun	19	20	3,492	0	620	744	182	1,276	413	0	0	745	3,728	0	11,201
Sun	20	21	4,524	498	1,616	747	1,590	2,259	911	0	0	746	3,771	0	16,662
Sun	21	22	6,942	745	2,236	1,489	1,837	2,845	745	0	0	746	3,451	0	21,036
Sun	22	23	9,648	1,242	2,237	1,518	1,839	2,766	747	0	0	745	3,391	0	24,133
Sun	23	24	10,489	1,490	2,234	1,565	1,839	2,744	747	0	0	746	3,331	0	25,184
Mon	00	1	10,628	1,492	2,235	1,571	1,840	2,777	755	0	0	745	3,350	0	25,393
Mon	01	2	10,624	1,492	2,237	1,547	1,906	2,751	796	0	0	746	3,391	0	25,489
Mon	02	3	10,670	1,491	2,236	1,544	1,937	2,754	841	0	0	746	3,340	0	25,560
Mon	03	4	10,728	1,491	2,235	1,552	1,996	2,759	873	0	0	745	3,300	0	25,679
Mon	04	5	10,705	1,490	2,235	1,636	2,039	2,764	892	0	0	746	3,361	0	25,868
Mon	05	6	10,707	1,492	2,236	1,667	2,289	1,803	965	0	0	745	3,353	0	25,256
Mon	06	7	10,758	1,490	2,237	1,646	2,784	2,741	1,866	622	745	746	3,504	0	29,139
Mon	07	8	10,735	1,490	2,239	1,684	2,860	2,724	2,518	1,523	1,499	996	4,385	0	32,652
Mon	08	9	10,275	1,493	2,236	1,799	2,853	2,704	3,156	1,800	1,765	1,705	4,877	0	34,661
Mon	09	10	9,108	1,491	2,240	1,946	2,870	2,602	3,440	2,862	2,043	2,576	4,899	0	36,076
Mon	10	11	5,930	1,594	2,270	1,956	2,888	1,953	3,745	2,918	2,526	2,516	5,063	0	33,357
Mon	11	12	4,725	1,698	2,317	2,359	2,856	1,073	3,858	4,070	3,367	2,603	5,564	0	34,489
Mon	12	13	3,365	1,844	2,393	3,296	2,806	1,088	4,081	3,866	2,696	2,635	5,412	0	33,483
Mon	13	14	1,685	2,998	4,628	4,951	2,794	1,017	4,073	3,552	2,833	2,616	5,298	0	36,444
Mon	14	15	1,522	5,245	7,368	6,225	2,844	934	3,835	4,052	3,318	2,592	4,526	0	42,461
Mon	15	16	1,893	5,340	7,896	6,110	2,849	704	3,814	5,725	3,417	2,581	2,972	0	43,301
Mon	16	17	3,625	5,380	8,017	6,094	2,908	0	3,747	5,538	3,280	2,539	3,108	0	44,236
Mon	17	18	3,663	5,327	7,960	6,101	2,912	0	3,451	5,293	3,103	2,433	3,250	0	43,493
Mon	18	19	3,665	5,764	7,993	6,089	2,837	0	3,424	4,995	2,842	1,726	3,056	0	42,390
Mon	19	20	3,532	6,231	8,042	5,220	2,732	498	3,333	4,767	2,748	1,592	4,872	0	43,565
Mon	20	21	4,582	6,425	8,056	5,499	3,628	2,250	3,895	6,594	3,477	2,016	6,053	0	52,475
Mon	21	22	8,166	6,881	8,022	6,644	6,972	2,377	6,503	9,540	6,014	2,237	6,680	0	70,035
Mon	22	23	10,728	6,920	8,023	6,907	8,647	2,479	7,942	9,472	6,061	3,138	6,777	0	77,092
Mon	23	24	10,624	6,896	8,041	6,493	8,719	2,475	8,038	9,420	6,041	3,353	6,835	0	76,935
Tue	00	1	8,024	8,584	8,552	5,264	8,714	2,533	7,994	9,442	6,047	3,330	6,817	0	75,301
Tue	01	2	8,057	8,177	7,683	4,913	8,746	2,574	8,046	9,495	6,078	3,362	6,845	0	73,975
Tue	02	3	8,022	5,553	2,351	4,169	8,738	2,565	8,116	9,569	6,092	3,395	6,866	0	65,438
Tue	03	4	8,131	3,925	745	3,192	8,786	2,643	8,117	9,585	6,091	3,425	6,880	0	61,520
Tue	04	5	8,052	3,440	744	2,702	8,795	3,243	8,146	9,601	6,092	3,433	6,874	0	61,122
Tue	05	6	8,093	3,436	745	2,694	8,813	3,212	8,160	9,625	6,115	3,438	6,821	496	61,648
Tue	06	7	8,053	3,833	1,117	3,461	8,823	3,408	8,160	9,606	6,516	4,207	6,841	745	64,772
Tue	07	8	7,996	4,225	1,897	4,309	8,716	3,735	8,141	9,883	7,045	4,958	6,838	745	68,488
Tue	08	9	7,621	4,245	2,598	4,476	8,469	4,063	7,876	10,162	7,046	4,966	6,879	746	69,146
Tue	09	10	5,620	3,814	3,431	4,621	7,201	4,272	7,135	9,550	6,468	4,842	6,957	1,242	65,153
Tue	10	11	4,331	2,817	3,496	3,680	4,914	4,806	4,831	7,905	4,923	4,645	6,914	1,491	54,752
Tue	11	12	3,371	2,606	3,451	4,638	3,807	4,866	3,908	7,012	4,819	3,900	7,085	1,491	50,954
Tue	12	13	1,721	3,768	4,627	4,857	3,759	4,619	3,203	6,581	4,876	3,673	6,926	1,493	50,104
Tue	13	14	869	6,234	8,677	5,864	3,027	4,544	2,731	5,007	4,734	3,624	5,706	1,559	52,576
Tue	14	15	795	7,500	10,786	6,287	3,756	4,817	3,148	5,038	4,546	3,884	5,800	1,541	57,896
Tue	15	16	2,035	8,306	10,711	6,401	4,772	5,138	3,542	5,938	5,289	3,937	5,404	1,503	62,974
Tue	16	17	2,606	7,969	10,748	6,393	4,711	4,771	3,434	6,445	5,226	4,005	4,783	2,112	63,204
Tue	17	18	2,532	7,953	10,799	6,196	4,459	4,559	3,307	6,942	4,865	3,885	5,101	2,274	62,872
Tue	18	19	2,567	7,962	10,821	6,289	4,269	4,397	3,178	6,788	4,322	3,609	5,905	2,856	62,964
Tue	19	20	3,118	8,011	10,818	6,247	4,067	4,101	2,984	6,701	5,601	3,436	7,821	4,522	67,428
Tue	20	21	4,936	8,009	10,831	6,652	5,422	3,877	4,397	9,325	6,665	5,471	9,733	4,925	80,244
Tue	21	22	6,738	7,998	10,773	7,838	7,816	6,267	8,125	13,575	8,793	8,608	10,556	4,902	101,990
Tue	22	23	8,898	8,045	10,693	8,046	10,610	11,159	8,120	13,373	10,259	10,230	10,754	5,810	115,996
Tue	23	24	9,038	7,767	9,134	7,901	10,554	10,818	8,043	13,238	10,559	10,325	11,294	6,007	114,679
Wed	00	1	8,985	6,438	8,548	7,280	7,708	13,394	8,065	13,284	10,645	10,286	11,023	6,015	111,669
Wed	01	2	9,089	5,406	6,603	4,704	6,967	13,451	8,037	13,415	10,674	10,302	11,402	6,023	106,072
Wed	02	3	9,126	1,490	745	4,175	6,993	13,491	8,075	13,424	10,729	10,326	11,370	6,007	95,950
Wed	03	4	9,153	0	0	3,592	7,016	13,492	8,048	13,372	10,762	10,575	11,099	5,979	93,087
Wed	04	5	9,156	0	0	3,483	7,057	13,560	7,996	13,382	10,767	10,797	10,451	6,018	92,667
Wed	05	6	9,187	0	373	3,486	6,266	13,623	8,077	13,408	10,788	10,747	10,892	6,032	92,877
Wed	06	7	9,184	0	1,158	3,609	6,298	13,416	8,083	13,451	10,106	10,775	11,395	6,049	93,522
Wed	07	8	8,543	992	2,849	4,226	6,223	13,078	8,054	13,413	9,357	10,750	11,455	6,045	94,985
Wed	08	9	8,422	1,491	3,649	4,085	6,035	10,019	7,857	12,989	8,884	9,800	11,525	6,105	90,860
Wed	09	10	6,519	1,494	3,832	3,292	5,557	6,598	7,448	11,943	8,094	7,736	11,562	6,050	80,125
Wed	10	11	4,353	1,534	4,204	2,537	3,457	5,394	4,617	8,725	3,701	4,761	11,548	6,103	60,934
Wed	11	12	2,515	1,490	4,429	2,795	2,585	4,105	2,911	6,736	3,950	3,603	11,590	5,980	52,689
Wed	12	13	2,474	1,989	4,887	3,226	2,456	4,458	2,943	6,054	2,821	3,640	11,344	5,838	52,129
Wed	13	14	2,520	3,269	8,432	5,183	2,423	4,828	2,951	5,373	2,831	3,479	10,345	4,395	56,028
Wed	14	15	3,512	5,385	10,779	6,298	3,569	5,920	3,226	5,905	1,899	3,452	7,336	2,981	60,262
Wed	15	16	3,809	5,264	10,751	6,503	3,393	6,044	3,838	6,594	1,799	4,110	6,098	2,525	60,727
Wed	16	17	4,011	5,301	10,793	6,518	2,835	5,504	3,777	6,651	2,453	4,237	4,717	2,378	59,174
Wed	17	18	3,665	5,284	10,759	6,535	2,766	5,292	3,436	6,420	3,224	4,226	4,291	2,499	58,396
Wed	18	19	3,548	5,242	10,801	6,440	2,738	4,964	3,001	6,015	2,711	4,165	4,782	3,493	57,899
Wed	19	20	3,304	5,213	10,777	6,287	2,563	4,661	2,917	5,806	2,750	4,386	7,000	5,657	61,320
Wed	20	21	3,842	5,517	10,798	6,804	3,839	4,883	4,443	8,856	5,450	5,155	8,082	7,550	75,220
Wed	21	22	5,220	6,283	10,759	7,893	6,953	8,140	7,274	13,654	8,668	8,193	8,624	7,804	99,465
Wed	22	23	6,411	7,473	10,692	8,059	8,139	13,740	8,170	13,413	9,795	10,412	10,344	7,839	114,487
Wed	23	24	6,093	7,879	10,506	8,055	8,046	13,478	8,064	13,360	10,611	10,527	10,549	7,840	115,008
Thu	00	1	6,118	7,700	8,916	7,842	8,028	13,430	8,100	10,786	13,293	10,570	7,934	10,492	113,209
Thu	01	2	6,099	6,811	7,380	7,400	8,000	13,398	8,107	10,805	13,347	10,648	7,941	10,308	110,243
Thu	02	3	5,840	3,358	1,788	3,692	8,034	13,469	8,107	10,838	13,383	10,676	7,972	10,475	97,631
Thu	03	4	5,356	2,605	745	2,678	8,026	13,532	8,093	10,789	13,517	10,724	8,037	10,491	94,591

Table B-1d. Temporal Allocation for the EAF Baghouse Emissions by Month, Day of the Week, and Hour of the Day
TAMCO Steel Mill
Rancho Cucamonga, California

Day of Week	Hour	AERMOD Hour	Month												Grand Total
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	
Thu	04	5	5,356	2,644	747	2,694	8,071	13,475	8,106	10,865	13,501	10,712	7,994	10,448	94,610
Thu	05	6	5,744	2,642	744	2,695	8,116	13,593	8,151	10,858	13,510	10,771	8,018	10,418	95,260
Thu	06	7	6,077	2,680	1,678	3,467	8,124	13,506	8,154	10,868	13,525	10,780	8,045	10,557	97,461
Thu	07	8	6,038	3,190	2,389	4,217	8,126	13,148	8,059	10,807	13,396	10,785	8,012	10,588	98,756
Thu	08	9	4,838	4,689	3,463	4,199	7,849	11,314	7,775	10,399	12,859	10,461	8,084	10,562	96,491
Thu	09	10	2,972	3,568	3,488	3,441	7,439	7,523	6,354	8,860	10,048	8,210	8,045	10,557	80,505
Thu	10	11	2,588	3,153	3,584	3,330	4,828	4,948	3,311	5,871	5,759	6,325	8,021	10,597	62,313
Thu	11	12	1,491	3,181	2,969	3,372	4,255	4,231	2,458	4,932	4,842	5,360	7,114	10,629	54,831
Thu	12	13	2,375	3,257	5,001	4,219	3,297	4,244	2,408	4,431	3,400	2,374	6,517	10,372	51,895
Thu	13	14	2,529	6,357	9,175	3,966	3,033	4,267	1,859	3,876	3,520	1,926	6,458	8,411	55,378
Thu	14	15	2,369	8,188	10,730	6,301	3,222	4,832	2,123	3,876	3,897	2,298	5,917	5,448	59,200
Thu	15	16	3,003	8,651	10,650	6,279	3,702	5,439	3,132	4,921	4,921	2,550	4,926	3,678	61,852
Thu	16	17	3,540	8,269	10,753	6,175	4,170	5,537	3,869	5,333	4,837	3,424	3,500	2,276	61,683
Thu	17	18	3,718	8,699	10,799	6,110	3,970	5,495	3,513	5,298	4,557	3,308	3,027	3,471	61,964
Thu	18	19	3,728	8,734	10,783	6,162	3,923	5,289	3,337	5,244	4,396	3,232	2,247	4,349	61,424
Thu	19	20	3,622	8,781	10,818	6,161	3,665	5,017	3,145	5,123	4,180	4,420	3,506	6,496	64,934
Thu	20	21	4,520	9,145	10,839	6,731	4,811	5,334	5,866	6,883	6,180	6,551	3,727	8,640	79,226
Thu	21	22	8,663	9,542	10,861	7,406	7,210	10,438	8,488	10,384	10,833	9,561	4,785	8,041	106,212
Thu	22	23	9,707	10,652	10,835	8,146	8,199	13,541	8,117	10,749	12,991	10,656	5,185	7,868	116,646
Thu	23	24	10,665	10,542	10,712	8,124	8,069	13,545	8,044	10,751	13,293	10,530	5,250	7,922	117,446
Fri	00	1	10,657	10,287	9,006	7,926	8,105	10,757	10,803	10,770	13,427	10,573	5,283	7,934	115,530
Fri	01	2	10,687	7,363	6,631	7,780	8,128	10,859	10,795	10,808	13,455	10,676	5,325	7,995	110,503
Fri	02	3	10,726	2,680	2,982	4,006	8,117	10,880	10,808	10,881	13,533	10,627	5,324	8,025	98,589
Fri	03	4	10,671	2,682	993	2,663	8,172	10,899	10,861	10,850	13,491	10,662	5,325	7,995	95,263
Fri	04	5	10,771	2,702	745	2,674	8,145	10,945	10,818	10,861	12,073	10,715	5,340	7,979	93,769
Fri	05	6	10,760	2,702	1,117	2,661	8,207	10,973	10,762	10,874	12,142	10,737	5,393	8,000	94,327
Fri	06	7	10,724	3,177	746	2,652	8,183	10,879	9,641	10,854	12,182	10,714	5,452	7,985	93,188
Fri	07	8	10,604	3,881	748	2,678	8,123	10,572	8,885	10,775	12,052	10,694	5,443	7,941	92,395
Fri	08	9	9,781	4,773	745	2,586	7,810	8,761	8,582	10,375	11,681	10,407	5,406	7,995	88,902
Fri	09	10	7,885	3,902	870	2,387	6,055	6,543	6,180	8,369	10,402	8,689	5,418	7,998	74,698
Fri	10	11	3,158	3,337	1,515	1,490	3,409	3,965	4,315	4,227	7,594	5,167	5,456	8,025	51,658
Fri	11	12	2,236	3,118	1,668	1,491	3,118	3,407	3,849	3,931	6,554	3,471	5,477	8,072	46,391
Fri	12	13	1,615	4,091	1,729	1,490	2,994	2,934	3,742	3,704	5,151	3,297	5,404	7,869	44,018
Fri	13	14	1,488	5,697	2,437	1,490	2,360	2,466	3,706	3,715	4,382	3,156	5,030	7,377	43,305
Fri	14	15	1,739	8,786	3,473	994	2,235	2,701	3,430	3,966	4,494	3,177	3,713	5,015	43,723
Fri	15	16	2,315	8,598	3,412	746	2,388	3,056	2,929	4,630	4,691	3,689	3,065	3,547	43,066
Fri	16	17	2,619	8,712	3,452	745	2,608	2,960	3,087	5,086	4,847	4,283	1,850	3,307	43,554
Fri	17	18	2,593	8,718	3,214	745	2,916	2,691	4,001	5,222	4,810	3,101	1,715	3,358	43,084
Fri	18	19	2,574	8,788	2,706	248	2,585	2,583	4,019	5,005	4,302	2,664	1,575	3,765	40,814
Fri	19	20	2,513	8,732	2,733	0	2,128	2,475	3,894	5,229	4,167	2,566	2,011	6,575	43,021
Fri	20	21	3,353	9,139	2,728	0	1,322	3,240	4,758	6,451	6,081	4,748	3,417	7,937	53,175
Fri	21	22	5,690	9,709	2,683	0	2,339	5,424	6,626	9,762	10,089	8,389	4,424	7,887	73,022
Fri	22	23	7,904	10,718	2,573	0	2,719	7,933	7,705	10,681	12,003	9,658	5,316	7,908	85,119
Fri	23	24	8,002	10,565	2,013	0	2,678	8,078	8,016	10,684	13,065	10,548	5,248	7,926	86,823
Sat	00	1	8,034	10,105	993	0	2,696	8,071	8,008	10,703	10,629	13,228	6,516	7,914	86,897
Sat	01	2	8,074	6,943	0	0	2,676	8,109	8,042	9,822	10,684	13,289	6,573	7,915	82,127
Sat	02	3	8,042	3,473	0	0	2,689	8,156	8,066	8,109	10,746	13,283	6,599	7,929	77,091
Sat	03	4	8,066	3,543	0	0	2,691	8,166	8,120	10,771	10,769	13,330	6,542	7,917	79,916
Sat	04	5	8,095	3,519	0	0	2,720	8,155	8,126	10,755	10,807	13,367	6,581	7,923	80,046
Sat	05	6	8,056	3,472	0	0	2,714	8,200	8,157	10,764	10,910	12,929	6,588	7,986	79,774
Sat	06	7	8,087	3,451	0	0	2,743	8,171	8,164	10,801	10,915	13,450	6,600	7,992	80,376
Sat	07	8	8,072	3,468	0	0	2,718	7,946	8,142	10,670	10,816	13,424	6,642	7,997	79,893
Sat	08	9	7,822	3,355	0	0	2,623	6,317	8,038	10,339	10,411	13,215	6,632	8,070	76,822
Sat	09	10	6,072	3,346	0	0	1,941	4,449	8,047	8,731	8,869	11,288	6,658	8,045	67,446
Sat	10	11	3,147	1,781	0	0	756	2,657	5,815	4,799	5,348	7,718	6,654	8,060	46,736
Sat	11	12	2,111	1,241	0	0	0	2,313	4,435	4,376	3,439	4,974	6,646	8,060	37,595
Sat	12	13	620	1,192	0	0	0	2,939	4,828	5,214	3,448	4,614	6,401	7,881	37,136
Sat	13	14	621	2,624	0	0	0	3,799	4,816	5,678	4,726	5,219	5,834	7,054	40,370
Sat	14	15	0	3,438	0	0	0	3,999	4,217	5,678	5,308	5,610	3,899	3,415	35,564
Sat	15	16	0	3,421	0	0	0	3,829	4,229	5,678	5,332	5,380	2,485	2,037	32,389
Sat	16	17	0	3,425	0	0	0	3,569	4,163	5,583	5,271	5,086	2,483	1,777	31,356
Sat	17	18	0	3,427	0	0	0	3,315	4,087	5,309	5,074	4,667	2,485	1,716	30,080
Sat	18	19	0	3,446	0	0	0	2,959	3,938	4,800	4,830	4,221	2,484	2,260	28,937
Sat	19	20	0	3,449	0	0	0	2,593	4,338	3,890	4,419	4,122	2,403	3,201	28,414
Sat	20	21	0	3,333	0	0	0	3,667	5,170	4,607	5,045	5,902	2,194	2,769	32,686
Sat	21	22	0	2,713	0	0	0	5,913	8,016	7,695	9,827	10,185	4,398	2,634	51,381
Sat	22	23	0	2,705	0	0	0	8,200	8,140	8,792	10,663	10,609	5,194	2,629	56,932
Sat	23	24	0	2,700	0	0	0	8,073	8,091	8,518	10,686	10,684	5,209	2,658	56,618

P:\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\Report\App B - emission calculations\[Table B-1d.xlsx]Summary allocation

Notes:
1. 2011 fan amps data was provided by Gerdau. The amp values are used by the RECLAIM CEM to calculate the stack flow for the EAF.
This table summarizes the 2011 Fan Amps data by month, day of the week, and hour of the day.

Table B-1d. Temporal Allocation for the EAF Baghouse Emissions by Month, Day of the Week, and Hour of the Day
TAMCO Steel Mill
Rancho Cucamonga, California

Variable Emission Rate Factor for the Baghouse in AERMOD [1]

Day of Week	Hour	AERMOD Hour	Month											
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
Sun	00	1	0.00	0.50	0.00	0.00	0.00	1.57	1.57	1.56	2.09	2.09	1.02	0.52
Sun	01	2	0.00	0.46	0.00	0.00	0.00	1.56	1.58	1.57	2.10	2.07	1.54	0.52
Sun	02	3	0.00	0.10	0.00	0.00	0.00	1.58	1.57	1.58	2.09	2.06	1.03	0.52
Sun	03	4	0.00	0.00	0.00	0.00	0.00	1.59	1.58	1.57	2.10	2.07	1.03	0.52
Sun	04	5	0.02	0.00	0.00	0.00	0.00	1.59	1.59	1.58	2.11	2.10	1.03	0.51
Sun	05	6	0.17	0.00	0.00	0.00	0.00	1.59	1.59	1.58	2.10	2.10	1.04	0.51
Sun	06	7	0.29	0.00	0.00	0.00	0.00	1.60	1.59	1.57	2.06	2.10	1.04	0.52
Sun	07	8	0.36	0.00	0.00	0.00	0.00	1.55	1.56	1.56	2.10	2.10	1.04	0.51
Sun	08	9	0.43	0.00	0.00	0.00	0.00	1.38	1.50	1.51	2.01	2.03	1.09	0.51
Sun	09	10	0.44	0.00	0.00	0.00	0.00	0.92	1.07	1.25	1.67	1.75	1.19	0.51
Sun	10	11	0.47	0.00	0.00	0.00	0.00	0.36	0.70	0.69	0.71	1.19	1.19	0.51
Sun	11	12	0.50	0.00	0.00	0.00	0.00	0.35	0.48	0.44	0.52	0.92	1.18	0.52
Sun	12	13	0.53	0.00	0.00	0.00	0.00	0.24	0.32	0.25	0.18	0.39	1.17	0.51
Sun	13	14	0.55	0.00	0.00	0.00	0.00	0.28	0.19	0.12	0.00	0.34	1.05	0.33
Sun	14	15	0.57	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.21	0.79	0.16
Sun	15	16	0.70	0.00	0.00	0.00	0.00	0.28	0.00	0.05	0.00	0.18	0.75	0.07
Sun	16	17	0.68	0.00	0.00	0.00	0.00	0.28	0.00	0.05	0.00	0.17	0.48	0.00
Sun	17	18	0.68	0.00	0.00	0.05	0.00	0.28	0.00	0.00	0.00	0.15	0.34	0.00
Sun	18	19	0.68	0.00	0.00	0.15	0.00	0.27	0.00	0.00	0.00	0.14	0.46	0.00
Sun	19	20	0.68	0.00	0.12	0.14	0.04	0.25	0.08	0.00	0.00	0.15	0.73	0.00
Sun	20	21	0.88	0.10	0.31	0.15	0.31	0.44	0.18	0.00	0.00	0.15	0.73	0.00
Sun	21	22	1.35	0.14	0.43	0.29	0.36	0.55	0.15	0.00	0.00	0.15	0.67	0.00
Sun	22	23	1.88	0.24	0.44	0.30	0.36	0.54	0.15	0.00	0.00	0.14	0.66	0.00
Sun	23	24	2.04	0.29	0.43	0.30	0.36	0.53	0.15	0.00	0.00	0.15	0.65	0.00
Mon	00	1	2.07	0.29	0.43	0.31	0.36	0.54	0.15	0.00	0.00	0.15	0.65	0.00
Mon	01	2	2.07	0.29	0.44	0.30	0.37	0.54	0.15	0.00	0.00	0.15	0.66	0.00
Mon	02	3	2.08	0.29	0.44	0.30	0.38	0.54	0.16	0.00	0.00	0.15	0.65	0.00
Mon	03	4	2.09	0.29	0.43	0.30	0.39	0.54	0.17	0.00	0.00	0.14	0.64	0.00
Mon	04	5	2.08	0.29	0.43	0.32	0.40	0.54	0.17	0.00	0.00	0.15	0.65	0.00
Mon	05	6	2.08	0.29	0.44	0.32	0.45	0.35	0.19	0.00	0.00	0.15	0.65	0.00
Mon	06	7	2.09	0.29	0.44	0.32	0.54	0.53	0.36	0.12	0.15	0.15	0.68	0.00
Mon	07	8	2.09	0.29	0.44	0.33	0.56	0.53	0.49	0.30	0.29	0.19	0.85	0.00
Mon	08	9	2.00	0.29	0.43	0.35	0.56	0.53	0.61	0.35	0.34	0.33	0.95	0.00
Mon	09	10	1.77	0.29	0.44	0.38	0.56	0.51	0.67	0.56	0.40	0.50	0.95	0.00
Mon	10	11	1.15	0.31	0.44	0.38	0.56	0.38	0.73	0.57	0.49	0.49	0.98	0.00
Mon	11	12	0.92	0.33	0.45	0.46	0.56	0.21	0.75	0.79	0.66	0.51	1.08	0.00
Mon	12	13	0.65	0.36	0.47	0.64	0.55	0.21	0.79	0.75	0.52	0.51	1.05	0.00
Mon	13	14	0.33	0.58	0.90	0.96	0.54	0.20	0.79	0.69	0.55	0.51	1.03	0.00
Mon	14	15	0.30	1.02	1.43	1.21	0.55	0.18	0.75	0.79	0.65	0.50	0.88	0.00
Mon	15	16	0.37	1.04	1.54	1.19	0.55	0.14	0.74	1.11	0.66	0.50	0.58	0.00
Mon	16	17	0.71	1.05	1.56	1.19	0.57	0.00	0.73	1.08	0.64	0.49	0.60	0.00
Mon	17	18	0.71	1.04	1.55	1.19	0.57	0.00	0.67	1.03	0.60	0.47	0.63	0.00
Mon	18	19	0.71	1.12	1.56	1.18	0.55	0.00	0.67	0.97	0.55	0.34	0.59	0.00
Mon	19	20	0.69	1.21	1.56	1.02	0.53	0.10	0.65	0.93	0.53	0.31	0.95	0.00
Mon	20	21	0.89	1.25	1.57	1.07	0.71	0.44	0.76	1.28	0.68	0.39	1.18	0.00
Mon	21	22	1.59	1.34	1.56	1.29	1.36	0.46	1.27	1.86	1.17	0.44	1.30	0.00
Mon	22	23	2.09	1.35	1.56	1.34	1.68	0.48	1.55	1.84	1.18	0.61	1.32	0.00
Mon	23	24	2.07	1.34	1.56	1.26	1.70	0.48	1.56	1.83	1.18	0.65	1.33	0.00
Tue	00	1	1.56	1.67	1.66	1.02	1.70	0.49	1.56	1.84	1.18	0.65	1.33	0.00
Tue	01	2	1.57	1.59	1.49	0.96	1.70	0.50	1.57	1.85	1.18	0.65	1.33	0.00
Tue	02	3	1.56	1.08	0.46	0.81	1.70	0.50	1.58	1.86	1.19	0.66	1.34	0.00
Tue	03	4	1.58	0.76	0.15	0.62	1.71	0.51	1.58	1.86	1.19	0.67	1.34	0.00
Tue	04	5	1.57	0.67	0.14	0.53	1.71	0.63	1.58	1.87	1.19	0.67	1.34	0.00
Tue	05	6	1.57	0.67	0.15	0.52	1.71	0.62	1.59	1.87	1.19	0.67	1.33	0.10
Tue	06	7	1.57	0.75	0.22	0.67	1.72	0.66	1.59	1.87	1.27	0.82	1.33	0.14
Tue	07	8	1.56	0.82	0.37	0.84	1.70	0.73	1.58	1.92	1.37	0.96	1.33	0.14
Tue	08	9	1.48	0.83	0.51	0.87	1.65	0.79	1.53	1.98	1.37	0.97	1.34	0.15
Tue	09	10	1.09	0.74	0.67	0.90	1.40	0.83	1.39	1.86	1.26	0.94	1.35	0.24
Tue	10	11	0.84	0.55	0.68	0.72	0.96	0.94	0.94	1.54	0.96	0.90	1.35	0.29
Tue	11	12	0.66	0.51	0.67	0.90	0.74	0.95	0.76	1.36	0.94	0.76	1.38	0.29
Tue	12	13	0.33	0.73	0.90	0.94	0.73	0.90	0.62	1.28	0.95	0.71	1.35	0.29
Tue	13	14	0.17	1.21	1.69	1.14	0.59	0.88	0.53	0.97	0.92	0.71	1.11	0.30
Tue	14	15	0.15	1.46	2.10	1.22	0.73	0.94	0.61	0.98	0.88	0.76	1.13	0.30
Tue	15	16	0.40	1.62	2.08	1.25	0.93	1.00	0.69	1.16	1.03	0.77	1.05	0.29
Tue	16	17	0.51	1.55	2.09	1.24	0.92	0.93	0.67	1.25	1.02	0.78	0.93	0.41
Tue	17	18	0.49	1.55	2.10	1.21	0.87	0.89	0.64	1.35	0.95	0.76	0.99	0.44
Tue	18	19	0.50	1.55	2.11	1.22	0.83	0.86	0.62	1.32	0.84	0.70	1.15	0.56
Tue	19	20	0.61	1.56	2.10	1.22	0.79	0.80	0.58	1.30	1.09	0.67	1.52	0.88
Tue	20	21	0.96	1.56	2.11	1.29	1.05	0.75	0.86	1.81	1.30	1.06	1.89	0.96
Tue	21	22	1.31	1.56	2.10	1.52	1.52	1.22	1.58	2.64	1.71	1.67	2.05	0.95
Tue	22	23	1.73	1.57	2.08	1.57	2.06	2.17	1.58	2.60	2.00	1.99	2.09	1.13
Tue	23	24	1.76	1.51	1.78	1.54	2.05	2.10	1.56	2.58	2.05	2.01	2.20	1.17
Wed	00	1	1.75	1.25	1.66	1.42	1.50	2.61	1.57	2.58	2.07	2.00	2.14	1.17
Wed	01	2	1.77	1.05	1.28	0.92	1.36	2.62	1.56	2.61	2.08	2.00	2.22	1.17
Wed	02	3	1.78	0.29	0.14	0.81	1.36	2.62	1.57	2.61	2.09	2.01	2.21	1.17
Wed	03	4	1.78	0.00	0.00	0.70	1.36	2.62	1.57	2.60	2.09	2.06	2.16	1.16
Wed	04	5	1.78	0.00	0.00	0.68	1.37	2.64	1.56	2.60	2.09	2.10	2.03	1.17
Wed	05	6	1.79	0.00	0.07	0.68	1.22	2.65	1.57	2.61	2.10	2.09	2.12	1.17
Wed	06	7	1.79	0.00	0.23	0.70	1.23	2.61	1.57	2.62	1.97	2.10	2.22	1.18
Wed	07	8	1.66	0.19	0.55	0.82	1.21	2.54	1.57	2.61	1.82	2.09	2.23	1.18
Wed	08	9	1.64	0.29	0.71	0.79	1.17	1.95	1.53	2.53	1.73	1.91	2.24	1.19
Wed	09	10	1.27	0.29	0.75	0.64	1.08	1.28	1.45	2.32	1.57	1.51	2.25	1.18
Wed	10	11	0.85	0.30	0.82	0.49	0.67	1.05	0.90	1.70	0.72	0.93	2.25	1.19
Wed	11	12	0.49	0.29	0.86	0.54	0.50	0.80	0.57	1.31	0.77	0.70	2.25	1.16
Wed	12	13	0.48	0.39	0.95	0.63	0.48	0.87	0.57	1.18	0.55	0.71	2.21	1.14
Wed	13	14	0.49	0.64	1.64	1.01	0.47	0.94	0.57	1.05	0.55	0.68	2.01	0.86
Wed	14	15	0.68	1.05	2.10	1.23	0.69	1.15	0.63	1.15	0.37	0.67	1.43	0.58
Wed	15	16	0.74	1.02	2.09	1.27	0.66	1.18	0.75	1.28	0.35	0.80	1.19	0.49
Wed	16	17	0.78	1.03	2.10	1.27	0.55	1.07	0.73	1.29	0.48	0.82	0.92	0.46
Wed	17	18	0.71	1.03	2.09	1.27	0.54	1.03	0.67	1.25	0.63	0.82	0.83	0.49
Wed	18	19	0.69	1.02	2.10	1.25	0.53	0.97	0.58	1.17	0.53	0.81	0.93	0.68
Wed	19	20	0.64	1.01	2.10	1.22	0.50	0.91	0.57	1.13	0.53	0.85	1.36	1.10
Wed	20	21	0.75	1.07	2.10	1.32	0.75	0.95	0.86	1.72	1.06	1.00	1.57	1.47
Wed	21	22	1.02	1.22	2.09	1.54	1.35	1.58	1.42	2.66	1.69	1.59	1.68	1.52
Wed	22	23	1.25	1.45	2.08	1.57	1.58	2.67	1.59	2.61	1.91	2.03	2.01	1.53
Wed	23	24	1.19	1.53	2.04	1.57	1.57	2.62	1.57	2.60	2.06	2.05	2.05	1.53
Thu	00	1	1.19	1.50	1.73	1.53	1.56	2.61	1.58	2.10	2.59	2.06	1.54	2.04
Thu	01	2	1.19	1.33	1.44	1.44	1.56	2.61	1.58	2.10	2.60	2.07	1.54	2.01
Thu	02	3	1.14	0.65	0.35	0.72	1.56	2.62	1.58	2.11	2.60	2.08	1.55	2.04
Thu	03	4	1.04	0.51	0.14	0.52	1.56	2.63	1.57	2.10	2.63	2.09	1.56	2.04

Table B-1d. Temporal Allocation for the EAF Baghouse Emissions by Month, Day of the Week, and Hour of the Day
TAMCO Steel Mill
Rancho Cucamonga, California

Day of Week	Hour	AERMOD Hour	Month											
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
Thu	04	5	1.04	0.51	0.15	0.52	1.57	2.62	1.58	2.11	2.63	2.08	1.56	2.03
Thu	05	6	1.12	0.51	0.14	0.52	1.58	2.64	1.59	2.11	2.63	2.10	1.56	2.03
Thu	06	7	1.18	0.52	0.33	0.67	1.58	2.63	1.59	2.11	2.63	2.10	1.57	2.05
Thu	07	8	1.17	0.62	0.46	0.82	1.58	2.56	1.57	2.10	2.61	2.10	1.56	2.06
Thu	08	9	0.94	0.91	0.67	0.82	1.53	2.20	1.51	2.02	2.50	2.04	1.57	2.05
Thu	09	10	0.58	0.69	0.68	0.67	1.45	1.46	1.24	1.72	1.95	1.60	1.57	2.05
Thu	10	11	0.50	0.61	0.70	0.65	0.94	0.96	0.64	1.14	1.12	1.23	1.56	2.06
Thu	11	12	0.29	0.62	0.58	0.66	0.83	0.82	0.48	0.96	0.94	1.04	1.38	2.07
Thu	12	13	0.46	0.63	0.97	0.82	0.64	0.83	0.47	0.86	0.66	0.46	1.27	2.02
Thu	13	14	0.49	1.24	1.79	0.77	0.59	0.83	0.36	0.75	0.68	0.37	1.26	1.64
Thu	14	15	0.46	1.59	2.09	1.23	0.63	0.94	0.41	0.75	0.76	0.45	1.15	1.06
Thu	15	16	0.58	1.68	2.07	1.22	0.72	1.06	0.61	0.96	0.96	0.50	0.96	0.72
Thu	16	17	0.69	1.61	2.09	1.20	0.81	1.08	0.75	1.04	0.94	0.67	0.68	0.44
Thu	17	18	0.72	1.69	2.10	1.19	0.77	1.07	0.68	1.03	0.89	0.64	0.59	0.68
Thu	18	19	0.73	1.70	2.10	1.20	0.76	1.03	0.65	1.02	0.86	0.63	0.44	0.85
Thu	19	20	0.70	1.71	2.10	1.20	0.71	0.98	0.61	1.00	0.81	0.86	0.68	1.26
Thu	20	21	0.88	1.78	2.11	1.31	0.94	1.04	1.14	1.34	1.20	1.27	0.73	1.68
Thu	21	22	1.69	1.86	2.11	1.44	1.40	2.03	1.65	2.02	2.11	1.86	0.93	1.56
Thu	22	23	1.89	2.07	2.11	1.58	1.60	2.63	1.58	2.09	2.53	2.07	1.01	1.53
Thu	23	24	2.07	2.05	2.08	1.58	1.57	2.64	1.56	2.09	2.59	2.05	1.02	1.54
Fri	00	1	2.07	2.00	1.75	1.54	1.58	2.09	2.10	2.10	2.61	2.06	1.03	1.54
Fri	01	2	2.08	1.43	1.29	1.51	1.58	2.11	2.10	2.10	2.62	2.08	1.04	1.56
Fri	02	3	2.09	0.52	0.58	0.78	1.58	2.12	2.10	2.12	2.63	2.07	1.04	1.56
Fri	03	4	2.08	0.52	0.19	0.52	1.59	2.12	2.11	2.11	2.62	2.07	1.04	1.56
Fri	04	5	2.10	0.53	0.14	0.52	1.58	2.13	2.10	2.11	2.35	2.08	1.04	1.55
Fri	05	6	2.09	0.53	0.22	0.52	1.60	2.13	2.09	2.12	2.36	2.09	1.05	1.56
Fri	06	7	2.09	0.62	0.15	0.52	1.59	2.12	1.88	2.11	2.37	2.08	1.06	1.55
Fri	07	8	2.06	0.76	0.15	0.52	1.58	2.06	1.73	2.10	2.34	2.08	1.06	1.54
Fri	08	9	1.90	0.93	0.14	0.50	1.52	1.70	1.67	2.02	2.27	2.02	1.05	1.56
Fri	09	10	1.53	0.76	0.17	0.46	1.18	1.27	1.20	1.63	2.02	1.69	1.05	1.56
Fri	10	11	0.61	0.65	0.29	0.29	0.66	0.77	0.84	0.82	1.48	1.01	1.06	1.56
Fri	11	12	0.43	0.61	0.32	0.29	0.61	0.66	0.75	0.76	1.28	0.68	1.07	1.57
Fri	12	13	0.31	0.80	0.34	0.29	0.58	0.57	0.73	0.72	1.00	0.64	1.05	1.53
Fri	13	14	0.29	1.11	0.47	0.29	0.46	0.48	0.72	0.72	0.85	0.61	0.98	1.44
Fri	14	15	0.34	1.71	0.68	0.19	0.43	0.53	0.67	0.77	0.87	0.62	0.72	0.98
Fri	15	16	0.45	1.67	0.66	0.15	0.46	0.59	0.57	0.90	0.91	0.72	0.60	0.69
Fri	16	17	0.51	1.69	0.67	0.14	0.51	0.58	0.60	0.99	0.94	0.83	0.36	0.64
Fri	17	18	0.50	1.70	0.63	0.14	0.57	0.52	0.78	1.02	0.94	0.60	0.33	0.65
Fri	18	19	0.50	1.71	0.53	0.05	0.50	0.50	0.78	0.97	0.84	0.52	0.31	0.73
Fri	19	20	0.49	1.70	0.53	0.00	0.41	0.48	0.76	1.02	0.81	0.50	0.39	1.28
Fri	20	21	0.65	1.78	0.53	0.00	0.26	0.63	0.93	1.26	1.18	0.92	0.66	1.54
Fri	21	22	1.11	1.89	0.52	0.00	0.46	1.06	1.29	1.90	1.96	1.63	0.86	1.53
Fri	22	23	1.54	2.09	0.50	0.00	0.53	1.54	1.50	2.08	2.34	1.88	1.03	1.54
Fri	23	24	1.56	2.06	0.39	0.00	0.52	1.57	1.56	2.08	2.54	2.05	1.02	1.54
Sat	00	1	1.56	1.97	0.19	0.00	0.52	1.57	1.56	2.08	2.07	2.57	1.27	1.54
Sat	01	2	1.57	1.35	0.00	0.00	0.52	1.58	1.56	1.91	2.08	2.59	1.28	1.54
Sat	02	3	1.56	0.68	0.00	0.00	0.52	1.59	1.57	1.58	2.09	2.58	1.28	1.54
Sat	03	4	1.57	0.69	0.00	0.00	0.52	1.59	1.58	2.10	2.10	2.59	1.27	1.54
Sat	04	5	1.57	0.68	0.00	0.00	0.53	1.59	1.58	2.09	2.10	2.60	1.28	1.54
Sat	05	6	1.57	0.68	0.00	0.00	0.53	1.60	1.59	2.09	2.12	2.52	1.28	1.55
Sat	06	7	1.57	0.67	0.00	0.00	0.53	1.59	1.59	2.10	2.12	2.62	1.28	1.55
Sat	07	8	1.57	0.67	0.00	0.00	0.53	1.55	1.58	2.08	2.10	2.61	1.29	1.56
Sat	08	9	1.52	0.65	0.00	0.00	0.51	1.23	1.56	2.01	2.03	2.57	1.29	1.57
Sat	09	10	1.18	0.65	0.00	0.00	0.38	0.87	1.57	1.70	1.73	2.20	1.30	1.57
Sat	10	11	0.61	0.35	0.00	0.00	0.15	0.52	1.13	0.93	1.04	1.50	1.29	1.57
Sat	11	12	0.41	0.24	0.00	0.00	0.00	0.45	0.86	0.85	0.67	0.97	1.29	1.57
Sat	12	13	0.12	0.23	0.00	0.00	0.00	0.57	0.94	1.01	0.67	0.90	1.25	1.53
Sat	13	14	0.12	0.51	0.00	0.00	0.00	0.74	0.94	1.10	0.92	1.02	1.14	1.37
Sat	14	15	0.00	0.67	0.00	0.00	0.00	0.78	0.82	1.10	1.03	1.09	0.76	0.66
Sat	15	16	0.00	0.67	0.00	0.00	0.00	0.74	0.82	1.10	1.04	1.05	0.48	0.40
Sat	16	17	0.00	0.67	0.00	0.00	0.00	0.69	0.81	1.09	1.03	0.99	0.48	0.35
Sat	17	18	0.00	0.67	0.00	0.00	0.00	0.64	0.80	1.03	0.99	0.91	0.48	0.33
Sat	18	19	0.00	0.67	0.00	0.00	0.00	0.58	0.77	0.93	0.94	0.82	0.48	0.44
Sat	19	20	0.00	0.67	0.00	0.00	0.00	0.50	0.84	0.76	0.86	0.80	0.47	0.62
Sat	20	21	0.00	0.65	0.00	0.00	0.00	0.71	1.01	0.90	0.98	1.15	0.43	0.54
Sat	21	22	0.00	0.53	0.00	0.00	0.00	1.15	1.56	1.50	1.91	1.98	0.86	0.51
Sat	22	23	0.00	0.53	0.00	0.00	0.00	1.60	1.58	1.71	2.07	2.06	1.01	0.51
Sat	23	24	0.00	0.53	0.00	0.00	0.00	1.57	1.57	1.66	2.08	2.08	1.01	0.52

P:\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\Report\App B - emission calculations\[Table B-1d.xlsx]Summary allocation

Notes:
1. It is assumed that the emission rate is linear with fan amps.
2. Variable emission rate factors were calculated using the fan amps for a given month, day, and hour divided by the total fan amps in 2011 and then we multiplied this fraction by 2016 (12 months/yr, 7 days/week, and 24 hours/day).

Table B-2 Billet Reheat Furnace (BRF) TAC Emissions
TAMCO Steel Mill
Rancho Cucamonga, California

TAC	CAS	Metals Emission Testing Reheat Billet Furnace January 16 and 18, 2013[1] Average lb/hr	Average lb/ton	Total lb/ton	Annual Throughput[2] ton/yr	source	Maximum Hourly Throughput ton/hr	source	Annual Emission lb/yr	Hourly Emissions lb/hr
Arsenic	7440382	8.20E-05	1.11E-06	1.59E-06	246,525	2011 AER	134	Based on throughput data during the source test conducted in 2007 to represent the maximum hourly throughput from recent testing.	3.92E-01	2.13E-04
Beryllium	7440417	1.09E-05	1.46E-07	2.09E-07					5.15E-02	2.80E-05
Cadmium	7440439	4.46E-05	5.74E-07	8.28E-07					2.04E-01	1.11E-04
Chromium	7440473	2.95E-04	3.98E-06	5.72E-06					1.41E+00	7.66E-04
Copper	7440508	3.05E-03	4.10E-05	5.89E-05					1.45E+01	7.89E-03
Lead	7439921	7.69E-04	1.04E-05	1.49E-05					3.67E+00	2.00E-03
Manganese	7439965	5.79E-04	7.78E-06	1.12E-05					2.76E+00	1.50E-03
Nickel	7440020	1.42E-04	1.89E-06	2.72E-06					6.71E-01	3.64E-04
Selenium	7782492	1.09E-04	1.44E-06	2.06E-06					5.08E-01	2.76E-04
Zinc	7440666	7.22E-04	9.66E-06	1.39E-05					3.43E+00	1.86E-03

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Note:
1. From "Test Report for Lead and Multiple Metals Testing At Gerdau's Billet Reheat Furnace, April 19, 2013"
2. This reprents the billets (ton) produced in 2011 based on TAMCO's 2011 production records.

Table B-3 Caster Spray Chamber (CSC) TAC Emissions
TAMCO Steel Mill
Rancho Cucamonga, California

TAC	CAS	Metals Emission Testing Gerdau Caster Spray Chamber January 29 and February 5 2013[1] Average lb/hr	Average lb/ton	Annual Throughput[2] ton/yr	Reference	Maximum Hourly Throughput ton/hr	Reference	Annual Emission lb/yr	Hourly Emissions[3] lb/hr
Arsenic	7440382	4.59E-05	4.38E-07	246,525	2011 AER	134	Based on throughput data during the source test conducted in 2007 to represent the maximum hourly throughput from recent testing.	1.08E-01	5.87E-05
Beryllium	7440417	6.11E-06	5.94E-08					1.46E-02	7.96E-06
Cadmium	7440439	3.27E-05	3.21E-07					7.91E-02	4.30E-05
Chromium	7440473	1.03E-04	1.00E-06					2.47E-01	1.34E-04
Copper	7440508	1.96E-03	1.89E-05					4.66E+00	2.53E-03
Lead	7439921	1.35E-03	1.33E-05					3.28E+00	1.78E-03
Manganese	7439965	1.46E-03	1.43E-05					3.53E+00	1.92E-03
Nickel	7440020	9.23E-05	8.99E-07					2.22E-01	1.20E-04
Selenium	7782492	4.96E-05	4.90E-07					1.21E-01	6.57E-05
Zinc	7440666	5.59E-03	5.50E-05					1.36E+01	7.37E-03

Note:
1. From "Test Report For Lead and Multiple Metals Testing at Gerdau's Caster Spray Chamber Exhaust". 2013
2. This reprents the billets (ton) produced in 2011 based on TAMCO's 2011 production records.
3. Calculated as the emission factor in lb/ton from the source test multiplied by the maximum hourly throughput.

Table B-4a. Emergenecy Diesel Internal Combustion Engines (Emergency DICE) - DPM Emission Estimates
TAMCO Steel Mill
Rancho Cucamonga, California

Form ID - Line No. (from AER)	Device Description	Equipment ID	Pollutant	CAS #	Annual Throughput[1]		Emission Factor[1]	Annual Emissions[1]
					Quantity	Unit	lb/throughput	lb/yr
B2-1	EAF Emergency Generator	D37	Diesel exhaust particulates	9901	0.17	1000 gals/yr	33.5	5.70E+00
B2-2	BRF Emergency Generator	D41	Diesel exhaust particulates	9901	0.18	1000 gals/yr	33.5	6.03E+00

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Note:
1. Annual emissions were calculated based on the 2011 throughout data and the AQMD default emission factors for fuel combustion per Appendix B of Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory.

Table B-4b. Natural Gas Emergency Generator (D45) TAC Emissions
TAMCO Steel Mill
Rancho Cucamonga, California

Form ID - Line No. (from AER)	Device Description	Equipment ID	Pollutant	CAS #	Annual Throughput[1]		Emission Factor[1]	Annual Emissions[1]	Max Hourly Emissions[2]
					Quantity	Unit	lb/throughput	lb/yr	lb/hr
B2-3	Office Emergency Generator	D45	Ethylene Dibromide	106934	0.01	MMscf/yr	0.0217	2.17E-04	1.63E-06
B2-3	Office Emergency Generator	D45	1,3-Butadiene	106990	0.01	MMscf/yr	0.676	6.76E-03	5.07E-05
B2-3	Office Emergency Generator	D45	Ethylene Dichloride	107062	0.01	MMscf/yr	0.0115	1.15E-04	8.63E-07
B2-3	Office Emergency Generator	D45	Formaldehyde	50000	0.01	MMscf/yr	20.9	2.09E-01	1.57E-03
B2-3	Office Emergency Generator	D45	Carbon Tetrachloride	56235	0.01	MMscf/yr	0.0181	1.81E-04	1.36E-06
B2-3	Office Emergency Generator	D45	Benzene	71432	0.01	MMscf/yr	1.61	1.61E-02	1.21E-04
B2-3	Office Emergency Generator	D45	Vinyl Chloride	75014	0.01	MMscf/yr	0.00732	7.32E-05	5.49E-07
B2-3	Office Emergency Generator	D45	Methylene Chloride	75092	0.01	MMscf/yr	0.0420	4.20E-04	3.15E-06
B2-3	Office Emergency Generator	D45	Ammonia	7664417	0.01	MMscf/yr	3.2	3.20E-02	2.40E-04
B2-3	Office Emergency Generator	D45	Naphthalene	91203	0.01	MMscf/yr	0.0990	9.90E-04	7.43E-06
B2-3	Office Emergency Generator	D45	Ethyl benzene	100414	0.01	MMscf/yr	0.0253	2.53E-04	1.90E-06
B2-3	Office Emergency Generator	D45	Styrene	100425	0.01	MMscf/yr	0.0121	1.21E-04	9.08E-07
B2-3	Office Emergency Generator	D45	Acrolein	107028	0.01	MMscf/yr	2.68	2.68E-02	2.01E-04
B2-3	Office Emergency Generator	D45	Toluene	108883	0.01	MMscf/yr	0.569	5.69E-03	4.27E-05
B2-3	Office Emergency Generator	D45	Xylenes	1330207	0.01	MMscf/yr	0.199	1.99E-03	1.49E-05
B2-3	Office Emergency Generator	D45	1,3-Dichloropropene	542756	0.01	MMscf/yr	0.0130	1.30E-04	9.75E-07
B2-3	Office Emergency Generator	D45	Methanol	67561	0.01	MMscf/yr	3.12	3.12E-02	2.34E-04
B2-3	Office Emergency Generator	D45	Chloroform	67663	0.01	MMscf/yr	0.0140	1.40E-04	1.05E-06
B2-3	Office Emergency Generator	D45	Acetaldehyde	75070	0.01	MMscf/yr	2.85	2.85E-02	2.14E-04
B2-3	Office Emergency Generator	D45	1,2-Dichloropropane	78875	0.01	MMscf/yr	0.0133	1.33E-04	9.98E-07
B2-3	Office Emergency Generator	D45	1,1,2-Trichloroethane	79005	0.01	MMscf/yr	0.0156	1.56E-04	1.17E-06
B2-3	Office Emergency Generator	D45	1,1,2,2-Tetrachloroethane	79345	0.01	MMscf/yr	0.0258	2.58E-04	1.94E-06

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Calculation Factors

200	hrs/year; operating hours limit for emergency generators
1.5	Factor for converting average hourly emissions to maximum 1-hr emissions

Note:

1. Annual emissions were calculated based on the 2011 throughout data and the AQMD default emission factors for fuel combustion per Appendix B of Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory.

2. The hourly emissions have been calculated based on the annual emissions divided by the hours of operation in the permit limit and scaled up by 50% to account for the maximum hourly rate.

Table B-4c. Portable Diesel Light Towers - DPM Emission Estimates
TAMCO Steel Mill
Rancho Cucamonga, California

Data Input and Calculations	Value	Unit	Data Source
Engine rating	20.4	HP	Based on net continuous output rating from engine spec
Annual fuel consumption all 219 diesel ICE	11,300	gallons/yr	From 2011 AER
Percent of diesel fuel usage for light towers	90	%	Per TAMCO, 90% of the fuel usage was for light towers.
Annual fuel consumption volume - light towers[1]	10,170	gallons/yr	Calculated value
Fuel consumption rate[2]	200	g/hp/hr	Manufacturer Specifications (Kubota D905)
Diesel density	7.1	lb/gallons	AP-42, section 3.3, Gasoline and Diesel Industiral Engines
Annual fuel consumption weight - light towers[3]	32,781,978	g/yr	Calculated value
Operating hours(light towers combined)[4]	8,035	hour/yr	Calculated value
DPM emission factor	0.6	g/hp-hr	Based on EPA Tier 1 non-road engine emission standard
Annual DPM emissions - total[5]	216.6	lb/yr	Calculated value
Annual DPM emissions per tower[6]	36.1	lb/yr	Calculated value
Number of engines	6	engines	Obtained from TAMCO

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Notes:
1. Annual fuel usage for light towers is approximately 90% of the annual fuel consumption (gallon) for exempt diesel portable engines.
2. See Attachment A2 of Appendix A of the Amended HRA Report
3. Annual fuel consumption in gram was converted from the annual fuel consumption rate in gallon using the diesel density of 7.1 lb/gal.
4. Annual operating hours were estimated based on the annual fuel consumption divided by the fuel consumption rate.
5. DPM emissions were calculated based on the DPM emission factor, engine size, and the operating hours.
6. Per TAMCO, there are a total of 6 light towers onsite.

Table B-4d. Other Rule 219 Exempt Portable Engines
TAMCO Steel Mill
Rancho Cucamonga, California

Form ID - Line No. (from AER)	Device Description	Pollutant	CAS #	Annual Throughput[1]		Emission Factor[1]	Annual Emissions[1]	Max Hourly Emissions[2]
				Quantity	Unit	lb/throughput	lb/yr	lb/hr
B2U-1	219 Exempt Equipment, Diesel	Diesel exhaust particulates	9901	1.13	1000 gals/yr	33.5	3.79E+01	2.18E-01
B2U-2	219 Exempt Equipment, Gasoline	1,3-Butadiene	106990	2.28	1000 gals/yr	0.9183	2.09E+00	1.21E-02
B2U-2	219 Exempt Equipment, Gasoline	Formaldehyde	50000	2.28	1000 gals/yr	3.452	7.87E+00	4.54E-02
B2U-2	219 Exempt Equipment, Gasoline	Benzene	71432	2.28	1000 gals/yr	3.8061	8.68E+00	5.01E-02
B2U-2	219 Exempt Equipment, Gasoline	Nickel	7440020	2.28	1000 gals/yr	0.0033	7.52E-03	4.34E-05
B2U-2	219 Exempt Equipment, Gasoline	Naphthalene	91203	2.28	1000 gals/yr	0.1438	3.28E-01	1.89E-03
B2U-2	219 Exempt Equipment, Gasoline	Ethyl benzene	100414	2.28	1000 gals/yr	1.6596	3.78E+00	2.18E-02
B2U-2	219 Exempt Equipment, Gasoline	Styrene	100425	2.28	1000 gals/yr	0.1438	3.28E-01	1.89E-03
B2U-2	219 Exempt Equipment, Gasoline	Acrolein	107028	2.28	1000 gals/yr	0.1992	4.54E-01	2.62E-03
B2U-2	219 Exempt Equipment, Gasoline	Xylenes	108383	2.28	1000 gals/yr	4.92350	1.12E+01	6.48E-02
B2U-2	219 Exempt Equipment, Gasoline	Toluene	108883	2.28	1000 gals/yr	7.5125	1.71E+01	9.88E-02
B2U-2	219 Exempt Equipment, Gasoline	Hexane	110543	2.28	1000 gals/yr	1.4494	3.30E+00	1.91E-02
B2U-2	219 Exempt Equipment, Gasoline	Methyl tert-butyl ether	1634044	2.28	1000 gals/yr	2.0579	4.69E+00	2.71E-02
B2U-2	219 Exempt Equipment, Gasoline	Methanol	67561	2.28	1000 gals/yr	0.7745	1.77E+00	1.02E-02
B2U-2	219 Exempt Equipment, Gasoline	Manganese compounds	7439965	2.28	1000 gals/yr	0.0033	7.52E-03	4.34E-05
B2U-2	219 Exempt Equipment, Gasoline	Copper compounds	7440508	2.28	1000 gals/yr	0.0033	7.52E-03	4.34E-05
B2U-2	219 Exempt Equipment, Gasoline	Acetaldehyde	75070	2.28	1000 gals/yr	0.8298	1.89E+00	1.09E-02
B2U-2	219 Exempt Equipment, Gasoline	Chlorine	7782505	2.28	1000 gals/yr	0.455	1.04E+00	5.99E-03
B2U-2	219 Exempt Equipment, Gasoline	Methyl ethyl ketone	78933	2.28	1000 gals/yr	0.0664	1.51E-01	8.73E-04
B2U-2	219 Exempt Equipment, Gasoline	Xylenes	95476	2.28	1000 gals/yr	1.7149	3.91E+00	2.26E-02
B2U-2	219 Exempt Equipment, Gasoline	1,2,4-Trimethylbenzene	95636	2.28	1000 gals/yr	1.3941	3.18E+00	1.83E-02

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Calculation Factors

260	hrs/year (operating hours for the portable IC engines (1 hrs/day, 5 days/week,52 weeks/year)
1.5	Factor for converting average hourly emissions to maximum 1-hr emissions
0.1	90% of the fuel usage for the 219 exempt diesel ICE is due to light towers (see Table B-4c), while the remaining 10% is due to other portable engines such as welders

Note:

1. Annual emissions were calculated based on the 2011 throughout data and the AQMD default emission factors for fuel combustion per Appendix B of Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory.

2. The hourly emissions have been calculated based on the annual emissions divided by the hours of operation and scaled up by 50% to account for the maximum hourly rate.

Table B-5a. Mapping Road Dust Sample Location to Route Group
TAMCO Steel Mill
Rancho Cucamonga, California

Route Group		Sample Location/Sample ID
1	Scrap Delivery	P3
1	Scrap Delivery	P6
1	Scrap Delivery	P7
1	Scrap Delivery	U5
2	Transfer Scrap to Melt Shop	P2
2	Transfer Scrap to Melt Shop	P4
2	Transfer Scrap to Melt Shop	U5
3	Other Truck Routes	P1
3	Other Truck Routes	P5
3	Other Truck Routes	P8
3	Other Truck Routes	P9
3	Other Truck Routes	P10
3	Other Truck Routes	P11
3	Other Truck Routes	U1
3	Other Truck Routes	U2
3	Other Truck Routes	U3
3	Other Truck Routes	U4
3	Other Truck Routes	U6

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Notes:
1. Road dust at locations P1A through C (see Figure 6D) were collected in one vacuum bag and submitted as Sample P1
2. Road dust at locations P2A through C (see Figure 6D) were collected in one vacuum bag and submitted as Sample P2
3. U5 sampling results were used by both route group 2 and 3.

Table B-5b. Mapping Road Dust Sample Locations to the Roadway Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Group		AERMOD Source Group
1	Scrap Delivery	VP_37
1	Scrap Delivery	VP_23
1	Scrap Delivery	VP_24
1	Scrap Delivery	VP_25
1	Scrap Delivery	VP_26
2	Transfer Scrap to Melt Shop	VP_28
2	Transfer Scrap to Melt Shop	VP_27
2	Transfer Scrap to Melt Shop	VP_29
2	Other Truck Routes	VP_2
2	Other Truck Routes	VP_16
3	Other Truck Routes	VP_1
3	Other Truck Routes	VP_5
3	Other Truck Routes	VP_7
3	Other Truck Routes	VP_13
3	Other Truck Routes	VP_17
3	Other Truck Routes	VP_20
3	Other Truck Routes	VP_22
3	Other Truck Routes	VP_30
3	Other Truck Routes	VP_31
3	Other Truck Routes	VP_33
3	Other Truck Routes	VP_34
3	Other Truck Routes	VP_35
3	Other Truck Routes	VU_3
3	Other Truck Routes	VU_6
3	Other Truck Routes	VU_10
3	Other Truck Routes	VU_15
3	Other Truck Routes	VU_18
3	Other Truck Routes	VU_19
3	Other Truck Routes	VU_21

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Notes:
1. VP_2 was assigned to Route 2 as it is part of the composit dust sample P2.
2. VP_33 was assigned to Route 3 as it is part of the composited dust sample P1.
3. Figure 6E shows the locations of these modeled segments in AERMOD.

Table B-5c. Metal Concentrations for the Road Dust Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Sample ID	Chemical	CAS	TAC Concentration (mg/kg)[1]	Route Group	
P1	Aluminum	7429-90-5	11000	3	Other Truck Routes
P1	Antimony	7440-36-0	3.6	3	Other Truck Routes
P1	Arsenic	7440-38-2	6.2	3	Other Truck Routes
P1	Barium	7440-39-3	410	3	Other Truck Routes
P1	Beryllium	7440-41-7	0.73	3	Other Truck Routes
P1	Cadmium	7440-43-9	7	3	Other Truck Routes
P1	Chromium	7440-47-3	730	3	Other Truck Routes
P1	Cobalt	7440-48-4	25	3	Other Truck Routes
P1	Copper	7440-50-8	490	3	Other Truck Routes
P1	Lead	7439-92-1	260	3	Other Truck Routes
P1	Manganese	7439-96-5	7600	3	Other Truck Routes
P1	Nickel	7440-02-0	210	3	Other Truck Routes
P1	Selenium	7782-49-2	0.51	3	Other Truck Routes
P1	Silver	7440-22-4	2.6	3	Other Truck Routes
P1	Thallium	7440-28-0	0.25	3	Other Truck Routes
P1	Vanadium	7440-62-2	140	3	Other Truck Routes
P1	Zinc	7440-66-6	2100	3	Other Truck Routes
P1	Chromium VI	18540-29-9	0.19	3	Other Truck Routes
P1	Mercury	7439-97-6	0.15	3	Other Truck Routes
P4	Aluminum	7429-90-5	7900	2	Transfer Scrap to Melt Shop
P4	Antimony	7440-36-0	9.6	2	Transfer Scrap to Melt Shop
P4	Arsenic	7440-38-2	10	2	Transfer Scrap to Melt Shop
P4	Barium	7440-39-3	450	2	Transfer Scrap to Melt Shop
P4	Beryllium	7440-41-7	0.34	2	Transfer Scrap to Melt Shop
P4	Cadmium	7440-43-9	13	2	Transfer Scrap to Melt Shop
P4	Chromium	7440-47-3	380	2	Transfer Scrap to Melt Shop
P4	Cobalt	7440-48-4	37	2	Transfer Scrap to Melt Shop
P4	Copper	7440-50-8	470	2	Transfer Scrap to Melt Shop
P4	Lead	7439-92-1	520	2	Transfer Scrap to Melt Shop
P4	Manganese	7439-96-5	2300	2	Transfer Scrap to Melt Shop
P4	Nickel	7440-02-0	280	2	Transfer Scrap to Melt Shop
P4	Selenium	7782-49-2	0.5	2	Transfer Scrap to Melt Shop
P4	Silver	7440-22-4	2.6	2	Transfer Scrap to Melt Shop
P4	Thallium	7440-28-0	0.12	2	Transfer Scrap to Melt Shop
P4	Vanadium	7440-62-2	52	2	Transfer Scrap to Melt Shop
P4	Zinc	7440-66-6	3500	2	Transfer Scrap to Melt Shop
P4	Chromium VI	18540-29-9	0.4	2	Transfer Scrap to Melt Shop
P4	Mercury	7439-97-6	2.2	2	Transfer Scrap to Melt Shop
U2	Aluminum	7429-90-5	16000	3	Other Truck Routes
U2	Antimony	7440-36-0	1.7	3	Other Truck Routes
U2	Arsenic	7440-38-2	4	3	Other Truck Routes
U2	Barium	7440-39-3	390	3	Other Truck Routes
U2	Beryllium	7440-41-7	1	3	Other Truck Routes
U2	Cadmium	7440-43-9	4.4	3	Other Truck Routes
U2	Chromium	7440-47-3	720	3	Other Truck Routes
U2	Cobalt	7440-48-4	12	3	Other Truck Routes
U2	Copper	7440-50-8	270	3	Other Truck Routes
U2	Lead	7439-92-1	170	3	Other Truck Routes
U2	Manganese	7439-96-5	9500	3	Other Truck Routes
U2	Nickel	7440-02-0	110	3	Other Truck Routes
U2	Selenium	7782-49-2	1.2	3	Other Truck Routes
U2	Silver	7440-22-4	0.78	3	Other Truck Routes
U2	Thallium	7440-28-0	0.6	3	Other Truck Routes
U2	Vanadium	7440-62-2	150	3	Other Truck Routes
U2	Zinc	7440-66-6	1500	3	Other Truck Routes
U2	Chromium VI	18540-29-9	0.46	3	Other Truck Routes
U2	Mercury	7439-97-6	0.055	3	Other Truck Routes
U3	Aluminum	7429-90-5	17000	3	Other Truck Routes
U3	Antimony	7440-36-0	1.5	3	Other Truck Routes
U3	Arsenic	7440-38-2	4.1	3	Other Truck Routes
U3	Barium	7440-39-3	440	3	Other Truck Routes
U3	Beryllium	7440-41-7	1	3	Other Truck Routes
U3	Cadmium	7440-43-9	5.3	3	Other Truck Routes
U3	Chromium	7440-47-3	1200	3	Other Truck Routes

Table B-5c. Metal Concentrations for the Road Dust Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Sample ID	Chemical	CAS	TAC Concentration (mg/kg)[1]	Route Group	
U3	Cobalt	7440-48-4	13	3	Other Truck Routes
U3	Copper	7440-50-8	310	3	Other Truck Routes
U3	Lead	7439-92-1	200	3	Other Truck Routes
U3	Manganese	7439-96-5	12000	3	Other Truck Routes
U3	Nickel	7440-02-0	120	3	Other Truck Routes
U3	Selenium	7782-49-2	0.47	3	Other Truck Routes
U3	Silver	7440-22-4	1.1	3	Other Truck Routes
U3	Thallium	7440-28-0	0.25	3	Other Truck Routes
U3	Vanadium	7440-62-2	220	3	Other Truck Routes
U3	Zinc	7440-66-6	1900	3	Other Truck Routes
U3	Chromium VI	18540-29-9	0.62	3	Other Truck Routes
U3	Mercury	7439-97-6	0.13	3	Other Truck Routes
U1	Aluminum	7429-90-5	21000	3	Other Truck Routes
U1	Antimony	7440-36-0	1.3	3	Other Truck Routes
U1	Arsenic	7440-38-2	3	3	Other Truck Routes
U1	Barium	7440-39-3	750	3	Other Truck Routes
U1	Beryllium	7440-41-7	1.4	3	Other Truck Routes
U1	Cadmium	7440-43-9	2.9	3	Other Truck Routes
U1	Chromium	7440-47-3	1200	3	Other Truck Routes
U1	Cobalt	7440-48-4	7.2	3	Other Truck Routes
U1	Copper	7440-50-8	220	3	Other Truck Routes
U1	Lead	7439-92-1	120	3	Other Truck Routes
U1	Manganese	7439-96-5	15000	3	Other Truck Routes
U1	Nickel	7440-02-0	76	3	Other Truck Routes
U1	Selenium	7782-49-2	0.79	3	Other Truck Routes
U1	Silver	7440-22-4	0.79	3	Other Truck Routes
U1	Thallium	7440-28-0	0.255	3	Other Truck Routes
U1	Vanadium	7440-62-2	300	3	Other Truck Routes
U1	Zinc	7440-66-6	1200	3	Other Truck Routes
U1	Chromium VI	18540-29-9	0.44	3	Other Truck Routes
U1	Mercury	7439-97-6	0.01	3	Other Truck Routes
U5	Aluminum	7429-90-5	9600	1	Scrap Delivery
U5	Antimony	7440-36-0	12	1	Scrap Delivery
U5	Arsenic	7440-38-2	15	1	Scrap Delivery
U5	Barium	7440-39-3	570	1	Scrap Delivery
U5	Beryllium	7440-41-7	0.39	1	Scrap Delivery
U5	Cadmium	7440-43-9	18	1	Scrap Delivery
U5	Chromium	7440-47-3	670	1	Scrap Delivery
U5	Cobalt	7440-48-4	140	1	Scrap Delivery
U5	Copper	7440-50-8	780	1	Scrap Delivery
U5	Lead	7439-92-1	750	1	Scrap Delivery
U5	Manganese	7439-96-5	2200	1	Scrap Delivery
U5	Nickel	7440-02-0	900	1	Scrap Delivery
U5	Selenium	7782-49-2	0.66	1	Scrap Delivery
U5	Silver	7440-22-4	3.2	1	Scrap Delivery
U5	Thallium	7440-28-0	0.16	1	Scrap Delivery
U5	Vanadium	7440-62-2	57	1	Scrap Delivery
U5	Zinc	7440-66-6	4800	1	Scrap Delivery
U5	Chromium VI	18540-29-9	0.35	1	Scrap Delivery
U5	Mercury	7439-97-6	5.3	1	Scrap Delivery
P7	Aluminum	7429-90-5	8900	1	Scrap Delivery
P7	Antimony	7440-36-0	5	1	Scrap Delivery
P7	Arsenic	7440-38-2	9.1	1	Scrap Delivery
P7	Barium	7440-39-3	370	1	Scrap Delivery
P7	Beryllium	7440-41-7	0.43	1	Scrap Delivery
P7	Cadmium	7440-43-9	9.7	1	Scrap Delivery
P7	Chromium	7440-47-3	520	1	Scrap Delivery
P7	Cobalt	7440-48-4	32	1	Scrap Delivery
P7	Copper	7440-50-8	480	1	Scrap Delivery
P7	Lead	7439-92-1	310	1	Scrap Delivery
P7	Manganese	7439-96-5	4600	1	Scrap Delivery
P7	Nickel	7440-02-0	260	1	Scrap Delivery
P7	Selenium	7782-49-2	0.39	1	Scrap Delivery
P7	Silver	7440-22-4	2	1	Scrap Delivery

Table B-5c. Metal Concentrations for the Road Dust Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Sample ID	Chemical	CAS	TAC Concentration (mg/kg)[1]	Route Group	
P7	Thallium	7440-28-0	0.25	1	Scrap Delivery
P7	Vanadium	7440-62-2	78	1	Scrap Delivery
P7	Zinc	7440-66-6	2800	1	Scrap Delivery
P7	Chromium VI	18540-29-9	0.33	1	Scrap Delivery
P7	Mercury	7439-97-6	0.37	1	Scrap Delivery
P6	Aluminum	7429-90-5	9400	1	Scrap Delivery
P6	Antimony	7440-36-0	0.93	1	Scrap Delivery
P6	Arsenic	7440-38-2	8.1	1	Scrap Delivery
P6	Barium	7440-39-3	340	1	Scrap Delivery
P6	Beryllium	7440-41-7	0.48	1	Scrap Delivery
P6	Cadmium	7440-43-9	8.4	1	Scrap Delivery
P6	Chromium	7440-47-3	370	1	Scrap Delivery
P6	Cobalt	7440-48-4	17	1	Scrap Delivery
P6	Copper	7440-50-8	350	1	Scrap Delivery
P6	Lead	7439-92-1	250	1	Scrap Delivery
P6	Manganese	7439-96-5	4600	1	Scrap Delivery
P6	Nickel	7440-02-0	130	1	Scrap Delivery
P6	Selenium	7782-49-2	0.37	1	Scrap Delivery
P6	Silver	7440-22-4	1.4	1	Scrap Delivery
P6	Thallium	7440-28-0	0.25	1	Scrap Delivery
P6	Vanadium	7440-62-2	77	1	Scrap Delivery
P6	Zinc	7440-66-6	2500	1	Scrap Delivery
P6	Chromium VI	18540-29-9	0.39	1	Scrap Delivery
P6	Mercury	7439-97-6	0.39	1	Scrap Delivery
P9	Aluminum	7429-90-5	10000	3	Other Truck Routes
P9	Antimony	7440-36-0	2.5	3	Other Truck Routes
P9	Arsenic	7440-38-2	7.3	3	Other Truck Routes
P9	Barium	7440-39-3	270	3	Other Truck Routes
P9	Beryllium	7440-41-7	0.56	3	Other Truck Routes
P9	Cadmium	7440-43-9	4.3	3	Other Truck Routes
P9	Chromium	7440-47-3	550	3	Other Truck Routes
P9	Cobalt	7440-48-4	20	3	Other Truck Routes
P9	Copper	7440-50-8	310	3	Other Truck Routes
P9	Lead	7439-92-1	160	3	Other Truck Routes
P9	Manganese	7439-96-5	6600	3	Other Truck Routes
P9	Nickel	7440-02-0	140	3	Other Truck Routes
P9	Selenium	7782-49-2	0.44	3	Other Truck Routes
P9	Silver	7440-22-4	1.5	3	Other Truck Routes
P9	Thallium	7440-28-0	0.25	3	Other Truck Routes
P9	Vanadium	7440-62-2	95	3	Other Truck Routes
P9	Zinc	7440-66-6	1400	3	Other Truck Routes
P9	Chromium VI	18540-29-9	0.37	3	Other Truck Routes
P9	Mercury	7439-97-6	0.12	3	Other Truck Routes
U6	Aluminum	7429-90-5	14000	3	Other Truck Routes
U6	Antimony	7440-36-0	1.5	3	Other Truck Routes
U6	Arsenic	7440-38-2	7.7	3	Other Truck Routes
U6	Barium	7440-39-3	300	3	Other Truck Routes
U6	Beryllium	7440-41-7	0.79	3	Other Truck Routes
U6	Cadmium	7440-43-9	2.3	3	Other Truck Routes
U6	Chromium	7440-47-3	680	3	Other Truck Routes
U6	Cobalt	7440-48-4	16	3	Other Truck Routes
U6	Copper	7440-50-8	290	3	Other Truck Routes
U6	Lead	7439-92-1	130	3	Other Truck Routes
U6	Manganese	7439-96-5	8500	3	Other Truck Routes
U6	Nickel	7440-02-0	110	3	Other Truck Routes
U6	Selenium	7782-49-2	0.42	3	Other Truck Routes
U6	Silver	7440-22-4	0.67	3	Other Truck Routes
U6	Thallium	7440-28-0	0.255	3	Other Truck Routes
U6	Vanadium	7440-62-2	140	3	Other Truck Routes
U6	Zinc	7440-66-6	750	3	Other Truck Routes
U6	Chromium VI	18540-29-9	0.45	3	Other Truck Routes
U6	Mercury	7439-97-6	0.09	3	Other Truck Routes
P10	Aluminum	7429-90-5	9100	3	Other Truck Routes
P10	Antimony	7440-36-0	3.9	3	Other Truck Routes

Table B-5c. Metal Concentrations for the Road Dust Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Sample ID	Chemical	CAS	TAC Concentration (mg/kg)[1]	Route Group	
P10	Arsenic	7440-38-2	6.1	3	Other Truck Routes
P10	Barium	7440-39-3	330	3	Other Truck Routes
P10	Beryllium	7440-41-7	0.49	3	Other Truck Routes
P10	Cadmium	7440-43-9	5.5	3	Other Truck Routes
P10	Chromium	7440-47-3	650	3	Other Truck Routes
P10	Cobalt	7440-48-4	26	3	Other Truck Routes
P10	Copper	7440-50-8	640	3	Other Truck Routes
P10	Lead	7439-92-1	190	3	Other Truck Routes
P10	Manganese	7439-96-5	7000	3	Other Truck Routes
P10	Nickel	7440-02-0	230	3	Other Truck Routes
P10	Selenium	7782-49-2	0.39	3	Other Truck Routes
P10	Silver	7440-22-4	1.5	3	Other Truck Routes
P10	Thallium	7440-28-0	0.25	3	Other Truck Routes
P10	Vanadium	7440-62-2	130	3	Other Truck Routes
P10	Zinc	7440-66-6	1800	3	Other Truck Routes
P10	Chromium VI	18540-29-9	0.32	3	Other Truck Routes
P10	Mercury	7439-97-6	0.19	3	Other Truck Routes
P3	Aluminum	7429-90-5	14000	1	Scrap Delivery
P3	Antimony	7440-36-0	11	1	Scrap Delivery
P3	Arsenic	7440-38-2	15	1	Scrap Delivery
P3	Barium	7440-39-3	660	1	Scrap Delivery
P3	Beryllium	7440-41-7	1.1	1	Scrap Delivery
P3	Cadmium	7440-43-9	21	1	Scrap Delivery
P3	Chromium	7440-47-3	1300	1	Scrap Delivery
P3	Cobalt	7440-48-4	110	1	Scrap Delivery
P3	Copper	7440-50-8	920	1	Scrap Delivery
P3	Lead	7439-92-1	750	1	Scrap Delivery
P3	Manganese	7439-96-5	3700	1	Scrap Delivery
P3	Nickel	7440-02-0	970	1	Scrap Delivery
P3	Selenium	7782-49-2	0.67	1	Scrap Delivery
P3	Silver	7440-22-4	3.6	1	Scrap Delivery
P3	Thallium	7440-28-0	0.19	1	Scrap Delivery
P3	Vanadium	7440-62-2	84	1	Scrap Delivery
P3	Zinc	7440-66-6	6300	1	Scrap Delivery
P3	Chromium VI	18540-29-9	0.25	1	Scrap Delivery
P3	Mercury	7439-97-6	0.13	1	Scrap Delivery
P8	Aluminum	7429-90-5	7500	3	Other Truck Routes
P8	Antimony	7440-36-0	2.8	3	Other Truck Routes
P8	Arsenic	7440-38-2	4.7	3	Other Truck Routes
P8	Barium	7440-39-3	240	3	Other Truck Routes
P8	Beryllium	7440-41-7	0.34	3	Other Truck Routes
P8	Cadmium	7440-43-9	3.9	3	Other Truck Routes
P8	Chromium	7440-47-3	350	3	Other Truck Routes
P8	Cobalt	7440-48-4	19	3	Other Truck Routes
P8	Copper	7440-50-8	330	3	Other Truck Routes
P8	Lead	7439-92-1	150	3	Other Truck Routes
P8	Manganese	7439-96-5	3700	3	Other Truck Routes
P8	Nickel	7440-02-0	140	3	Other Truck Routes
P8	Selenium	7782-49-2	0.51	3	Other Truck Routes
P8	Silver	7440-22-4	0.79	3	Other Truck Routes
P8	Thallium	7440-28-0	0.25	3	Other Truck Routes
P8	Vanadium	7440-62-2	74	3	Other Truck Routes
P8	Zinc	7440-66-6	1300	3	Other Truck Routes
P8	Chromium VI	18540-29-9	0.38	3	Other Truck Routes
P8	Mercury	7439-97-6	1.4	3	Other Truck Routes
P11	Aluminum	7429-90-5	10000	3	Other Truck Routes
P11	Antimony	7440-36-0	1.7	3	Other Truck Routes
P11	Arsenic	7440-38-2	7.6	3	Other Truck Routes
P11	Barium	7440-39-3	290	3	Other Truck Routes
P11	Beryllium	7440-41-7	0.66	3	Other Truck Routes
P11	Cadmium	7440-43-9	2.2	3	Other Truck Routes
P11	Chromium	7440-47-3	660	3	Other Truck Routes
P11	Cobalt	7440-48-4	19	3	Other Truck Routes
P11	Copper	7440-50-8	310	3	Other Truck Routes

Table B-5c. Metal Concentrations for the Road Dust Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Sample ID	Chemical	CAS	TAC Concentration (mg/kg)[1]	Route Group	
P11	Lead	7439-92-1	120	3	Other Truck Routes
P11	Manganese	7439-96-5	7300	3	Other Truck Routes
P11	Nickel	7440-02-0	120	3	Other Truck Routes
P11	Selenium	7782-49-2	0.45	3	Other Truck Routes
P11	Silver	7440-22-4	0.6	3	Other Truck Routes
P11	Thallium	7440-28-0	0.25	3	Other Truck Routes
P11	Vanadium	7440-62-2	110	3	Other Truck Routes
P11	Zinc	7440-66-6	680	3	Other Truck Routes
P11	Chromium VI	18540-29-9	0.23	3	Other Truck Routes
P11	Mercury	7439-97-6	0.2	3	Other Truck Routes
P5	Aluminum	7429-90-5	11000	3	Other Truck Routes
P5	Antimony	7440-36-0	1.8	3	Other Truck Routes
P5	Arsenic	7440-38-2	6	3	Other Truck Routes
P5	Barium	7440-39-3	320	3	Other Truck Routes
P5	Beryllium	7440-41-7	0.6	3	Other Truck Routes
P5	Cadmium	7440-43-9	6.2	3	Other Truck Routes
P5	Chromium	7440-47-3	470	3	Other Truck Routes
P5	Cobalt	7440-48-4	14	3	Other Truck Routes
P5	Copper	7440-50-8	220	3	Other Truck Routes
P5	Lead	7439-92-1	160	3	Other Truck Routes
P5	Manganese	7439-96-5	14000	3	Other Truck Routes
P5	Nickel	7440-02-0	100	3	Other Truck Routes
P5	Selenium	7782-49-2	0.5	3	Other Truck Routes
P5	Silver	7440-22-4	0.94	3	Other Truck Routes
P5	Thallium	7440-28-0	0.25	3	Other Truck Routes
P5	Vanadium	7440-62-2	130	3	Other Truck Routes
P5	Zinc	7440-66-6	1700	3	Other Truck Routes
P5	Chromium VI	18540-29-9	0.15	3	Other Truck Routes
P5	Mercury	7439-97-6	0.072	3	Other Truck Routes
U4	Aluminum	7429-90-5	12000	3	Other Truck Routes
U4	Antimony	7440-36-0	3.1	3	Other Truck Routes
U4	Arsenic	7440-38-2	5.8	3	Other Truck Routes
U4	Barium	7440-39-3	240	3	Other Truck Routes
U4	Beryllium	7440-41-7	0.44	3	Other Truck Routes
U4	Cadmium	7440-43-9	5.2	3	Other Truck Routes
U4	Chromium	7440-47-3	330	3	Other Truck Routes
U4	Cobalt	7440-48-4	18	3	Other Truck Routes
U4	Copper	7440-50-8	410	3	Other Truck Routes
U4	Lead	7439-92-1	200	3	Other Truck Routes
U4	Manganese	7439-96-5	3400	3	Other Truck Routes
U4	Nickel	7440-02-0	150	3	Other Truck Routes
U4	Selenium	7782-49-2	1.55	3	Other Truck Routes
U4	Silver	7440-22-4	1.1	3	Other Truck Routes
U4	Thallium	7440-28-0	0.38	3	Other Truck Routes
U4	Vanadium	7440-62-2	62	3	Other Truck Routes
U4	Zinc	7440-66-6	1500	3	Other Truck Routes
U4	Chromium VI	18540-29-9	0.6	3	Other Truck Routes
U4	Mercury	7439-97-6	0.14	3	Other Truck Routes
P2	Aluminum	7429-90-5	11000	2	Transfer Scrap to Melt Shop
P2	Antimony	7440-36-0	0.7	2	Transfer Scrap to Melt Shop
P2	Arsenic	7440-38-2	6.1	2	Transfer Scrap to Melt Shop
P2	Barium	7440-39-3	470	2	Transfer Scrap to Melt Shop
P2	Beryllium	7440-41-7	0.6	2	Transfer Scrap to Melt Shop
P2	Cadmium	7440-43-9	7.2	2	Transfer Scrap to Melt Shop
P2	Chromium	7440-47-3	450	2	Transfer Scrap to Melt Shop
P2	Cobalt	7440-48-4	14	2	Transfer Scrap to Melt Shop
P2	Copper	7440-50-8	320	2	Transfer Scrap to Melt Shop
P2	Lead	7439-92-1	260	2	Transfer Scrap to Melt Shop
P2	Manganese	7439-96-5	6300	2	Transfer Scrap to Melt Shop
P2	Nickel	7440-02-0	99	2	Transfer Scrap to Melt Shop
P2	Selenium	7782-49-2	0.39	2	Transfer Scrap to Melt Shop
P2	Silver	7440-22-4	1.5	2	Transfer Scrap to Melt Shop
P2	Thallium	7440-28-0	0.25	2	Transfer Scrap to Melt Shop
P2	Vanadium	7440-62-2	130	2	Transfer Scrap to Melt Shop

Table B-5c. Metal Concentrations for the Road Dust Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Sample ID	Chemical	CAS	TAC Concentration (mg/kg)[1]	Route Group	
P2	Zinc	7440-66-6	2000	2	Transfer Scrap to Melt Shop
P2	Chromium VI	18540-29-9	0.405	2	Transfer Scrap to Melt Shop
P2	Mercury	7439-97-6	0.4	2	Transfer Scrap to Melt Shop
U5	Aluminum	7429-90-5	9600	2	Transfer Scrap to Melt Shop
U5	Antimony	7440-36-0	12	2	Transfer Scrap to Melt Shop
U5	Arsenic	7440-38-2	15	2	Transfer Scrap to Melt Shop
U5	Barium	7440-39-3	570	2	Transfer Scrap to Melt Shop
U5	Beryllium	7440-41-7	0.39	2	Transfer Scrap to Melt Shop
U5	Cadmium	7440-43-9	18	2	Transfer Scrap to Melt Shop
U5	Chromium	7440-47-3	670	2	Transfer Scrap to Melt Shop
U5	Cobalt	7440-48-4	140	2	Transfer Scrap to Melt Shop
U5	Copper	7440-50-8	780	2	Transfer Scrap to Melt Shop
U5	Lead	7439-92-1	750	2	Transfer Scrap to Melt Shop
U5	Manganese	7439-96-5	2200	2	Transfer Scrap to Melt Shop
U5	Nickel	7440-02-0	900	2	Transfer Scrap to Melt Shop
U5	Selenium	7782-49-2	0.66	2	Transfer Scrap to Melt Shop
U5	Silver	7440-22-4	3.2	2	Transfer Scrap to Melt Shop
U5	Thallium	7440-28-0	0.16	2	Transfer Scrap to Melt Shop
U5	Vanadium	7440-62-2	57	2	Transfer Scrap to Melt Shop
U5	Zinc	7440-66-6	4800	2	Transfer Scrap to Melt Shop
U5	Chromium VI	18540-29-9	0.35	2	Transfer Scrap to Melt Shop
U5	Mercury	7439-97-6	5.3	2	Transfer Scrap to Melt Shop

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Notes:
1. Half of the detection limit was used to represent ND.

Table B-5d. Avereage Metal Concentrations in Road Dust by Route Group
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	ENVIRON 2013 Road Dust Samples		
	Metal Concentration (ppm)		
	Route Gorup 1: Scrap Delivery	Route Gorup 2: Scrap Transfer to Meltshop	Route Group 3: Other Traffic Routes
Antimony	7.2	7.4	2.3
Aluminum	10,475	9,500	12,600
Arsenic	12	10	6
Beryllium	0.6	0.4	0.7
Barium	485	497	362
Cadmium	14	13	4
Cobalt	75	64	17
Chromium	715	500	685
Chromium VI	0.33	0.39	0.38
Copper	633	523	345
Lead	515	510	169
Manganese	3,775	3,600	8,600
Mercury	1.5	2.6	0.2
Nickel	565	426	137
Selenium	0.5	0.5	0.7
Silver	2.55	2.43	1.12
Thallium	0.21	0.18	0.29
Vanadium	74	80	141
Zinc	4,100	3,433	1,439

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Note:
1. The metal concentrations are based on the analytical results for ENVIRON's dust samples collected in June 2013.

Table B-5e. Toxic Metal Concentrations for Slag Samples
TAMCO Steel Mill
Rancho Cucamonga, California

Chemical	TAMCO Slag Samples[1]						
	9/21/2005	3/4/2011	7/2/2012				Average
	EAF Slag	EAF Slag	EAF slag base	EAF Slag 1 1/2-3/4	EAF Slag B Scrap	EAF Slag C Fines	
Antimony	0.5	4	12	12	16	13	10
Arsenic	2.6	6	4	4	15	11	7
Barium	831	1,238	1,100	980	780	810	957
Beryllium	16.6	1	2	2	2	1	4
Cadmium	2.8	1	0.5	0.5	0.5	0.5	1.0
Cobalt	--	--	16	19	30	24	22
Chromium	1,900	1,430	2,700	2,500	1,900	1,900	2,055
Chromium VI	0.04	0.04	-	-	-	-	0.04
Copper	380	403	500	500	1,300	950	672
Lead	110	4	4	1	3	7	22
Manganese	24,169	33,232	27,626	24,276	20,989	24,023	25,719
Mercury	0.05	1	0.02	0.02	0.02	0.02	0.19
Molybdenum	20	28	48	43	88	72	50
Nickel	70	120	140	140	450	330	208
Phosphorus	663	846					755
Selenium	7.2	4	1	1	1	1	2.5
Silver	4	5	1	1	1	1	2.2
Titanium	3,522	3,244	-	-	-	-	3,383
Thallium	0.05	4	1	1	1	1	1.3
Vanadium	301	559	490	460	410	360	430
Zinc	704	395	140	100	150	320	302

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Notes:
1. Obtained from the laboratory reports for the 2005, 2011, and 2012 slag samples; these report were previously submitted to the SCAQMD.

Table B-6a. 2011 Precipitation Data Collected at TAMCO's Onsite Meteorological Station
TAMCO Steel Mill
Rancho Cucamonga, California

Date	Precipitation[1] (inch)
1/1/2011	0
1/2/2011	0.43
1/3/2011	0
1/4/2011	0
1/5/2011	0
1/6/2011	0
1/7/2011	0
1/8/2011	0
1/9/2011	0
1/10/2011	0
1/11/2011	0
1/12/2011	0
1/19/2011	0
1/20/2011	0
1/21/2011	0
1/22/2011	0
1/23/2011	0
1/24/2011	0
1/25/2011	0
1/26/2011	0
1/27/2011	0
1/28/2011	0
1/29/2011	0
1/30/2011	0.24
1/31/2011	0
2/1/2011	0
2/2/2011	0
2/3/2011	0
2/4/2011	0
2/5/2011	0
2/6/2011	0
2/7/2011	0
2/8/2011	0
2/9/2011	0
2/10/2011	0
2/11/2011	0
2/12/2011	0
2/13/2011	0
2/14/2011	0
2/15/2011	0
2/16/2011	0.47
2/17/2011	0
2/18/2011	0.28
2/19/2011	0.59
2/20/2011	0
2/21/2011	0
2/22/2011	0
2/23/2011	0
2/24/2011	0
2/25/2011	0.67
2/26/2011	0.75
2/27/2011	0
2/28/2011	0
3/1/2011	0
3/2/2011	0.04
3/3/2011	0.04
3/4/2011	0
3/5/2011	0
3/6/2011	0.04
3/7/2011	0.08
3/8/2011	0
3/9/2011	0
3/10/2011	0
3/11/2011	0
3/12/2011	0
3/13/2011	0
3/14/2011	0
3/15/2011	0
3/16/2011	0
3/21/2011	0.12
3/22/2011	0
3/23/2011	0.28
3/24/2011	0
3/25/2011	0.43
3/26/2011	0
3/27/2011	0
3/28/2011	0
4/6/2011	0
4/7/2011	0
4/8/2011	0
4/9/2011	0
4/10/2011	0
4/11/2011	0
4/12/2011	0
4/13/2011	0
4/21/2011	0
4/22/2011	0
4/23/2011	0
4/24/2011	0
4/25/2011	0
4/26/2011	0
4/27/2011	0
4/28/2011	0
4/29/2011	0
4/30/2011	0
5/1/2011	0
5/2/2011	0
5/3/2011	0

Table B-6a. 2011 Precipitation Data Collected at TAMCO's Onsite Meteorological Station
TAMCO Steel Mill
Rancho Cucamonga, California

Date	Precipitation[1] (inch)
5/4/2011	0
5/5/2011	0
5/6/2011	0
5/7/2011	0
5/8/2011	0
5/9/2011	0
5/10/2011	0
5/11/2011	0
5/12/2011	0
5/13/2011	0
5/14/2011	0
5/15/2011	0.16
5/16/2011	0
5/17/2011	0.08
5/18/2011	0.24
5/19/2011	0
5/20/2011	0
5/21/2011	0
5/22/2011	0
5/23/2011	0
5/24/2011	0
5/25/2011	0
5/26/2011	0
5/27/2011	0
5/28/2011	0
5/29/2011	0
5/30/2011	0
5/31/2011	0
6/1/2011	0
6/2/2011	0
6/3/2011	0
6/4/2011	0
6/5/2011	0
6/6/2011	0
6/7/2011	0
6/8/2011	0
6/9/2011	0
6/10/2011	0
6/11/2011	0
6/12/2011	0
6/13/2011	0
6/14/2011	0
6/15/2011	0
6/30/2011	0
7/1/2011	0
7/2/2011	0
7/3/2011	0
7/4/2011	0
7/5/2011	0
7/6/2011	0
7/7/2011	0
7/8/2011	0
7/9/2011	0
7/10/2011	0
7/11/2011	0
7/12/2011	0
7/13/2011	0
7/14/2011	0
7/15/2011	0
7/16/2011	0
7/17/2011	0
7/18/2011	0
7/19/2011	0
7/20/2011	0
7/21/2011	0
7/22/2011	0
7/23/2011	0
7/24/2011	0
7/25/2011	0
7/26/2011	0
7/27/2011	0
7/28/2011	0
7/29/2011	0
7/30/2011	0
7/31/2011	0.2
8/1/2011	0
8/2/2011	0
8/3/2011	0
8/4/2011	0
8/5/2011	0
8/6/2011	0
8/7/2011	0
8/8/2011	0
8/9/2011	0
8/10/2011	0
8/11/2011	0
8/12/2011	0
8/13/2011	0
8/14/2011	0
8/15/2011	0
8/16/2011	0
9/12/2011	0
9/13/2011	0.91
9/14/2011	0
9/15/2011	0
9/16/2011	0
9/17/2011	0
9/18/2011	0

Table B-6a. 2011 Precipitation Data Collected at TAMCO's Onsite Meteorological Station
TAMCO Steel Mill
Rancho Cucamonga, California

Date	Precipitation[1] (inch)
9/19/2011	0
9/20/2011	0
9/21/2011	0
9/22/2011	0
9/23/2011	0
9/24/2011	0
9/25/2011	0
9/26/2011	0
9/27/2011	0
9/28/2011	0
9/29/2011	0
9/30/2011	0
10/1/2011	0
10/2/2011	0
10/3/2011	0
10/4/2011	0
10/5/2011	1.1
10/6/2011	0.24
10/7/2011	0
10/8/2011	0
10/9/2011	0
10/10/2011	0
10/11/2011	0
10/12/2011	0
10/13/2011	0
10/14/2011	0
10/15/2011	0
10/16/2011	0
10/17/2011	0
10/18/2011	0
10/19/2011	0
10/20/2011	0
10/25/2011	0
10/26/2011	0
10/27/2011	0
10/28/2011	0
10/29/2011	0
10/30/2011	0
10/31/2011	0
11/1/2011	0
11/2/2011	0
11/3/2011	0
11/4/2011	0.39
11/5/2011	0
11/6/2011	0.12
11/7/2011	0
11/8/2011	0
11/9/2011	0
11/10/2011	0
11/11/2011	0
11/12/2011	0.12
11/13/2011	0
11/14/2011	0
11/15/2011	0
11/16/2011	0
11/17/2011	0
11/18/2011	0
11/19/2011	0
11/20/2011	0.71
11/21/2011	0
11/22/2011	0
11/23/2011	0
11/24/2011	0
11/25/2011	0
11/26/2011	0
11/27/2011	0
11/28/2011	0
11/29/2011	0
11/30/2011	0
12/1/2011	0
12/2/2011	0
12/3/2011	0
12/4/2011	0
12/5/2011	0
12/6/2011	0
12/7/2011	0
12/8/2011	0
12/9/2011	0
12/10/2011	0
12/11/2011	0
12/12/2011	0.47
12/13/2011	0
12/14/2011	0
12/15/2011	0.91
12/16/2011	0
12/17/2011	0
12/18/2011	0
12/19/2011	0
12/20/2011	0
12/21/2011	0
12/22/2011	0
12/23/2011	0
12/24/2011	0
12/25/2011	0
12/26/2011	0
12/27/2011	0
12/28/2011	0
12/29/2011	0

Table B-6a. 2011 Precipitation Data Collected at TAMCO's Onsite Meteorological Station
TAMCO Steel Mill
Rancho Cucamonga, California

Date	Precipitation[1] (inch)
12/30/2011	0
12/31/2011	0

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Notes:

1. Data downloaded from http://www.wunderground.com/personal-weather-station/dashboard?ID=KCARANCH30

Table B-6b. Entrained Road Dust Toxic Metal Emission Factors - Paved Road
TAMCO Steel Mill
Rancho Cucamonga, California

Route Group		Chemicals	CAS #	TAC Concentration[1] (mg/kg)	Silt Loading[2] (g/m^2)	Vehicle Weight (tons)	Annual PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Annual Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)	Hourly PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Hourly Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)
1	Scrap Delivery	Aluminum	7429-90-5	10,475	9.7	1	0.02	1.79E-04	0.02	1.82E-04
1		Antimony	7440-36-0	7	9.7	1	0.02	1.23E-07	0.02	1.26E-07
1		Arsenic	7440-38-2	12	9.7	1	0.02	2.01E-07	0.02	2.05E-07
1		Barium	7440-39-3	485	9.7	1	0.02	8.28E-06	0.02	8.44E-06
1		Beryllium	7440-41-7	1	9.7	1	0.02	1.02E-08	0.02	1.04E-08
1		Cadmium	7440-43-9	14	9.7	1	0.02	2.44E-07	0.02	2.48E-07
1		Chromium	7440-47-3	715	9.7	1	0.02	1.22E-05	0.02	1.24E-05
1		Cobalt	7440-48-4	75	9.7	1	0.02	1.28E-06	0.02	1.30E-06
1		Copper	7440-50-8	633	9.7	1	0.02	1.08E-05	0.02	1.10E-05
1		Lead	7439-92-1	515	9.7	1	0.02	8.79E-06	0.02	8.96E-06
1		Manganese	7439-96-5	3,775	9.7	1	0.02	6.44E-05	0.02	6.57E-05
1		Nickel	7440-02-0	565	9.7	1	0.02	9.65E-06	0.02	9.83E-06
1		Selenium	7782-49-2	1	9.7	1	0.02	8.92E-09	0.02	9.09E-09
1		Silver	7440-22-4	3	9.7	1	0.02	4.35E-08	0.02	4.44E-08
1		Thallium	7440-28-0	0.2	9.7	1	0.02	3.63E-09	0.02	3.70E-09
1		Vanadium	7440-62-2	74	9.7	1	0.02	1.26E-06	0.02	1.29E-06
1		Zinc	7440-66-6	4,100	9.7	1	0.02	7.00E-05	0.02	7.13E-05
1		Chromium VI	18540-29-9	0.3	9.7	1	0.02	5.63E-09	0.02	5.74E-09
1		Mercury	7439-97-6	2	9.7	1	0.02	2.64E-08	0.02	2.69E-08
2	Delivery from Scrap Yard to Melt Shop	Aluminum	7429-90-5	9,500	9.7	1	0.02	1.62E-04	0.02	1.65E-04
2		Antimony	7440-36-0	7	9.7	1	0.02	1.27E-07	0.02	1.29E-07
2		Arsenic	7440-38-2	10	9.7	1	0.02	1.77E-07	0.02	1.80E-07
2		Barium	7440-39-3	497	9.7	1	0.02	8.48E-06	0.02	8.64E-06
2		Beryllium	7440-41-7	0.4	9.7	1	0.02	7.57E-09	0.02	7.71E-09
2		Cadmium	7440-43-9	13	9.7	1	0.02	2.17E-07	0.02	2.21E-07
2		Chromium	7440-47-3	500	9.7	1	0.02	8.54E-06	0.02	8.70E-06
2		Cobalt	7440-48-4	64	9.7	1	0.02	1.09E-06	0.02	1.11E-06
2		Copper	7440-50-8	523	9.7	1	0.02	8.93E-06	0.02	9.10E-06
2		Lead	7439-92-1	510	9.7	1	0.02	8.71E-06	0.02	8.87E-06
2		Manganese	7439-96-5	3,600	9.7	1	0.02	6.15E-05	0.02	6.26E-05
2		Nickel	7440-02-0	426	9.7	1	0.02	7.28E-06	0.02	7.42E-06
2		Selenium	7782-49-2	1	9.7	1	0.02	8.82E-09	0.02	8.99E-09
2		Silver	7440-22-4	2	9.7	1	0.02	4.15E-08	0.02	4.23E-08
2		Thallium	7440-28-0	0	9.7	1	0.02	3.02E-09	0.02	3.07E-09
2		Vanadium	7440-62-2	80	9.7	1	0.02	1.36E-06	0.02	1.39E-06
2		Zinc	7440-66-6	3,433	9.7	1	0.02	5.86E-05	0.02	5.97E-05
2		Chromium VI	18540-29-9	0.4	9.7	1	0.02	6.57E-09	0.02	6.70E-09
2		Mercury	7439-97-6	3	9.7	1	0.02	4.50E-08	0.02	4.58E-08
3	Other Truck Routes	Aluminum	7429-90-5	12,600	9.7	1	0.02	2.15E-04	0.02	2.19E-04
3		Antimony	7440-36-0	2	9.7	1	0.02	3.94E-08	0.02	4.02E-08
3		Arsenic	7440-38-2	6	9.7	1	0.02	9.70E-08	0.02	9.88E-08
3		Barium	7440-39-3	362	9.7	1	0.02	6.18E-06	0.02	6.29E-06
3		Beryllium	7440-41-7	1	9.7	1	0.02	1.24E-08	0.02	1.27E-08
3		Cadmium	7440-43-9	4	9.7	1	0.02	7.64E-08	0.02	7.78E-08
3		Chromium	7440-47-3	685	9.7	1	0.02	1.17E-05	0.02	1.19E-05
3		Cobalt	7440-48-4	17	9.7	1	0.02	2.94E-07	0.02	2.99E-07
3		Copper	7440-50-8	345	9.7	1	0.02	5.90E-06	0.02	6.01E-06
3		Lead	7439-92-1	169	9.7	1	0.02	2.89E-06	0.02	2.94E-06
3		Manganese	7439-96-5	8,600	9.7	1	0.02	1.47E-04	0.02	1.50E-04
3		Nickel	7440-02-0	137	9.7	1	0.02	2.34E-06	0.02	2.38E-06
3		Selenium	7782-49-2	1	9.7	1	0.02	1.12E-08	0.02	1.14E-08
3		Silver	7440-22-4	1	9.7	1	0.02	1.92E-08	0.02	1.96E-08
3		Thallium	7440-28-0	0.3	9.7	1	0.02	5.03E-09	0.02	5.12E-09
3		Vanadium	7440-62-2	141	9.7	1	0.02	2.41E-06	0.02	2.45E-06
3		Zinc	7440-66-6	1,439	9.7	1	0.02	2.46E-05	0.02	2.50E-05
3		Chromium VI	18540-29-9	0.4	9.7	1	0.02	6.53E-09	0.02	6.66E-09
3		Mercury	7439-97-6	0.2	9.7	1	0.02	3.97E-09	0.02	4.04E-09

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Notes:

1. See Tables B-5a through B-5d for the derivation of the metal concentrations
2. Silt loading based on the average silt loading for iron and steel production from AP-42 (Table 13.2.1-3).

3. PM_{10} Emission Factor is calculated using the AP42 reentrained dust emission factor calculation equation for paved road E = k (sL)^0.91 x (W)^1.02*(1-P/(4*365))
   Where, k =0.0022 lb/VMT, particle size multiplier for PM_{10}
   sL = silt loading factor, presented in the table
   W = vehicle weight, presented in the table
   P = number of days in a year with at least 0.254 mm (0.01 in) of preipitation (Assumed 27 days for annual emission rates based on the 2011 precipitation data collected at TAMCO's onsite meteorological station and assumed dry conditions for houly emission rates)
4. Metal Emission Factor is the product of PM_{10} EF and metal fraction in the silt (metal concentration).

Table B-6b. Entrained Road Dust Toxic Metal Emission Factors - Paved Road
TAMCO Steel Mill
Rancho Cucamonga, California

Route	Group	Chemicals	CAS #	TAC Concentration[1] (mg/kg)	Silt Loading[2] (%)	Vehicle Weight (tons)	Annual PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Annual Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)	Hourly PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Hourly Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)
3	Other Truck Routes	Aluminum	7429-90-5	12,600	6	1	0.45	5.72E-03	0.49	6.18E-03
3		Antimony	7440-36-0	2	6	1	0.45	1.05E-06	0.49	1.13E-06
3		Arsenic	7440-38-2	6	6	1	0.45	2.58E-06	0.49	2.79E-06
3		Barium	7440-39-3	362	6	1	0.45	1.64E-04	0.49	1.77E-04
3		Beryllium	7440-41-7	1	6	1	0.45	3.31E-07	0.49	3.57E-07
3		Cadmium	7440-43-9	4	6	1	0.45	2.03E-06	0.49	2.19E-06
3		Chromium	7440-47-3	685	6	1	0.45	3.11E-04	0.49	3.36E-04
3		Cobalt	7440-48-4	17	6	1	0.45	7.81E-06	0.49	8.43E-06
3		Copper	7440-50-8	345	6	1	0.45	1.57E-04	0.49	1.69E-04
3		Lead	7439-92-1	169	6	1	0.45	7.68E-05	0.49	8.29E-05
3		Manganese	7439-96-5	8,600	6	1	0.45	3.90E-03	0.49	4.22E-03
3		Nickel	7440-02-0	137	6	1	0.45	6.22E-05	0.49	6.71E-05
3		Selenium	7782-49-2	1	6	1	0.45	2.98E-07	0.49	3.22E-07
3		Silver	7440-22-4	1	6	1	0.45	5.11E-07	0.49	5.51E-07
3		Thallium	7440-28-0	0	6	1	0.45	1.34E-07	0.49	1.44E-07
3		Vanadium	7440-62-2	141	6	1	0.45	6.40E-05	0.49	6.91E-05
3		Zinc	7440-66-6	1,439	6	1	0.45	6.53E-04	0.49	7.06E-04
3		Chromium VI	18540-29-9	0	6	1	0.45	1.74E-07	0.49	1.88E-07
3		Mercury	7439-97-6	0	6	1	0.45	1.06E-07	0.49	1.14E-07

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Notes:

1. See Tables B-5a through B-5d for the derivation of the metal concentrations
2. Silt loading based on the average silt loading for iron and steel production from AP-42 (Table 13.2.2-1).
3. PM_{10} Emission Factor is calculated using the EPA AP-42 re-entrained dust emission factor calculation equation for paved road E = k (s/12)^0.9x (W/3)^0.45*(1-P/365)
   Where, k =1.5 lb/VMT, particle size multiplier for PM_{10}
   s = surface material silt content, presented in the table
   W = vehicle weight, presented in the table
   P = number of days in a year with at least 0.254 mm (0.01 in) of preipitation (Assumed 27 days for annual emission rates based on the 2011 precipitation data collected at TAMCO's onsite meteorological station and assumed dry conditions for houly emission rates)
4. Metal Emission Factor is the product of PM_{10} EF and metal fraction in the silt (metal concentration).

Table B-7 Average Vehicle Weight by Route Segment
TAMCO Steel Mill
Rancho Cucamonga, California

Segment ID [1]	Road Type	AERMOD Source Group[1]	Route Group [1]	Route [1]	Route ID [1]	Distance[2] (meter)	Sample ID	Empty Truck Weight[3] (ton)	Loaded Truck Weight[3] (ton)	Annual Throughput[4] (ton/yr)	Max. Hourly Throughput[4] (ton/hr)	Route %[5] (%)	Annual Trips[6] (trip)	Max. Hourly Round Trips[7] (trip)	Total Truck Weight per Year[8] (ton)	Total Truck Weight per Hour[9] (ton)	Annual Trip-Weighted Truck Weight[10] (ton)	Max. Hourly Trip Weighted Truck Weight[10] (ton)
1	Paved	VP_1	3	Billets from/to Caster to/from Cold Storage	1A	61	P1	27	42	246,560	134	19%	3,196	2	220,556	120	34.50	34.50
	Paved	VP_1	3	Billets from/to Caster to/from Main Storage	1B		P1	27	42	246,560	134	19%	3,096	2	213,599	116		
	Paved	VP_1	3	Billets from/to Main Storage to BRF	1C		P1	27	42	246,560	90	19%	3,096	1	213,599	78		
	Paved	VP_1	3	Billets from Cold Storage Charged To BRF	1D		P1	27	42	246,560	90	19%	3,196	1	220,556	81		
2	Paved	VP_2	2	Billets from/to Caster to/from Cold Storage	2A	25	P2	27	42	246,560	134	19%	3,196	2	220,556	120	34.50	34.50
	Paved	VP_2	2	Billets from/to Caster to/from Hot Billets Storage	2B		P2	27	42	246,560	134	62%	10,145	6	700,021	380		
	Paved	VP_2	2	Billets from/to Caster to/from Main Storage	2C		P2	27	42	246,560	134	19%	3,096	2	213,599	116		
3	Unpaved	VU_3	3	Billets from/to Caster to/from Cold Storage	3A	91	U2	27	42	246,560	134	19%	3,196	2	220,556	120	34.50	34.50
	Unpaved	VU_3	3	Billets From Cold Storage Charged To BRF	3B		U2	27	42	246,560	90	19%	3,196	1	220,556	81		
5	Paved	VP_5	3	Billets from/to Caster to/from Hot Billets Storage	5A	41	P8	27	42	246,560	134	62%	10,145	6	700,021	380	34.50	34.50
	Paved	VP_5	3	Billets From Hot Storage Charged To BRF	5B		P8	27	42	246,560	90	62%	10,145	4	700,021	256		
6	Unpaved	VU_6	3	Billets from/to Caster to/from Hot Billets Storage	6A	35	U4	27	42	246,560	134	62%	10,145	6	700,021	380	34.50	34.50
	Unpaved	VU_6	3	Billets From Hot Storage Charged To BRF	6B		U4	27	42	246,560	90	62%	10,145	4	700,021	256		
7	Paved	VP_7	3	Billets from/to Caster to/from Main Storage	7A	9	P1	27	42	246,560	134	19%	3,096	2	213,599	116	34.50	34.50
	Paved	VP_7	3	Billets from/to Main Storage to BRF	7B		P1	27	42	246,560	90	19%	3,096	1	213,599	78		
16	Paved	VP_16	2	EAF Slag from/to MS to/from Slag Yard	16	67	P2	16.5	31.5	36,984	20.1	85%	2,087	1	100,159	54	24.00	24.00
17	Paved	VP_17	3	Ladle Slag from MS to/from Slag Yard	17	240	P5	16.5	31.5	36,984	20.1	15%	379	0.2	18,189	10	24.00	24.00
18	Unpaved	VU_18	3	Rebar from/to binding station to/from rebar yard	18A	185	U6	27	42	246,560	90	75%	12,328	5	850,632	311	33.47	33.45
18	Unpaved	VU_18	3	Rebar from/to S rebar yard to/from gate	18B	185	U6	17.5	40	242,000	90	25%	2,689	1	154,611	58	33.47	33.45
19	Unpaved	VU_19	3	Rebar from/to S rebar yard to/from gate	19	148	U6	17.5	40	242,000	90	25%	2,689	1	154,611	58	28.75	28.75
20	Paved	VP_20	3	Rebar from/to Binding Station to/from Rebar Yard	20	93	P11	27	42	246,560	90	75%	12,328	5	850,632	311	34.50	34.50
21	Unpaved	VU_21	3	Rebar from/to Rebar Yard to/from Gate	21	147	U6	17.5	40	242,000	90	100%	10,756	4	618,444	230	28.75	28.75
22	Paved	VP_22	3	Rebar from/to Rebar Yard to/from Gate	22	122	P9	17.5	40	242,000	90	100%	10,756	4	618,444	230	28.75	28.75
23	Paved	VP_23	1	Scrap from/to Gate and Scrap Yard	23	86	P7	17.5	40	274,000	225	100%	12,178	10	700,222	575	28.75	28.75
24	Paved	VP_24	1	Scrap from/to Gate and Scrap Yard	24	186	P3	17.5	40	274,000	225	100%	12,178	10	700,222	575	28.75	28.75
25	Paved	VP_25	1	Scrap from/to Gate and Scrap Yard	25	192	U5	17.5	40	274,000	225	100%	12,178	10	700,222	575	28.75	28.75
26	Paved	VP_26	1	Scrap from/to Gate and Scrap Yard (in Yard)	26	142	U5	17.5	40	274,000	225	100%	12,178	10	700,222	575	28.75	28.75
27	Paved	VP_27	2	Scrap from/to Scrap Yard to/from MS	27	52	P4	35	80	274,000	140	100%	6,089	3	700,222	358	57.50	57.50
28	Paved	VP_28	2	Scrap from/to Scrap Yard to/from MS	28	69	P2	35	80	274,000	140	100%	6,089	3	700,222	358	57.50	57.50
29	Paved	VP_29	2	Scrap from/to Scrap Yard to/from MS (in Yard)	29	99	U5	35	80	274,000	140	100%	6,089	3	700,222	358	57.50	57.50
10	Unpaved	VU_10	3	Billets from/to Caster to/from Main Storage	10A	53	U3	27	42	246,560	134	19%	3,096	2	213,599	116	34.50	34.50
	Unpaved	VU_10	3	Billets from/to Main Storage to BRF	10B		U3	27	42	246,560	90	19%	3,096	1	213,599	78		
13	Paved	VP_13	3	Billets from/to Main Storage to BRF	13A	109	P10	27	42	246,560	90	19%	3,096	1	213,599	78	34.50	34.50
	Paved	VP_13	3	Billets From Cold Storage Charged To BRF	13B		P10	27	42	246,560	90	19%	3,196	1	220,556	81		
	Paved	VP_13	3	Billets From Hot Storage Charged To BRF	13C		P10	27	42	246,560	90	62%	10,145	4	700,021	256		
15	Unpaved	VU_15	3	EAF Slag from/to MS to/from Slag Yard	15A	178	U1	16.5	31.5	36,984	20.1	85%	2,087	1	100,159	54	24.00	24.00
	Unpaved	VU_15	3	Ladle Slag from MS to/from Slag Yard	15B		U1	16.5	31.5	36,984	20.1	15%	379	0.2	18,189	10		
30	Paved	VP_30	3	Billets From Cold Storage Charged To BRF	30A	43	P1	27	42	246,560	90	19%	3,196	1	220,556	81	32.78	32.51
	Paved	VP_30	3	Billets from/to Caster to/from Cold Storage	30B		P1	27	42	246,560	134	19%	3,196	2	220,556	120		
	Paved	VP_30	3	Billets from/to Caster to/from Main Storage	30C		P1	27	42	246,560	134	19%	3,096	2	213,599	116		
	Paved	VP_30	3	Billets from/to Main Storage to BRF	30D		P1	27	42	246,560	90	19%	3,096	1	213,599	78		
	Paved	VP_30	3	EAF Slag from/to MS to/from Slag Yard	30E		P1	16.5	31.5	36,984	20.1	85%	2,087	1	100,159	54		
	Paved	VP_30	3	Ladle Slag from MS to/from Slag Yard	30F		P1	16.5	31.5	36,984	20.1	15%	379	0.2	18,189	10		
31	Paved	VP_31	3	Billets From Cold Storage Charged To BRF	31A	85	P1	27	42	246,560	90	19%	3,196	1	220,556	81	33.01	32.76
	Paved	VP_31	3	Billets from/to Caster to/from Cold Storage	31B		P1	27	42	246,560	134	19%	3,196	2	220,556	120		
	Paved	VP_31	3	Billets from/to Caster to/from Main Storage	31C		P1	27	42	246,560	134	19%	3,096	2	213,599	116		
	Paved	VP_31	3	Billets from/to Main Storage to BRF	31D		P1	27	42	246,560	90	19%	3,096	1	213,599	78		
	Paved	VP_31	3	EAF Slag from/to MS to/from Slag Yard	31E		P1	16.5	31.5	36,984	20.1	85%	2,087	1	100,159	54		
33	Paved	VP_33	3	Billets From Cold Storage Charged To BRF	33A	17	P1	27	42	246,560	90	19%	3,196	1	220,556	81	40.19	40.49
	Paved	VP_33	3	Billets from/to Caster to/from Cold Storage	33B		P1	27	42	246,560	134	19%	3,196	2	220,556	120		
	Paved	VP_33	3	Billets from/to Caster to/from Main Storage	33C		P1	27	42	246,560	134	19%	3,096	2	213,599	116		
	Paved	VP_33	3	Billets from/to Main Storage to BRF	33D		P1	27	42	246,560	90	19%	3,096	1	213,599	78		
	Paved	VP_33	3	EAF Slag from/to MS to/from Slag Yard	33E		P1	16.5	31.5	36,984	20.1	85%	2,087	1	100,159	54		
	Paved	VP_33	3	Scrap from/to Scrap Yard to/from MS	33F		P1	35	80	274,000	140	100%	6,089	3	700,222	358		
34	Paved	VP_34	3	Billets From Cold Storage Charged To BRF	34A	48	P1	27	42	246,560	90	19%	3,196	1	220,556	81	31.58	31.18
	Paved	VP_34	3	Billets from/to Caster to/from Cold Storage	34B		P1	27	42	246,560	134	19%	3,196	2	220,556	120		
	Paved	VP_34	3	EAF Slag from/to MS to/from Slag Yard	34C		P1	16.5	31.5	36,984	20.1	85%	2,087	1	100,159	54		
	Paved	VP_34	3	Ladle Slag from MS to/from Slag Yard	34D		P1	16.5	31.5	36,984	20.1	15%	379	0.2	18,189	10		
35	Paved	VP_35	3	Billets From Cold Storage Charged To BRF	35A	24	P1	27	42	246,560	90	19%	3,196	1	220,556	81	42.00	42.61
	Paved	VP_35	3	Billets from/to Caster to/from Cold Storage	35B		P1	27	42	246,560	134	19%	3,196	2	220,556	120		
	Paved	VP_35	3	Billets from/to Caster to/from Main Storage	35C		P1	27	42	246,560	134	19%	3,096	2	213,599	116		
	Paved	VP_35	3	Billets from/to Main Storage to BRF	35D		P1	27	42	246,560	90	19%	3,096	1	213,599	78		
	Paved	VP_35	3	Scrap from/to Scrap Yard to/from MS	35E		P1	35	80	274,000	140	100%	6,089	3	700,222	358		
37	Paved	VP_37	1	Rebar from/to Rebar Yard to/from Gate	37A	89	P6	17.5	40	242,000	90	100%	10,756	4	618,444	230	28.75	28.75
	Paved	VP_37	1	Scrap from/to Gate and Scrap Yard	37B		P6	17.5	40	274,000	225	100%	12,178	10	700,222	575		

Notes:
1

Segment ID:	Represents unique spatial location for a segment
Route/Route ID:	Describes how the trucks travel and what material is hauled from one processing area to another
Route Group:	The Route is further divided into three groups based on different nature of the hauling material for the purpose of calculating the average metal concentrations • 1 - Scrap delivery • 2 - Scrap transfer to the Melt Shop • 3 - Other (billet, slag, and rebar transfer)
AERMOD source Group:	Represents source group names used in the AERMOD modeling and they were named based on the Segment ID

2. The distance for each route ID was estimated using GIS based on the truck routes provided by TAMCO.
3. Provided by TAMCO based on the typical truck weights.
4. Scrap consumption, Melt Shop production, and rebar sales are based on the 2011 accounting records. Slag throughput for crushing is conservatively estimated as 15% of the 2011 production.
5. When the throughput is allocated among several routes, the route percentage is used to calculate the % of truck trip for a certain route based on billet and slag production reports from TAMCO.
6. Represents round trips needed to transport materials and were estimated based on the annual throughput of the materials transported divided by the truck load (calculated as the difference of loaded vehicle weight and empty vehicle weight).
7. Maximum hourly trip was estimated based on the maximum hourly throughput of the materials transferred divided by the truck load (calculated as the difference of loaded vehicle weight and empty vehicle weight).
8. Based on truck weight multiplied annual trips.
9. Based on truck Weight multiplied maximum hourly trips.
10. A segment can be used by one or more different type of trucks. Each row of this table represents only one type of truck/route combination, and some trucks may use the same segment for different routes. For example, segment 33 is used by billet truck (e.g. 33A-D), scrap truck (e.g. 33E), and slag truck (e.g. 33F). To calculate an average truck weight for a segment, we first calculated the truck weight multiplied by the number of truck trips on the segment and then divided by the total number of trips. The larger the product is, the more weight is given to that type of truck.
11. Trip-weighted average of truck weight is calculated for each segment based on all trucks travelling on the same segment.

Table B-8. Average Vehicle Weight By AERMOD Source Group
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	Annual Average Weighted Truck Weight[1] (ton)	Max. Hourly Weighted Truck Weight[2] (ton)
VP_1	34.5	34.5
VP_2	34.5	34.5
VP_13	34.5	34.5
VP_16	24.0	24.0
VP_17	24.0	24.0
VP_20	34.5	34.5
VP_22	28.8	28.8
VP_23	28.8	28.8
VP_24	28.8	28.8
VP_25	28.8	28.8
VP_26	28.8	28.8
VP_27	57.5	57.5
VP_28	57.5	57.5
VP_29	57.5	57.5
VP_30	32.8	32.5
VP_31	33.0	32.8
VP_33	40.2	40.5
VP_34	31.6	31.2
VP_35	42.0	42.6
VP_37	28.8	28.8
VP_5	34.5	34.5
VP_7	34.5	34.5
VU_3	34.5	34.5
VU_6	34.5	34.5
VU_10	34.5	34.5
VU_15	24.0	24.0
VU_18	33.5	33.5
VU_21	28.8	28.8
VU_19	28.8	28.8

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Notes:
1. Average truck weight weighted by the annual trips from different type of the trucks traveled on the same segment
2. Maximum hourly truck weight weighted by the maximum hourly trips from different type of the trucks traveled on the same segment

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
1A	Aluminum	7429-90-5	3	VP_1	244	0.13	7.97E-03	8.12E-03	1.94E+00	1.07E-03
1A	Antimony	7440-36-0	3	VP_1	244	0.13	1.46E-06	1.49E-06	3.55E-04	1.97E-07
1A	Arsenic	7440-38-2	3	VP_1	244	0.13	3.59E-06	3.66E-06	8.75E-04	4.84E-07
1A	Barium	7440-39-3	3	VP_1	244	0.13	2.29E-04	2.33E-04	5.57E-02	3.08E-05
1A	Beryllium	7440-41-7	3	VP_1	244	0.13	4.60E-07	4.69E-07	1.12E-04	6.21E-08
1A	Cadmium	7440-43-9	3	VP_1	244	0.13	2.83E-06	2.88E-06	6.89E-04	3.81E-07
1A	Chromium	7440-47-3	3	VP_1	244	0.13	4.33E-04	4.42E-04	1.06E-01	5.84E-05
1A	Chromium VI	18540-29-9	3	VP_1	244	0.13	2.42E-07	2.47E-07	5.89E-05	3.26E-08
1A	Cobalt	7440-48-4	3	VP_1	244	0.13	1.09E-05	1.11E-05	2.65E-03	1.47E-06
1A	Copper	7440-50-8	3	VP_1	244	0.13	2.18E-04	2.23E-04	5.32E-02	2.94E-05
1A	Lead	7439-92-1	3	VP_1	244	0.13	1.07E-04	1.09E-04	2.60E-02	1.44E-05
1A	Manganese	7439-96-5	3	VP_1	244	0.13	5.44E-03	5.54E-03	1.32E+00	7.33E-04
1A	Mercury	7439-97-6	3	VP_1	244	0.13	1.47E-07	1.50E-07	3.58E-05	1.98E-08
1A	Nickel	7440-02-0	3	VP_1	244	0.13	8.66E-05	8.82E-05	2.11E-02	1.17E-05
1A	Selenium	7782-49-2	3	VP_1	244	0.13	4.16E-07	4.23E-07	1.01E-04	5.60E-08
1A	Silver	7440-22-4	3	VP_1	244	0.13	7.11E-07	7.24E-07	1.73E-04	9.59E-08
1A	Thallium	7440-28-0	3	VP_1	244	0.13	1.86E-07	1.90E-07	4.53E-05	2.51E-08
1A	Vanadium	7440-62-2	3	VP_1	244	0.13	8.91E-05	9.08E-05	2.17E-02	1.20E-05
1A	Zinc	7440-66-6	3	VP_1	244	0.13	9.10E-04	9.27E-04	2.22E-01	1.23E-04
1B	Aluminum	7429-90-5	3	VP_1	236	0.13	7.97E-03	8.12E-03	1.88E+00	1.04E-03
1B	Antimony	7440-36-0	3	VP_1	236	0.13	1.46E-06	1.49E-06	3.44E-04	1.91E-07
1B	Arsenic	7440-38-2	3	VP_1	236	0.13	3.59E-06	3.66E-06	8.47E-04	4.69E-07
1B	Barium	7440-39-3	3	VP_1	236	0.13	2.29E-04	2.33E-04	5.39E-02	2.99E-05
1B	Beryllium	7440-41-7	3	VP_1	236	0.13	4.60E-07	4.69E-07	1.09E-04	6.01E-08
1B	Cadmium	7440-43-9	3	VP_1	236	0.13	2.83E-06	2.88E-06	6.67E-04	3.69E-07
1B	Chromium	7440-47-3	3	VP_1	236	0.13	4.33E-04	4.42E-04	1.02E-01	5.66E-05
1B	Chromium VI	18540-29-9	3	VP_1	236	0.13	2.42E-07	2.47E-07	5.71E-05	3.16E-08
1B	Cobalt	7440-48-4	3	VP_1	236	0.13	1.09E-05	1.11E-05	2.56E-03	1.42E-06
1B	Copper	7440-50-8	3	VP_1	236	0.13	2.18E-04	2.23E-04	5.15E-02	2.85E-05
1B	Lead	7439-92-1	3	VP_1	236	0.13	1.07E-04	1.09E-04	2.52E-02	1.40E-05
1B	Manganese	7439-96-5	3	VP_1	236	0.13	5.44E-03	5.54E-03	1.28E+00	7.10E-04
1B	Mercury	7439-97-6	3	VP_1	236	0.13	1.47E-07	1.50E-07	3.47E-05	1.92E-08
1B	Nickel	7440-02-0	3	VP_1	236	0.13	8.66E-05	8.82E-05	2.04E-02	1.13E-05
1B	Selenium	7782-49-2	3	VP_1	236	0.13	4.16E-07	4.23E-07	9.80E-05	5.43E-08
1B	Silver	7440-22-4	3	VP_1	236	0.13	7.11E-07	7.24E-07	1.68E-04	9.28E-08
1B	Thallium	7440-28-0	3	VP_1	236	0.13	1.86E-07	1.90E-07	4.39E-05	2.43E-08
1B	Vanadium	7440-62-2	3	VP_1	236	0.13	8.91E-05	9.08E-05	2.10E-02	1.16E-05
1B	Zinc	7440-66-6	3	VP_1	236	0.13	9.10E-04	9.27E-04	2.15E-01	1.19E-04
1C	Aluminum	7429-90-5	3	VP_1	236	0.09	7.97E-03	8.12E-03	1.88E+00	6.99E-04
1C	Antimony	7440-36-0	3	VP_1	236	0.09	1.46E-06	1.49E-06	3.44E-04	1.28E-07
1C	Arsenic	7440-38-2	3	VP_1	236	0.09	3.59E-06	3.66E-06	8.47E-04	3.15E-07
1C	Barium	7440-39-3	3	VP_1	236	0.09	2.29E-04	2.33E-04	5.39E-02	2.01E-05
1C	Beryllium	7440-41-7	3	VP_1	236	0.09	4.60E-07	4.69E-07	1.09E-04	4.04E-08
1C	Cadmium	7440-43-9	3	VP_1	236	0.09	2.83E-06	2.88E-06	6.67E-04	2.48E-07
1C	Chromium	7440-47-3	3	VP_1	236	0.09	4.33E-04	4.42E-04	1.02E-01	3.80E-05
1C	Chromium VI	18540-29-9	3	VP_1	236	0.09	2.42E-07	2.47E-07	5.71E-05	2.12E-08
1C	Cobalt	7440-48-4	3	VP_1	236	0.09	1.09E-05	1.11E-05	2.56E-03	9.54E-07
1C	Copper	7440-50-8	3	VP_1	236	0.09	2.18E-04	2.23E-04	5.15E-02	1.92E-05
1C	Lead	7439-92-1	3	VP_1	236	0.09	1.07E-04	1.09E-04	2.52E-02	9.38E-06
1C	Manganese	7439-96-5	3	VP_1	236	0.09	5.44E-03	5.54E-03	1.28E+00	4.77E-04
1C	Mercury	7439-97-6	3	VP_1	236	0.09	1.47E-07	1.50E-07	3.47E-05	1.29E-08
1C	Nickel	7440-02-0	3	VP_1	236	0.09	8.66E-05	8.82E-05	2.04E-02	7.59E-06
1C	Selenium	7782-49-2	3	VP_1	236	0.09	4.16E-07	4.23E-07	9.80E-05	3.64E-08
1C	Silver	7440-22-4	3	VP_1	236	0.09	7.11E-07	7.24E-07	1.68E-04	6.24E-08
1C	Thallium	7440-28-0	3	VP_1	236	0.09	1.86E-07	1.90E-07	4.39E-05	1.63E-08
1C	Vanadium	7440-62-2	3	VP_1	236	0.09	8.91E-05	9.08E-05	2.10E-02	7.82E-06
1C	Zinc	7440-66-6	3	VP_1	236	0.09	9.10E-04	9.27E-04	2.15E-01	7.98E-05
1D	Aluminum	7429-90-5	3	VP_1	244	0.09	7.97E-03	8.12E-03	1.94E+00	7.21E-04
1D	Antimony	7440-36-0	3	VP_1	244	0.09	1.46E-06	1.49E-06	3.55E-04	1.32E-07
1D	Arsenic	7440-38-2	3	VP_1	244	0.09	3.59E-06	3.66E-06	8.75E-04	3.25E-07
1D	Barium	7440-39-3	3	VP_1	244	0.09	2.29E-04	2.33E-04	5.57E-02	2.07E-05
1D	Beryllium	7440-41-7	3	VP_1	244	0.09	4.60E-07	4.69E-07	1.12E-04	4.17E-08
1D	Cadmium	7440-43-9	3	VP_1	244	0.09	2.83E-06	2.88E-06	6.89E-04	2.56E-07
1D	Chromium	7440-47-3	3	VP_1	244	0.09	4.33E-04	4.42E-04	1.06E-01	3.92E-05
1D	Chromium VI	18540-29-9	3	VP_1	244	0.09	2.42E-07	2.47E-07	5.89E-05	2.19E-08
1D	Cobalt	7440-48-4	3	VP_1	244	0.09	1.09E-05	1.11E-05	2.65E-03	9.85E-07
1D	Copper	7440-50-8	3	VP_1	244	0.09	2.18E-04	2.23E-04	5.32E-02	1.98E-05
1D	Lead	7439-92-1	3	VP_1	244	0.09	1.07E-04	1.09E-04	2.60E-02	9.68E-06
1D	Manganese	7439-96-5	3	VP_1	244	0.09	5.44E-03	5.54E-03	1.32E+00	4.92E-04
1D	Mercury	7439-97-6	3	VP_1	244	0.09	1.47E-07	1.50E-07	3.58E-05	1.33E-08

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
1D	Nickel	7440-02-0	3	VP_1	244	0.09	8.66E-05	8.82E-05	2.11E-02	7.84E-06
1D	Selenium	7782-49-2	3	VP_1	244	0.09	4.16E-07	4.23E-07	1.01E-04	3.76E-08
1D	Silver	7440-22-4	3	VP_1	244	0.09	7.11E-07	7.24E-07	1.73E-04	6.44E-08
1D	Thallium	7440-28-0	3	VP_1	244	0.09	1.86E-07	1.90E-07	4.53E-05	1.69E-08
1D	Vanadium	7440-62-2	3	VP_1	244	0.09	8.91E-05	9.08E-05	2.17E-02	8.07E-06
1D	Zinc	7440-66-6	3	VP_1	244	0.09	9.10E-04	9.27E-04	2.22E-01	8.24E-05
7A	Aluminum	7429-90-5	3	VP_7	34	0.02	7.97E-03	8.12E-03	2.74E-01	1.52E-04
7A	Antimony	7440-36-0	3	VP_7	34	0.02	1.46E-06	1.49E-06	5.03E-05	2.78E-08
7A	Arsenic	7440-38-2	3	VP_7	34	0.02	3.59E-06	3.66E-06	1.24E-04	6.85E-08
7A	Barium	7440-39-3	3	VP_7	34	0.02	2.29E-04	2.33E-04	7.88E-03	4.36E-06
7A	Beryllium	7440-41-7	3	VP_7	34	0.02	4.60E-07	4.69E-07	1.59E-05	8.78E-09
7A	Cadmium	7440-43-9	3	VP_7	34	0.02	2.83E-06	2.88E-06	9.74E-05	5.39E-08
7A	Chromium	7440-47-3	3	VP_7	34	0.02	4.33E-04	4.42E-04	1.49E-02	8.26E-06
7A	Chromium VI	18540-29-9	3	VP_7	34	0.02	2.42E-07	2.47E-07	8.33E-06	4.61E-09
7A	Cobalt	7440-48-4	3	VP_7	34	0.02	1.09E-05	1.11E-05	3.74E-04	2.07E-07
7A	Copper	7440-50-8	3	VP_7	34	0.02	2.18E-04	2.23E-04	7.52E-03	4.16E-06
7A	Lead	7439-92-1	3	VP_7	34	0.02	1.07E-04	1.09E-04	3.68E-03	2.04E-06
7A	Manganese	7439-96-5	3	VP_7	34	0.02	5.44E-03	5.54E-03	1.87E-01	1.04E-04
7A	Mercury	7439-97-6	3	VP_7	34	0.02	1.47E-07	1.50E-07	5.06E-06	2.80E-09
7A	Nickel	7440-02-0	3	VP_7	34	0.02	8.66E-05	8.82E-05	2.98E-03	1.65E-06
7A	Selenium	7782-49-2	3	VP_7	34	0.02	4.16E-07	4.23E-07	1.43E-05	7.92E-09
7A	Silver	7440-22-4	3	VP_7	34	0.02	7.11E-07	7.24E-07	2.45E-05	1.36E-08
7A	Thallium	7440-28-0	3	VP_7	34	0.02	1.86E-07	1.90E-07	6.41E-06	3.55E-09
7A	Vanadium	7440-62-2	3	VP_7	34	0.02	8.91E-05	9.08E-05	3.07E-03	1.70E-06
7A	Zinc	7440-66-6	3	VP_7	34	0.02	9.10E-04	9.27E-04	3.13E-02	1.73E-05
7B	Aluminum	7429-90-5	3	VP_7	34	0.01	7.97E-03	8.12E-03	2.74E-01	1.02E-04
7B	Antimony	7440-36-0	3	VP_7	34	0.01	1.46E-06	1.49E-06	5.03E-05	1.87E-08
7B	Arsenic	7440-38-2	3	VP_7	34	0.01	3.59E-06	3.66E-06	1.24E-04	4.60E-08
7B	Barium	7440-39-3	3	VP_7	34	0.01	2.29E-04	2.33E-04	7.88E-03	2.93E-06
7B	Beryllium	7440-41-7	3	VP_7	34	0.01	4.60E-07	4.69E-07	1.59E-05	5.90E-09
7B	Cadmium	7440-43-9	3	VP_7	34	0.01	2.83E-06	2.88E-06	9.74E-05	3.62E-08
7B	Chromium	7440-47-3	3	VP_7	34	0.01	4.33E-04	4.42E-04	1.49E-02	5.55E-06
7B	Chromium VI	18540-29-9	3	VP_7	34	0.01	2.42E-07	2.47E-07	8.33E-06	3.10E-09
7B	Cobalt	7440-48-4	3	VP_7	34	0.01	1.09E-05	1.11E-05	3.74E-04	1.39E-07
7B	Copper	7440-50-8	3	VP_7	34	0.01	2.18E-04	2.23E-04	7.52E-03	2.80E-06
7B	Lead	7439-92-1	3	VP_7	34	0.01	1.07E-04	1.09E-04	3.68E-03	1.37E-06
7B	Manganese	7439-96-5	3	VP_7	34	0.01	5.44E-03	5.54E-03	1.87E-01	6.96E-05
7B	Mercury	7439-97-6	3	VP_7	34	0.01	1.47E-07	1.50E-07	5.06E-06	1.88E-09
7B	Nickel	7440-02-0	3	VP_7	34	0.01	8.66E-05	8.82E-05	2.98E-03	1.11E-06
7B	Selenium	7782-49-2	3	VP_7	34	0.01	4.16E-07	4.23E-07	1.43E-05	5.32E-09
7B	Silver	7440-22-4	3	VP_7	34	0.01	7.11E-07	7.24E-07	2.45E-05	9.10E-09
7B	Thallium	7440-28-0	3	VP_7	34	0.01	1.86E-07	1.90E-07	6.41E-06	2.38E-09
7B	Vanadium	7440-62-2	3	VP_7	34	0.01	8.91E-05	9.08E-05	3.07E-03	1.14E-06
7B	Zinc	7440-66-6	3	VP_7	34	0.01	9.10E-04	9.27E-04	3.13E-02	1.17E-05
30A	Aluminum	7429-90-5	3	VP_30	169	0.06	7.56E-03	7.64E-03	1.28E+00	4.71E-04
30A	Antimony	7440-36-0	3	VP_30	169	0.06	1.39E-06	1.40E-06	2.34E-04	8.63E-08
30A	Arsenic	7440-38-2	3	VP_30	169	0.06	3.41E-06	3.44E-06	5.76E-04	2.12E-07
30A	Barium	7440-39-3	3	VP_30	169	0.06	2.17E-04	2.19E-04	3.67E-02	1.35E-05
30A	Beryllium	7440-41-7	3	VP_30	169	0.06	4.37E-07	4.41E-07	7.38E-05	2.72E-08
30A	Cadmium	7440-43-9	3	VP_30	169	0.06	2.68E-06	2.71E-06	4.53E-04	1.67E-07
30A	Chromium	7440-47-3	3	VP_30	169	0.06	4.11E-04	4.15E-04	6.95E-02	2.56E-05
30A	Chromium VI	18540-29-9	3	VP_30	169	0.06	2.30E-07	2.32E-07	3.88E-05	1.43E-08
30A	Cobalt	7440-48-4	3	VP_30	169	0.06	1.03E-05	1.04E-05	1.74E-03	6.43E-07
30A	Copper	7440-50-8	3	VP_30	169	0.06	2.07E-04	2.09E-04	3.50E-02	1.29E-05
30A	Lead	7439-92-1	3	VP_30	169	0.06	1.01E-04	1.02E-04	1.71E-02	6.32E-06
30A	Manganese	7439-96-5	3	VP_30	169	0.06	5.16E-03	5.21E-03	8.72E-01	3.21E-04
30A	Mercury	7439-97-6	3	VP_30	169	0.06	1.39E-07	1.41E-07	2.36E-05	8.69E-09
30A	Nickel	7440-02-0	3	VP_30	169	0.06	8.22E-05	8.30E-05	1.39E-02	5.12E-06
30A	Selenium	7782-49-2	3	VP_30	169	0.06	3.94E-07	3.98E-07	6.66E-05	2.46E-08
30A	Silver	7440-22-4	3	VP_30	169	0.06	6.75E-07	6.82E-07	1.14E-04	4.20E-08
30A	Thallium	7440-28-0	3	VP_30	169	0.06	1.77E-07	1.79E-07	2.99E-05	1.10E-08
30A	Vanadium	7440-62-2	3	VP_30	169	0.06	8.46E-05	8.55E-05	1.43E-02	5.27E-06
30A	Zinc	7440-66-6	3	VP_30	169	0.06	8.64E-04	8.72E-04	1.46E-01	5.38E-05
30B	Aluminum	7429-90-5	3	VP_30	169	0.09	7.56E-03	7.64E-03	1.28E+00	7.01E-04
30B	Antimony	7440-36-0	3	VP_30	169	0.09	1.39E-06	1.40E-06	2.34E-04	1.29E-07
30B	Arsenic	7440-38-2	3	VP_30	169	0.09	3.41E-06	3.44E-06	5.76E-04	3.16E-07
30B	Barium	7440-39-3	3	VP_30	169	0.09	2.17E-04	2.19E-04	3.67E-02	2.01E-05
30B	Beryllium	7440-41-7	3	VP_30	169	0.09	4.37E-07	4.41E-07	7.38E-05	4.05E-08
30B	Cadmium	7440-43-9	3	VP_30	169	0.09	2.68E-06	2.71E-06	4.53E-04	2.49E-07
30B	Chromium	7440-47-3	3	VP_30	169	0.09	4.11E-04	4.15E-04	6.95E-02	3.82E-05

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
30B	Chromium VI	18540-29-9	3	VP_30	169	0.09	2.30E-07	2.32E-07	3.88E-05	2.13E-08
30B	Cobalt	7440-48-4	3	VP_30	169	0.09	1.03E-05	1.04E-05	1.74E-03	9.57E-07
30B	Copper	7440-50-8	3	VP_30	169	0.09	2.07E-04	2.09E-04	3.50E-02	1.92E-05
30B	Lead	7439-92-1	3	VP_30	169	0.09	1.01E-04	1.02E-04	1.71E-02	9.41E-06
30B	Manganese	7439-96-5	3	VP_30	169	0.09	5.16E-03	5.21E-03	8.72E-01	4.79E-04
30B	Mercury	7439-97-6	3	VP_30	169	0.09	1.39E-07	1.41E-07	2.36E-05	1.29E-08
30B	Nickel	7440-02-0	3	VP_30	169	0.09	8.22E-05	8.30E-05	1.39E-02	7.62E-06
30B	Selenium	7782-49-2	3	VP_30	169	0.09	3.94E-07	3.98E-07	6.66E-05	3.66E-08
30B	Silver	7440-22-4	3	VP_30	169	0.09	6.75E-07	6.82E-07	1.14E-04	6.26E-08
30B	Thallium	7440-28-0	3	VP_30	169	0.09	1.77E-07	1.79E-07	2.99E-05	1.64E-08
30B	Vanadium	7440-62-2	3	VP_30	169	0.09	8.46E-05	8.55E-05	1.43E-02	7.85E-06
30B	Zinc	7440-66-6	3	VP_30	169	0.09	8.64E-04	8.72E-04	1.46E-01	8.01E-05
30C	Aluminum	7429-90-5	3	VP_30	164	0.09	7.56E-03	7.64E-03	1.24E+00	6.79E-04
30C	Antimony	7440-36-0	3	VP_30	164	0.09	1.39E-06	1.40E-06	2.27E-04	1.24E-07
30C	Arsenic	7440-38-2	3	VP_30	164	0.09	3.41E-06	3.44E-06	5.58E-04	3.06E-07
30C	Barium	7440-39-3	3	VP_30	164	0.09	2.17E-04	2.19E-04	3.55E-02	1.95E-05
30C	Beryllium	7440-41-7	3	VP_30	164	0.09	4.37E-07	4.41E-07	7.15E-05	3.93E-08
30C	Cadmium	7440-43-9	3	VP_30	164	0.09	2.68E-06	2.71E-06	4.39E-04	2.41E-07
30C	Chromium	7440-47-3	3	VP_30	164	0.09	4.11E-04	4.15E-04	6.73E-02	3.69E-05
30C	Chromium VI	18540-29-9	3	VP_30	164	0.09	2.30E-07	2.32E-07	3.76E-05	2.06E-08
30C	Cobalt	7440-48-4	3	VP_30	164	0.09	1.03E-05	1.04E-05	1.69E-03	9.27E-07
30C	Copper	7440-50-8	3	VP_30	164	0.09	2.07E-04	2.09E-04	3.39E-02	1.86E-05
30C	Lead	7439-92-1	3	VP_30	164	0.09	1.01E-04	1.02E-04	1.66E-02	9.11E-06
30C	Manganese	7439-96-5	3	VP_30	164	0.09	5.16E-03	5.21E-03	8.44E-01	4.64E-04
30C	Mercury	7439-97-6	3	VP_30	164	0.09	1.39E-07	1.41E-07	2.28E-05	1.25E-08
30C	Nickel	7440-02-0	3	VP_30	164	0.09	8.22E-05	8.30E-05	1.34E-02	7.38E-06
30C	Selenium	7782-49-2	3	VP_30	164	0.09	3.94E-07	3.98E-07	6.45E-05	3.54E-08
30C	Silver	7440-22-4	3	VP_30	164	0.09	6.75E-07	6.82E-07	1.10E-04	6.06E-08
30C	Thallium	7440-28-0	3	VP_30	164	0.09	1.77E-07	1.79E-07	2.89E-05	1.59E-08
30C	Vanadium	7440-62-2	3	VP_30	164	0.09	8.46E-05	8.55E-05	1.38E-02	7.60E-06
30C	Zinc	7440-66-6	3	VP_30	164	0.09	8.64E-04	8.72E-04	1.41E-01	7.76E-05
30D	Aluminum	7429-90-5	3	VP_30	164	0.06	7.56E-03	7.64E-03	1.24E+00	4.56E-04
30D	Antimony	7440-36-0	3	VP_30	164	0.06	1.39E-06	1.40E-06	2.27E-04	8.36E-08
30D	Arsenic	7440-38-2	3	VP_30	164	0.06	3.41E-06	3.44E-06	5.58E-04	2.06E-07
30D	Barium	7440-39-3	3	VP_30	164	0.06	2.17E-04	2.19E-04	3.55E-02	1.31E-05
30D	Beryllium	7440-41-7	3	VP_30	164	0.06	4.37E-07	4.41E-07	7.15E-05	2.64E-08
30D	Cadmium	7440-43-9	3	VP_30	164	0.06	2.68E-06	2.71E-06	4.39E-04	1.62E-07
30D	Chromium	7440-47-3	3	VP_30	164	0.06	4.11E-04	4.15E-04	6.73E-02	2.48E-05
30D	Chromium VI	18540-29-9	3	VP_30	164	0.06	2.30E-07	2.32E-07	3.76E-05	1.39E-08
30D	Cobalt	7440-48-4	3	VP_30	164	0.06	1.03E-05	1.04E-05	1.69E-03	6.23E-07
30D	Copper	7440-50-8	3	VP_30	164	0.06	2.07E-04	2.09E-04	3.39E-02	1.25E-05
30D	Lead	7439-92-1	3	VP_30	164	0.06	1.01E-04	1.02E-04	1.66E-02	6.12E-06
30D	Manganese	7439-96-5	3	VP_30	164	0.06	5.16E-03	5.21E-03	8.44E-01	3.11E-04
30D	Mercury	7439-97-6	3	VP_30	164	0.06	1.39E-07	1.41E-07	2.28E-05	8.42E-09
30D	Nickel	7440-02-0	3	VP_30	164	0.06	8.22E-05	8.30E-05	1.34E-02	4.96E-06
30D	Selenium	7782-49-2	3	VP_30	164	0.06	3.94E-07	3.98E-07	6.45E-05	2.38E-08
30D	Silver	7440-22-4	3	VP_30	164	0.06	6.75E-07	6.82E-07	1.10E-04	4.07E-08
30D	Thallium	7440-28-0	3	VP_30	164	0.06	1.77E-07	1.79E-07	2.89E-05	1.07E-08
30D	Vanadium	7440-62-2	3	VP_30	164	0.06	8.46E-05	8.55E-05	1.38E-02	5.10E-06
30D	Zinc	7440-66-6	3	VP_30	164	0.06	8.64E-04	8.72E-04	1.41E-01	5.21E-05
30E	Aluminum	7429-90-5	3	VP_30	110	0.06	7.56E-03	7.64E-03	8.34E-01	4.58E-04
30E	Antimony	7440-36-0	3	VP_30	110	0.06	1.39E-06	1.40E-06	1.53E-04	8.39E-08
30E	Arsenic	7440-38-2	3	VP_30	110	0.06	3.41E-06	3.44E-06	3.76E-04	2.06E-07
30E	Barium	7440-39-3	3	VP_30	110	0.06	2.17E-04	2.19E-04	2.39E-02	1.31E-05
30E	Beryllium	7440-41-7	3	VP_30	110	0.06	4.37E-07	4.41E-07	4.82E-05	2.65E-08
30E	Cadmium	7440-43-9	3	VP_30	110	0.06	2.68E-06	2.71E-06	2.96E-04	1.63E-07
30E	Chromium	7440-47-3	3	VP_30	110	0.06	4.11E-04	4.15E-04	4.54E-02	2.49E-05
30E	Chromium VI	18540-29-9	3	VP_30	110	0.06	2.30E-07	2.32E-07	2.53E-05	1.39E-08
30E	Cobalt	7440-48-4	3	VP_30	110	0.06	1.03E-05	1.04E-05	1.14E-03	6.25E-07
30E	Copper	7440-50-8	3	VP_30	110	0.06	2.07E-04	2.09E-04	2.29E-02	1.26E-05
30E	Lead	7439-92-1	3	VP_30	110	0.06	1.01E-04	1.02E-04	1.12E-02	6.14E-06
30E	Manganese	7439-96-5	3	VP_30	110	0.06	5.16E-03	5.21E-03	5.69E-01	3.12E-04
30E	Mercury	7439-97-6	3	VP_30	110	0.06	1.39E-07	1.41E-07	1.54E-05	8.45E-09
30E	Nickel	7440-02-0	3	VP_30	110	0.06	8.22E-05	8.30E-05	9.06E-03	4.97E-06
30E	Selenium	7782-49-2	3	VP_30	110	0.06	3.94E-07	3.98E-07	4.35E-05	2.39E-08
30E	Silver	7440-22-4	3	VP_30	110	0.06	6.75E-07	6.82E-07	7.44E-05	4.09E-08
30E	Thallium	7440-28-0	3	VP_30	110	0.06	1.77E-07	1.79E-07	1.95E-05	1.07E-08
30E	Vanadium	7440-62-2	3	VP_30	110	0.06	8.46E-05	8.55E-05	9.33E-03	5.12E-06
30E	Zinc	7440-66-6	3	VP_30	110	0.06	8.64E-04	8.72E-04	9.52E-02	5.23E-05
30F	Aluminum	7429-90-5	3	VP_30	20	0.01	7.56E-03	7.64E-03	1.51E-01	8.31E-05

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
30F	Antimony	7440-36-0	3	VP_30	20	0.01	1.39E-06	1.40E-06	2.78E-05	1.52E-08
30F	Arsenic	7440-38-2	3	VP_30	20	0.01	3.41E-06	3.44E-06	6.83E-05	3.75E-08
30F	Barium	7440-39-3	3	VP_30	20	0.01	2.17E-04	2.19E-04	4.35E-03	2.39E-06
30F	Beryllium	7440-41-7	3	VP_30	20	0.01	4.37E-07	4.41E-07	8.75E-06	4.80E-09
30F	Cadmium	7440-43-9	3	VP_30	20	0.01	2.68E-06	2.71E-06	5.38E-05	2.95E-08
30F	Chromium	7440-47-3	3	VP_30	20	0.01	4.11E-04	4.15E-04	8.24E-03	4.52E-06
30F	Chromium VI	18540-29-9	3	VP_30	20	0.01	2.30E-07	2.32E-07	4.60E-06	2.53E-09
30F	Cobalt	7440-48-4	3	VP_30	20	0.01	1.03E-05	1.04E-05	2.07E-04	1.13E-07
30F	Copper	7440-50-8	3	VP_30	20	0.01	2.07E-04	2.09E-04	4.15E-03	2.28E-06
30F	Lead	7439-92-1	3	VP_30	20	0.01	1.01E-04	1.02E-04	2.03E-03	1.12E-06
30F	Manganese	7439-96-5	3	VP_30	20	0.01	5.16E-03	5.21E-03	1.03E-01	5.67E-05
30F	Mercury	7439-97-6	3	VP_30	20	0.01	1.39E-07	1.41E-07	2.79E-06	1.53E-09
30F	Nickel	7440-02-0	3	VP_30	20	0.01	8.22E-05	8.30E-05	1.65E-03	9.03E-07
30F	Selenium	7782-49-2	3	VP_30	20	0.01	3.94E-07	3.98E-07	7.90E-06	4.34E-09
30F	Silver	7440-22-4	3	VP_30	20	0.01	6.75E-07	6.82E-07	1.35E-05	7.42E-09
30F	Thallium	7440-28-0	3	VP_30	20	0.01	1.77E-07	1.79E-07	3.54E-06	1.94E-09
30F	Vanadium	7440-62-2	3	VP_30	20	0.01	8.46E-05	8.55E-05	1.69E-03	9.30E-07
30F	Zinc	7440-66-6	3	VP_30	20	0.01	8.64E-04	8.72E-04	1.73E-02	9.50E-06
31A	Aluminum	7429-90-5	3	VP_31	336	0.12	7.61E-03	7.70E-03	2.56E+00	9.44E-04
31A	Antimony	7440-36-0	3	VP_31	336	0.12	1.40E-06	1.41E-06	4.69E-04	1.73E-07
31A	Arsenic	7440-38-2	3	VP_31	336	0.12	3.43E-06	3.47E-06	1.15E-03	4.26E-07
31A	Barium	7440-39-3	3	VP_31	336	0.12	2.19E-04	2.21E-04	7.34E-02	2.71E-05
31A	Beryllium	7440-41-7	3	VP_31	336	0.12	4.40E-07	4.45E-07	1.48E-04	5.46E-08
31A	Cadmium	7440-43-9	3	VP_31	336	0.12	2.70E-06	2.73E-06	9.08E-04	3.35E-07
31A	Chromium	7440-47-3	3	VP_31	336	0.12	4.14E-04	4.19E-04	1.39E-01	5.14E-05
31A	Chromium VI	18540-29-9	3	VP_31	336	0.12	2.31E-07	2.34E-07	7.77E-05	2.87E-08
31A	Cobalt	7440-48-4	3	VP_31	336	0.12	1.04E-05	1.05E-05	3.49E-03	1.29E-06
31A	Copper	7440-50-8	3	VP_31	336	0.12	2.09E-04	2.11E-04	7.01E-02	2.59E-05
31A	Lead	7439-92-1	3	VP_31	336	0.12	1.02E-04	1.03E-04	3.43E-02	1.27E-05
31A	Manganese	7439-96-5	3	VP_31	336	0.12	5.20E-03	5.25E-03	1.75E+00	6.44E-04
31A	Mercury	7439-97-6	3	VP_31	336	0.12	1.40E-07	1.42E-07	4.72E-05	1.74E-08
31A	Nickel	7440-02-0	3	VP_31	336	0.12	8.27E-05	8.37E-05	2.78E-02	1.03E-05
31A	Selenium	7782-49-2	3	VP_31	336	0.12	3.97E-07	4.02E-07	1.33E-04	4.92E-08
31A	Silver	7440-22-4	3	VP_31	336	0.12	6.80E-07	6.87E-07	2.28E-04	8.42E-08
31A	Thallium	7440-28-0	3	VP_31	336	0.12	1.78E-07	1.80E-07	5.98E-05	2.21E-08
31A	Vanadium	7440-62-2	3	VP_31	336	0.12	8.52E-05	8.62E-05	2.86E-02	1.06E-05
31A	Zinc	7440-66-6	3	VP_31	336	0.12	8.70E-04	8.79E-04	2.92E-01	1.08E-04
31B	Aluminum	7429-90-5	3	VP_31	336	0.18	7.61E-03	7.70E-03	2.56E+00	1.41E-03
31B	Antimony	7440-36-0	3	VP_31	336	0.18	1.40E-06	1.41E-06	4.69E-04	2.58E-07
31B	Arsenic	7440-38-2	3	VP_31	336	0.18	3.43E-06	3.47E-06	1.15E-03	6.34E-07
31B	Barium	7440-39-3	3	VP_31	336	0.18	2.19E-04	2.21E-04	7.34E-02	4.04E-05
31B	Beryllium	7440-41-7	3	VP_31	336	0.18	4.40E-07	4.45E-07	1.48E-04	8.12E-08
31B	Cadmium	7440-43-9	3	VP_31	336	0.18	2.70E-06	2.73E-06	9.08E-04	4.99E-07
31B	Chromium	7440-47-3	3	VP_31	336	0.18	4.14E-04	4.19E-04	1.39E-01	7.65E-05
31B	Chromium VI	18540-29-9	3	VP_31	336	0.18	2.31E-07	2.34E-07	7.77E-05	4.27E-08
31B	Cobalt	7440-48-4	3	VP_31	336	0.18	1.04E-05	1.05E-05	3.49E-03	1.92E-06
31B	Copper	7440-50-8	3	VP_31	336	0.18	2.09E-04	2.11E-04	7.01E-02	3.85E-05
31B	Lead	7439-92-1	3	VP_31	336	0.18	1.02E-04	1.03E-04	3.43E-02	1.89E-05
31B	Manganese	7439-96-5	3	VP_31	336	0.18	5.20E-03	5.25E-03	1.75E+00	9.59E-04
31B	Mercury	7439-97-6	3	VP_31	336	0.18	1.40E-07	1.42E-07	4.72E-05	2.59E-08
31B	Nickel	7440-02-0	3	VP_31	336	0.18	8.27E-05	8.37E-05	2.78E-02	1.53E-05
31B	Selenium	7782-49-2	3	VP_31	336	0.18	3.97E-07	4.02E-07	1.33E-04	7.33E-08
31B	Silver	7440-22-4	3	VP_31	336	0.18	6.80E-07	6.87E-07	2.28E-04	1.25E-07
31B	Thallium	7440-28-0	3	VP_31	336	0.18	1.78E-07	1.80E-07	5.98E-05	3.29E-08
31B	Vanadium	7440-62-2	3	VP_31	336	0.18	8.52E-05	8.62E-05	2.86E-02	1.57E-05
31B	Zinc	7440-66-6	3	VP_31	336	0.18	8.70E-04	8.79E-04	2.92E-01	1.61E-04
31C	Aluminum	7429-90-5	3	VP_31	325	0.18	7.61E-03	7.70E-03	2.48E+00	1.36E-03
31C	Antimony	7440-36-0	3	VP_31	325	0.18	1.40E-06	1.41E-06	4.54E-04	2.49E-07
31C	Arsenic	7440-38-2	3	VP_31	325	0.18	3.43E-06	3.47E-06	1.12E-03	6.14E-07
31C	Barium	7440-39-3	3	VP_31	325	0.18	2.19E-04	2.21E-04	7.11E-02	3.91E-05
31C	Beryllium	7440-41-7	3	VP_31	325	0.18	4.40E-07	4.45E-07	1.43E-04	7.87E-08
31C	Cadmium	7440-43-9	3	VP_31	325	0.18	2.70E-06	2.73E-06	8.79E-04	4.83E-07
31C	Chromium	7440-47-3	3	VP_31	325	0.18	4.14E-04	4.19E-04	1.35E-01	7.40E-05
31C	Chromium VI	18540-29-9	3	VP_31	325	0.18	2.31E-07	2.34E-07	7.52E-05	4.13E-08
31C	Cobalt	7440-48-4	3	VP_31	325	0.18	1.04E-05	1.05E-05	3.38E-03	1.86E-06
31C	Copper	7440-50-8	3	VP_31	325	0.18	2.09E-04	2.11E-04	6.79E-02	3.73E-05
31C	Lead	7439-92-1	3	VP_31	325	0.18	1.02E-04	1.03E-04	3.32E-02	1.83E-05
31C	Manganese	7439-96-5	3	VP_31	325	0.18	5.20E-03	5.25E-03	1.69E+00	9.29E-04
31C	Mercury	7439-97-6	3	VP_31	325	0.18	1.40E-07	1.42E-07	4.57E-05	2.51E-08
31C	Nickel	7440-02-0	3	VP_31	325	0.18	8.27E-05	8.37E-05	2.69E-02	1.48E-05

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
31C	Selenium	7782-49-2	3	VP_31	325	0.18	3.97E-07	4.02E-07	1.29E-04	7.10E-08
31C	Silver	7440-22-4	3	VP_31	325	0.18	6.80E-07	6.87E-07	2.21E-04	1.21E-07
31C	Thallium	7440-28-0	3	VP_31	325	0.18	1.78E-07	1.80E-07	5.79E-05	3.18E-08
31C	Vanadium	7440-62-2	3	VP_31	325	0.18	8.52E-05	8.62E-05	2.77E-02	1.52E-05
31C	Zinc	7440-66-6	3	VP_31	325	0.18	8.70E-04	8.79E-04	2.83E-01	1.55E-04
31D	Aluminum	7429-90-5	3	VP_31	325	0.12	7.61E-03	7.70E-03	2.48E+00	9.14E-04
31D	Antimony	7440-36-0	3	VP_31	325	0.12	1.40E-06	1.41E-06	4.54E-04	1.68E-07
31D	Arsenic	7440-38-2	3	VP_31	325	0.12	3.43E-06	3.47E-06	1.12E-03	4.12E-07
31D	Barium	7440-39-3	3	VP_31	325	0.12	2.19E-04	2.21E-04	7.11E-02	2.63E-05
31D	Beryllium	7440-41-7	3	VP_31	325	0.12	4.40E-07	4.45E-07	1.43E-04	5.28E-08
31D	Cadmium	7440-43-9	3	VP_31	325	0.12	2.70E-06	2.73E-06	8.79E-04	3.25E-07
31D	Chromium	7440-47-3	3	VP_31	325	0.12	4.14E-04	4.19E-04	1.35E-01	4.97E-05
31D	Chromium VI	18540-29-9	3	VP_31	325	0.12	2.31E-07	2.34E-07	7.52E-05	2.78E-08
31D	Cobalt	7440-48-4	3	VP_31	325	0.12	1.04E-05	1.05E-05	3.38E-03	1.25E-06
31D	Copper	7440-50-8	3	VP_31	325	0.12	2.09E-04	2.11E-04	6.79E-02	2.51E-05
31D	Lead	7439-92-1	3	VP_31	325	0.12	1.02E-04	1.03E-04	3.32E-02	1.23E-05
31D	Manganese	7439-96-5	3	VP_31	325	0.12	5.20E-03	5.25E-03	1.69E+00	6.24E-04
31D	Mercury	7439-97-6	3	VP_31	325	0.12	1.40E-07	1.42E-07	4.57E-05	1.69E-08
31D	Nickel	7440-02-0	3	VP_31	325	0.12	8.27E-05	8.37E-05	2.69E-02	9.93E-06
31D	Selenium	7782-49-2	3	VP_31	325	0.12	3.97E-07	4.02E-07	1.29E-04	4.77E-08
31D	Silver	7440-22-4	3	VP_31	325	0.12	6.80E-07	6.87E-07	2.21E-04	8.16E-08
31D	Thallium	7440-28-0	3	VP_31	325	0.12	1.78E-07	1.80E-07	5.79E-05	2.14E-08
31D	Vanadium	7440-62-2	3	VP_31	325	0.12	8.52E-05	8.62E-05	2.77E-02	1.02E-05
31D	Zinc	7440-66-6	3	VP_31	325	0.12	8.70E-04	8.79E-04	2.83E-01	1.04E-04
31E	Aluminum	7429-90-5	3	VP_31	219	0.12	7.61E-03	7.70E-03	1.67E+00	9.17E-04
31E	Antimony	7440-36-0	3	VP_31	219	0.12	1.40E-06	1.41E-06	3.06E-04	1.68E-07
31E	Arsenic	7440-38-2	3	VP_31	219	0.12	3.43E-06	3.47E-06	7.53E-04	4.14E-07
31E	Barium	7440-39-3	3	VP_31	219	0.12	2.19E-04	2.21E-04	4.79E-02	2.63E-05
31E	Beryllium	7440-41-7	3	VP_31	219	0.12	4.40E-07	4.45E-07	9.65E-05	5.30E-08
31E	Cadmium	7440-43-9	3	VP_31	219	0.12	2.70E-06	2.73E-06	5.93E-04	3.26E-07
31E	Chromium	7440-47-3	3	VP_31	219	0.12	4.14E-04	4.19E-04	9.08E-02	4.99E-05
31E	Chromium VI	18540-29-9	3	VP_31	219	0.12	2.31E-07	2.34E-07	5.07E-05	2.79E-08
31E	Cobalt	7440-48-4	3	VP_31	219	0.12	1.04E-05	1.05E-05	2.28E-03	1.25E-06
31E	Copper	7440-50-8	3	VP_31	219	0.12	2.09E-04	2.11E-04	4.58E-02	2.52E-05
31E	Lead	7439-92-1	3	VP_31	219	0.12	1.02E-04	1.03E-04	2.24E-02	1.23E-05
31E	Manganese	7439-96-5	3	VP_31	219	0.12	5.20E-03	5.25E-03	1.14E+00	6.26E-04
31E	Mercury	7439-97-6	3	VP_31	219	0.12	1.40E-07	1.42E-07	3.08E-05	1.69E-08
31E	Nickel	7440-02-0	3	VP_31	219	0.12	8.27E-05	8.37E-05	1.81E-02	9.97E-06
31E	Selenium	7782-49-2	3	VP_31	219	0.12	3.97E-07	4.02E-07	8.71E-05	4.79E-08
31E	Silver	7440-22-4	3	VP_31	219	0.12	6.80E-07	6.87E-07	1.49E-04	8.19E-08
31E	Thallium	7440-28-0	3	VP_31	219	0.12	1.78E-07	1.80E-07	3.90E-05	2.14E-08
31E	Vanadium	7440-62-2	3	VP_31	219	0.12	8.52E-05	8.62E-05	1.87E-02	1.03E-05
31E	Zinc	7440-66-6	3	VP_31	219	0.12	8.70E-04	8.79E-04	1.91E-01	1.05E-04
33A	Aluminum	7429-90-5	3	VP_33	67	0.02	9.31E-03	9.55E-03	6.20E-01	2.32E-04
33A	Antimony	7440-36-0	3	VP_33	67	0.02	1.71E-06	1.75E-06	1.14E-04	4.25E-08
33A	Arsenic	7440-38-2	3	VP_33	67	0.02	4.20E-06	4.31E-06	2.79E-04	1.05E-07
33A	Barium	7440-39-3	3	VP_33	67	0.02	2.67E-04	2.74E-04	1.78E-02	6.67E-06
33A	Beryllium	7440-41-7	3	VP_33	67	0.02	5.38E-07	5.52E-07	3.58E-05	1.34E-08
33A	Cadmium	7440-43-9	3	VP_33	67	0.02	3.30E-06	3.39E-06	2.20E-04	8.24E-08
33A	Chromium	7440-47-3	3	VP_33	67	0.02	5.06E-04	5.20E-04	3.37E-02	1.26E-05
33A	Chromium VI	18540-29-9	3	VP_33	67	0.02	2.83E-07	2.90E-07	1.88E-05	7.05E-09
33A	Cobalt	7440-48-4	3	VP_33	67	0.02	1.27E-05	1.30E-05	8.46E-04	3.17E-07
33A	Copper	7440-50-8	3	VP_33	67	0.02	2.55E-04	2.62E-04	1.70E-02	6.37E-06
33A	Lead	7439-92-1	3	VP_33	67	0.02	1.25E-04	1.28E-04	8.31E-03	3.12E-06
33A	Manganese	7439-96-5	3	VP_33	67	0.02	6.35E-03	6.52E-03	4.23E-01	1.58E-04
33A	Mercury	7439-97-6	3	VP_33	67	0.02	1.72E-07	1.76E-07	1.14E-05	4.28E-09
33A	Nickel	7440-02-0	3	VP_33	67	0.02	1.01E-04	1.04E-04	6.73E-03	2.52E-06
33A	Selenium	7782-49-2	3	VP_33	67	0.02	4.86E-07	4.98E-07	3.23E-05	1.21E-08
33A	Silver	7440-22-4	3	VP_33	67	0.02	8.31E-07	8.53E-07	5.53E-05	2.07E-08
33A	Thallium	7440-28-0	3	VP_33	67	0.02	2.18E-07	2.23E-07	1.45E-05	5.43E-09
33A	Vanadium	7440-62-2	3	VP_33	67	0.02	1.04E-04	1.07E-04	6.93E-03	2.60E-06
33A	Zinc	7440-66-6	3	VP_33	67	0.02	1.06E-03	1.09E-03	7.08E-02	2.65E-05
33B	Aluminum	7429-90-5	3	VP_33	67	0.04	9.31E-03	9.55E-03	6.20E-01	3.46E-04
33B	Antimony	7440-36-0	3	VP_33	67	0.04	1.71E-06	1.75E-06	1.14E-04	6.33E-08
33B	Arsenic	7440-38-2	3	VP_33	67	0.04	4.20E-06	4.31E-06	2.79E-04	1.56E-07
33B	Barium	7440-39-3	3	VP_33	67	0.04	2.67E-04	2.74E-04	1.78E-02	9.93E-06
33B	Beryllium	7440-41-7	3	VP_33	67	0.04	5.38E-07	5.52E-07	3.58E-05	2.00E-08
33B	Cadmium	7440-43-9	3	VP_33	67	0.04	3.30E-06	3.39E-06	2.20E-04	1.23E-07
33B	Chromium	7440-47-3	3	VP_33	67	0.04	5.06E-04	5.20E-04	3.37E-02	1.88E-05
33B	Chromium VI	18540-29-9	3	VP_33	67	0.04	2.83E-07	2.90E-07	1.88E-05	1.05E-08

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
33B	Cobalt	7440-48-4	3	VP_33	67	0.04	1.27E-05	1.30E-05	8.46E-04	4.72E-07
33B	Copper	7440-50-8	3	VP_33	67	0.04	2.55E-04	2.62E-04	1.70E-02	9.48E-06
33B	Lead	7439-92-1	3	VP_33	67	0.04	1.25E-04	1.28E-04	8.31E-03	4.64E-06
33B	Manganese	7439-96-5	3	VP_33	67	0.04	6.35E-03	6.52E-03	4.23E-01	2.36E-04
33B	Mercury	7439-97-6	3	VP_33	67	0.04	1.72E-07	1.76E-07	1.14E-05	6.38E-09
33B	Nickel	7440-02-0	3	VP_33	67	0.04	1.01E-04	1.04E-04	6.73E-03	3.76E-06
33B	Selenium	7782-49-2	3	VP_33	67	0.04	4.86E-07	4.98E-07	3.23E-05	1.80E-08
33B	Silver	7440-22-4	3	VP_33	67	0.04	8.31E-07	8.53E-07	5.53E-05	3.09E-08
33B	Thallium	7440-28-0	3	VP_33	67	0.04	2.18E-07	2.23E-07	1.45E-05	8.08E-09
33B	Vanadium	7440-62-2	3	VP_33	67	0.04	1.04E-04	1.07E-04	6.93E-03	3.87E-06
33B	Zinc	7440-66-6	3	VP_33	67	0.04	1.06E-03	1.09E-03	7.08E-02	3.95E-05
33C	Aluminum	7429-90-5	3	VP_33	64	0.04	9.31E-03	9.55E-03	6.00E-01	3.35E-04
33C	Antimony	7440-36-0	3	VP_33	64	0.04	1.71E-06	1.75E-06	1.10E-04	6.13E-08
33C	Arsenic	7440-38-2	3	VP_33	64	0.04	4.20E-06	4.31E-06	2.71E-04	1.51E-07
33C	Barium	7440-39-3	3	VP_33	64	0.04	2.67E-04	2.74E-04	1.72E-02	9.61E-06
33C	Beryllium	7440-41-7	3	VP_33	64	0.04	5.38E-07	5.52E-07	3.47E-05	1.93E-08
33C	Cadmium	7440-43-9	3	VP_33	64	0.04	3.30E-06	3.39E-06	2.13E-04	1.19E-07
33C	Chromium	7440-47-3	3	VP_33	64	0.04	5.06E-04	5.20E-04	3.26E-02	1.82E-05
33C	Chromium VI	18540-29-9	3	VP_33	64	0.04	2.83E-07	2.90E-07	1.82E-05	1.02E-08
33C	Cobalt	7440-48-4	3	VP_33	64	0.04	1.27E-05	1.30E-05	8.19E-04	4.57E-07
33C	Copper	7440-50-8	3	VP_33	64	0.04	2.55E-04	2.62E-04	1.65E-02	9.18E-06
33C	Lead	7439-92-1	3	VP_33	64	0.04	1.25E-04	1.28E-04	8.05E-03	4.49E-06
33C	Manganese	7439-96-5	3	VP_33	64	0.04	6.35E-03	6.52E-03	4.10E-01	2.28E-04
33C	Mercury	7439-97-6	3	VP_33	64	0.04	1.72E-07	1.76E-07	1.11E-05	6.18E-09
33C	Nickel	7440-02-0	3	VP_33	64	0.04	1.01E-04	1.04E-04	6.52E-03	3.64E-06
33C	Selenium	7782-49-2	3	VP_33	64	0.04	4.86E-07	4.98E-07	3.13E-05	1.75E-08
33C	Silver	7440-22-4	3	VP_33	64	0.04	8.31E-07	8.53E-07	5.36E-05	2.99E-08
33C	Thallium	7440-28-0	3	VP_33	64	0.04	2.18E-07	2.23E-07	1.40E-05	7.83E-09
33C	Vanadium	7440-62-2	3	VP_33	64	0.04	1.04E-04	1.07E-04	6.71E-03	3.75E-06
33C	Zinc	7440-66-6	3	VP_33	64	0.04	1.06E-03	1.09E-03	6.85E-02	3.82E-05
33D	Aluminum	7429-90-5	3	VP_33	64	0.02	9.31E-03	9.55E-03	6.00E-01	2.25E-04
33D	Antimony	7440-36-0	3	VP_33	64	0.02	1.71E-06	1.75E-06	1.10E-04	4.12E-08
33D	Arsenic	7440-38-2	3	VP_33	64	0.02	4.20E-06	4.31E-06	2.71E-04	1.01E-07
33D	Barium	7440-39-3	3	VP_33	64	0.02	2.67E-04	2.74E-04	1.72E-02	6.46E-06
33D	Beryllium	7440-41-7	3	VP_33	64	0.02	5.38E-07	5.52E-07	3.47E-05	1.30E-08
33D	Cadmium	7440-43-9	3	VP_33	64	0.02	3.30E-06	3.39E-06	2.13E-04	7.98E-08
33D	Chromium	7440-47-3	3	VP_33	64	0.02	5.06E-04	5.20E-04	3.26E-02	1.22E-05
33D	Chromium VI	18540-29-9	3	VP_33	64	0.02	2.83E-07	2.90E-07	1.82E-05	6.83E-09
33D	Cobalt	7440-48-4	3	VP_33	64	0.02	1.27E-05	1.30E-05	8.19E-04	3.07E-07
33D	Copper	7440-50-8	3	VP_33	64	0.02	2.55E-04	2.62E-04	1.65E-02	6.16E-06
33D	Lead	7439-92-1	3	VP_33	64	0.02	1.25E-04	1.28E-04	8.05E-03	3.02E-06
33D	Manganese	7439-96-5	3	VP_33	64	0.02	6.35E-03	6.52E-03	4.10E-01	1.53E-04
33D	Mercury	7439-97-6	3	VP_33	64	0.02	1.72E-07	1.76E-07	1.11E-05	4.15E-09
33D	Nickel	7440-02-0	3	VP_33	64	0.02	1.01E-04	1.04E-04	6.52E-03	2.44E-06
33D	Selenium	7782-49-2	3	VP_33	64	0.02	4.86E-07	4.98E-07	3.13E-05	1.17E-08
33D	Silver	7440-22-4	3	VP_33	64	0.02	8.31E-07	8.53E-07	5.36E-05	2.01E-08
33D	Thallium	7440-28-0	3	VP_33	64	0.02	2.18E-07	2.23E-07	1.40E-05	5.26E-09
33D	Vanadium	7440-62-2	3	VP_33	64	0.02	1.04E-04	1.07E-04	6.71E-03	2.52E-06
33D	Zinc	7440-66-6	3	VP_33	64	0.02	1.06E-03	1.09E-03	6.85E-02	2.57E-05
33E	Aluminum	7429-90-5	3	VP_33	43	0.02	9.31E-03	9.55E-03	4.04E-01	2.26E-04
33E	Antimony	7440-36-0	3	VP_33	43	0.02	1.71E-06	1.75E-06	7.41E-05	4.14E-08
33E	Arsenic	7440-38-2	3	VP_33	43	0.02	4.20E-06	4.31E-06	1.82E-04	1.02E-07
33E	Barium	7440-39-3	3	VP_33	43	0.02	2.67E-04	2.74E-04	1.16E-02	6.48E-06
33E	Beryllium	7440-41-7	3	VP_33	43	0.02	5.38E-07	5.52E-07	2.34E-05	1.30E-08
33E	Cadmium	7440-43-9	3	VP_33	43	0.02	3.30E-06	3.39E-06	1.44E-04	8.01E-08
33E	Chromium	7440-47-3	3	VP_33	43	0.02	5.06E-04	5.20E-04	2.20E-02	1.23E-05
33E	Chromium VI	18540-29-9	3	VP_33	43	0.02	2.83E-07	2.90E-07	1.23E-05	6.85E-09
33E	Cobalt	7440-48-4	3	VP_33	43	0.02	1.27E-05	1.30E-05	5.52E-04	3.08E-07
33E	Copper	7440-50-8	3	VP_33	43	0.02	2.55E-04	2.62E-04	1.11E-02	6.19E-06
33E	Lead	7439-92-1	3	VP_33	43	0.02	1.25E-04	1.28E-04	5.43E-03	3.03E-06
33E	Manganese	7439-96-5	3	VP_33	43	0.02	6.35E-03	6.52E-03	2.76E-01	1.54E-04
33E	Mercury	7439-97-6	3	VP_33	43	0.02	1.72E-07	1.76E-07	7.46E-06	4.16E-09
33E	Nickel	7440-02-0	3	VP_33	43	0.02	1.01E-04	1.04E-04	4.39E-03	2.45E-06
33E	Selenium	7782-49-2	3	VP_33	43	0.02	4.86E-07	4.98E-07	2.11E-05	1.18E-08
33E	Silver	7440-22-4	3	VP_33	43	0.02	8.31E-07	8.53E-07	3.61E-05	2.01E-08
33E	Thallium	7440-28-0	3	VP_33	43	0.02	2.18E-07	2.23E-07	9.45E-06	5.27E-09
33E	Vanadium	7440-62-2	3	VP_33	43	0.02	1.04E-04	1.07E-04	4.53E-03	2.53E-06
33E	Zinc	7440-66-6	3	VP_33	43	0.02	1.06E-03	1.09E-03	4.62E-02	2.58E-05
33F	Aluminum	7429-90-5	3	VP_33	127	0.06	9.31E-03	9.55E-03	1.18E+00	6.19E-04
33F	Antimony	7440-36-0	3	VP_33	127	0.06	1.71E-06	1.75E-06	2.16E-04	1.13E-07

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
33F	Arsenic	7440-38-2	3	VP_33	127	0.06	4.20E-06	4.31E-06	5.32E-04	2.79E-07
33F	Barium	7440-39-3	3	VP_33	127	0.06	2.67E-04	2.74E-04	3.39E-02	1.78E-05
33F	Beryllium	7440-41-7	3	VP_33	127	0.06	5.38E-07	5.52E-07	6.82E-05	3.58E-08
33F	Cadmium	7440-43-9	3	VP_33	127	0.06	3.30E-06	3.39E-06	4.19E-04	2.20E-07
33F	Chromium	7440-47-3	3	VP_33	127	0.06	5.06E-04	5.20E-04	6.42E-02	3.37E-05
33F	Chromium VI	18540-29-9	3	VP_33	127	0.06	2.83E-07	2.90E-07	3.58E-05	1.88E-08
33F	Cobalt	7440-48-4	3	VP_33	127	0.06	1.27E-05	1.30E-05	1.61E-03	8.45E-07
33F	Copper	7440-50-8	3	VP_33	127	0.06	2.55E-04	2.62E-04	3.24E-02	1.70E-05
33F	Lead	7439-92-1	3	VP_33	127	0.06	1.25E-04	1.28E-04	1.58E-02	8.31E-06
33F	Manganese	7439-96-5	3	VP_33	127	0.06	6.35E-03	6.52E-03	8.06E-01	4.23E-04
33F	Mercury	7439-97-6	3	VP_33	127	0.06	1.72E-07	1.76E-07	2.18E-05	1.14E-08
33F	Nickel	7440-02-0	3	VP_33	127	0.06	1.01E-04	1.04E-04	1.28E-02	6.73E-06
33F	Selenium	7782-49-2	3	VP_33	127	0.06	4.86E-07	4.98E-07	6.16E-05	3.23E-08
33F	Silver	7440-22-4	3	VP_33	127	0.06	8.31E-07	8.53E-07	1.05E-04	5.52E-08
33F	Thallium	7440-28-0	3	VP_33	127	0.06	2.18E-07	2.23E-07	2.76E-05	1.45E-08
33F	Vanadium	7440-62-2	3	VP_33	127	0.06	1.04E-04	1.07E-04	1.32E-02	6.93E-06
33F	Zinc	7440-66-6	3	VP_33	127	0.06	1.06E-03	1.09E-03	1.35E-01	7.07E-05
34A	Aluminum	7429-90-5	3	VP_34	193	0.07	7.28E-03	7.32E-03	1.40E+00	5.15E-04
34A	Antimony	7440-36-0	3	VP_34	193	0.07	1.33E-06	1.34E-06	2.57E-04	9.43E-08
34A	Arsenic	7440-38-2	3	VP_34	193	0.07	3.28E-06	3.30E-06	6.32E-04	2.32E-07
34A	Barium	7440-39-3	3	VP_34	193	0.07	2.09E-04	2.10E-04	4.03E-02	1.48E-05
34A	Beryllium	7440-41-7	3	VP_34	193	0.07	4.21E-07	4.23E-07	8.10E-05	2.97E-08
34A	Cadmium	7440-43-9	3	VP_34	193	0.07	2.58E-06	2.60E-06	4.98E-04	1.83E-07
34A	Chromium	7440-47-3	3	VP_34	193	0.07	3.96E-04	3.98E-04	7.63E-02	2.80E-05
34A	Chromium VI	18540-29-9	3	VP_34	193	0.07	2.21E-07	2.22E-07	4.26E-05	1.56E-08
34A	Cobalt	7440-48-4	3	VP_34	193	0.07	9.94E-06	9.99E-06	1.91E-03	7.03E-07
34A	Copper	7440-50-8	3	VP_34	193	0.07	2.00E-04	2.01E-04	3.84E-02	1.41E-05
34A	Lead	7439-92-1	3	VP_34	193	0.07	9.77E-05	9.82E-05	1.88E-02	6.91E-06
34A	Manganese	7439-96-5	3	VP_34	193	0.07	4.97E-03	5.00E-03	9.57E-01	3.51E-04
34A	Mercury	7439-97-6	3	VP_34	193	0.07	1.34E-07	1.35E-07	2.59E-05	9.50E-09
34A	Nickel	7440-02-0	3	VP_34	193	0.07	7.91E-05	7.95E-05	1.52E-02	5.59E-06
34A	Selenium	7782-49-2	3	VP_34	193	0.07	3.80E-07	3.82E-07	7.31E-05	2.69E-08
34A	Silver	7440-22-4	3	VP_34	193	0.07	6.50E-07	6.53E-07	1.25E-04	4.59E-08
34A	Thallium	7440-28-0	3	VP_34	193	0.07	1.70E-07	1.71E-07	3.28E-05	1.20E-08
34A	Vanadium	7440-62-2	3	VP_34	193	0.07	8.14E-05	8.19E-05	1.57E-02	5.76E-06
34A	Zinc	7440-66-6	3	VP_34	193	0.07	8.31E-04	8.36E-04	1.60E-01	5.88E-05
34B	Aluminum	7429-90-5	3	VP_34	192	0.10	7.28E-03	7.32E-03	1.40E+00	7.66E-04
34B	Antimony	7440-36-0	3	VP_34	192	0.10	1.33E-06	1.34E-06	2.57E-04	1.40E-07
34B	Arsenic	7440-38-2	3	VP_34	192	0.10	3.28E-06	3.30E-06	6.32E-04	3.45E-07
34B	Barium	7440-39-3	3	VP_34	192	0.10	2.09E-04	2.10E-04	4.02E-02	2.20E-05
34B	Beryllium	7440-41-7	3	VP_34	192	0.10	4.21E-07	4.23E-07	8.10E-05	4.43E-08
34B	Cadmium	7440-43-9	3	VP_34	192	0.10	2.58E-06	2.60E-06	4.97E-04	2.72E-07
34B	Chromium	7440-47-3	3	VP_34	192	0.10	3.96E-04	3.98E-04	7.62E-02	4.17E-05
34B	Chromium VI	18540-29-9	3	VP_34	192	0.10	2.21E-07	2.22E-07	4.26E-05	2.33E-08
34B	Cobalt	7440-48-4	3	VP_34	192	0.10	9.94E-06	9.99E-06	1.91E-03	1.05E-06
34B	Copper	7440-50-8	3	VP_34	192	0.10	2.00E-04	2.01E-04	3.84E-02	2.10E-05
34B	Lead	7439-92-1	3	VP_34	192	0.10	9.77E-05	9.82E-05	1.88E-02	1.03E-05
34B	Manganese	7439-96-5	3	VP_34	192	0.10	4.97E-03	5.00E-03	9.56E-01	5.23E-04
34B	Mercury	7439-97-6	3	VP_34	192	0.10	1.34E-07	1.35E-07	2.58E-05	1.41E-08
34B	Nickel	7440-02-0	3	VP_34	192	0.10	7.91E-05	7.95E-05	1.52E-02	8.32E-06
34B	Selenium	7782-49-2	3	VP_34	192	0.10	3.80E-07	3.82E-07	7.31E-05	4.00E-08
34B	Silver	7440-22-4	3	VP_34	192	0.10	6.50E-07	6.53E-07	1.25E-04	6.84E-08
34B	Thallium	7440-28-0	3	VP_34	192	0.10	1.70E-07	1.71E-07	3.27E-05	1.79E-08
34B	Vanadium	7440-62-2	3	VP_34	192	0.10	8.14E-05	8.19E-05	1.57E-02	8.57E-06
34B	Zinc	7440-66-6	3	VP_34	192	0.10	8.31E-04	8.36E-04	1.60E-01	8.75E-05
34C	Aluminum	7429-90-5	3	VP_34	126	0.07	7.28E-03	7.32E-03	9.15E-01	5.00E-04
34C	Antimony	7440-36-0	3	VP_34	126	0.07	1.33E-06	1.34E-06	1.68E-04	9.17E-08
34C	Arsenic	7440-38-2	3	VP_34	126	0.07	3.28E-06	3.30E-06	4.13E-04	2.26E-07
34C	Barium	7440-39-3	3	VP_34	126	0.07	2.09E-04	2.10E-04	2.63E-02	1.44E-05
34C	Beryllium	7440-41-7	3	VP_34	126	0.07	4.21E-07	4.23E-07	5.29E-05	2.89E-08
34C	Cadmium	7440-43-9	3	VP_34	126	0.07	2.58E-06	2.60E-06	3.25E-04	1.78E-07
34C	Chromium	7440-47-3	3	VP_34	126	0.07	3.96E-04	3.98E-04	4.98E-02	2.72E-05
34C	Chromium VI	18540-29-9	3	VP_34	126	0.07	2.21E-07	2.22E-07	2.78E-05	1.52E-08
34C	Cobalt	7440-48-4	3	VP_34	126	0.07	9.94E-06	9.99E-06	1.25E-03	6.83E-07
34C	Copper	7440-50-8	3	VP_34	126	0.07	2.00E-04	2.01E-04	2.51E-02	1.37E-05
34C	Lead	7439-92-1	3	VP_34	126	0.07	9.77E-05	9.82E-05	1.23E-02	6.71E-06
34C	Manganese	7439-96-5	3	VP_34	126	0.07	4.97E-03	5.00E-03	6.25E-01	3.41E-04
34C	Mercury	7439-97-6	3	VP_34	126	0.07	1.34E-07	1.35E-07	1.69E-05	9.23E-09
34C	Nickel	7440-02-0	3	VP_34	126	0.07	7.91E-05	7.95E-05	9.94E-03	5.44E-06
34C	Selenium	7782-49-2	3	VP_34	126	0.07	3.80E-07	3.82E-07	4.77E-05	2.61E-08

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
34C	Silver	7440-22-4	3	VP_34	126	0.07	6.50E-07	6.53E-07	8.17E-05	4.47E-08
34C	Thallium	7440-28-0	3	VP_34	126	0.07	1.70E-07	1.71E-07	2.14E-05	1.17E-08
34C	Vanadium	7440-62-2	3	VP_34	126	0.07	8.14E-05	8.19E-05	1.02E-02	5.60E-06
34C	Zinc	7440-66-6	3	VP_34	126	0.07	8.31E-04	8.36E-04	1.05E-01	5.71E-05
34D	Aluminum	7429-90-5	3	VP_34	23	0.01	7.28E-03	7.32E-03	1.66E-01	9.08E-05
34D	Antimony	7440-36-0	3	VP_34	23	0.01	1.33E-06	1.34E-06	3.04E-05	1.66E-08
34D	Arsenic	7440-38-2	3	VP_34	23	0.01	3.28E-06	3.30E-06	7.49E-05	4.09E-08
34D	Barium	7440-39-3	3	VP_34	23	0.01	2.09E-04	2.10E-04	4.77E-03	2.61E-06
34D	Beryllium	7440-41-7	3	VP_34	23	0.01	4.21E-07	4.23E-07	9.60E-06	5.25E-09
34D	Cadmium	7440-43-9	3	VP_34	23	0.01	2.58E-06	2.60E-06	5.90E-05	3.22E-08
34D	Chromium	7440-47-3	3	VP_34	23	0.01	3.96E-04	3.98E-04	9.04E-03	4.94E-06
34D	Chromium VI	18540-29-9	3	VP_34	23	0.01	2.21E-07	2.22E-07	5.04E-06	2.76E-09
34D	Cobalt	7440-48-4	3	VP_34	23	0.01	9.94E-06	9.99E-06	2.27E-04	1.24E-07
34D	Copper	7440-50-8	3	VP_34	23	0.01	2.00E-04	2.01E-04	4.55E-03	2.49E-06
34D	Lead	7439-92-1	3	VP_34	23	0.01	9.77E-05	9.82E-05	2.23E-03	1.22E-06
34D	Manganese	7439-96-5	3	VP_34	23	0.01	4.97E-03	5.00E-03	1.13E-01	6.20E-05
34D	Mercury	7439-97-6	3	VP_34	23	0.01	1.34E-07	1.35E-07	3.06E-06	1.68E-09
34D	Nickel	7440-02-0	3	VP_34	23	0.01	7.91E-05	7.95E-05	1.80E-03	9.87E-07
34D	Selenium	7782-49-2	3	VP_34	23	0.01	3.80E-07	3.82E-07	8.66E-06	4.74E-09
34D	Silver	7440-22-4	3	VP_34	23	0.01	6.50E-07	6.53E-07	1.48E-05	8.10E-09
34D	Thallium	7440-28-0	3	VP_34	23	0.01	1.70E-07	1.71E-07	3.88E-06	2.12E-09
34D	Vanadium	7440-62-2	3	VP_34	23	0.01	8.14E-05	8.19E-05	1.86E-03	1.02E-06
34D	Zinc	7440-66-6	3	VP_34	23	0.01	8.31E-04	8.36E-04	1.90E-02	1.04E-05
35A	Aluminum	7429-90-5	3	VP_35	97	0.04	9.74E-03	1.01E-02	9.41E-01	3.55E-04
35A	Antimony	7440-36-0	3	VP_35	97	0.04	1.78E-06	1.84E-06	1.72E-04	6.51E-08
35A	Arsenic	7440-38-2	3	VP_35	97	0.04	4.39E-06	4.54E-06	4.24E-04	1.60E-07
35A	Barium	7440-39-3	3	VP_35	97	0.04	2.80E-04	2.89E-04	2.70E-02	1.02E-05
35A	Beryllium	7440-41-7	3	VP_35	97	0.04	5.63E-07	5.82E-07	5.44E-05	2.05E-08
35A	Cadmium	7440-43-9	3	VP_35	97	0.04	3.46E-06	3.57E-06	3.34E-04	1.26E-07
35A	Chromium	7440-47-3	3	VP_35	97	0.04	5.30E-04	5.48E-04	5.12E-02	1.93E-05
35A	Chromium VI	18540-29-9	3	VP_35	97	0.04	2.96E-07	3.06E-07	2.86E-05	1.08E-08
35A	Cobalt	7440-48-4	3	VP_35	97	0.04	1.33E-05	1.37E-05	1.28E-03	4.85E-07
35A	Copper	7440-50-8	3	VP_35	97	0.04	2.67E-04	2.76E-04	2.58E-02	9.73E-06
35A	Lead	7439-92-1	3	VP_35	97	0.04	1.31E-04	1.35E-04	1.26E-02	4.76E-06
35A	Manganese	7439-96-5	3	VP_35	97	0.04	6.64E-03	6.87E-03	6.42E-01	2.42E-04
35A	Mercury	7439-97-6	3	VP_35	97	0.04	1.80E-07	1.86E-07	1.74E-05	6.55E-09
35A	Nickel	7440-02-0	3	VP_35	97	0.04	1.06E-04	1.09E-04	1.02E-02	3.86E-06
35A	Selenium	7782-49-2	3	VP_35	97	0.04	5.08E-07	5.25E-07	4.91E-05	1.85E-08
35A	Silver	7440-22-4	3	VP_35	97	0.04	8.69E-07	8.98E-07	8.40E-05	3.17E-08
35A	Thallium	7440-28-0	3	VP_35	97	0.04	2.28E-07	2.35E-07	2.20E-05	8.30E-09
35A	Vanadium	7440-62-2	3	VP_35	97	0.04	1.09E-04	1.13E-04	1.05E-02	3.97E-06
35A	Zinc	7440-66-6	3	VP_35	97	0.04	1.11E-03	1.15E-03	1.07E-01	4.06E-05
35B	Aluminum	7429-90-5	3	VP_35	97	0.05	9.74E-03	1.01E-02	9.41E-01	5.29E-04
35B	Antimony	7440-36-0	3	VP_35	97	0.05	1.78E-06	1.84E-06	1.72E-04	9.69E-08
35B	Arsenic	7440-38-2	3	VP_35	97	0.05	4.39E-06	4.54E-06	4.24E-04	2.38E-07
35B	Barium	7440-39-3	3	VP_35	97	0.05	2.80E-04	2.89E-04	2.70E-02	1.52E-05
35B	Beryllium	7440-41-7	3	VP_35	97	0.05	5.63E-07	5.82E-07	5.44E-05	3.06E-08
35B	Cadmium	7440-43-9	3	VP_35	97	0.05	3.46E-06	3.57E-06	3.34E-04	1.88E-07
35B	Chromium	7440-47-3	3	VP_35	97	0.05	5.30E-04	5.48E-04	5.12E-02	2.88E-05
35B	Chromium VI	18540-29-9	3	VP_35	97	0.05	2.96E-07	3.06E-07	2.86E-05	1.61E-08
35B	Cobalt	7440-48-4	3	VP_35	97	0.05	1.33E-05	1.37E-05	1.28E-03	7.22E-07
35B	Copper	7440-50-8	3	VP_35	97	0.05	2.67E-04	2.76E-04	2.58E-02	1.45E-05
35B	Lead	7439-92-1	3	VP_35	97	0.05	1.31E-04	1.35E-04	1.26E-02	7.09E-06
35B	Manganese	7439-96-5	3	VP_35	97	0.05	6.64E-03	6.87E-03	6.42E-01	3.61E-04
35B	Mercury	7439-97-6	3	VP_35	97	0.05	1.80E-07	1.86E-07	1.74E-05	9.75E-09
35B	Nickel	7440-02-0	3	VP_35	97	0.05	1.06E-04	1.09E-04	1.02E-02	5.74E-06
35B	Selenium	7782-49-2	3	VP_35	97	0.05	5.08E-07	5.25E-07	4.91E-05	2.76E-08
35B	Silver	7440-22-4	3	VP_35	97	0.05	8.69E-07	8.98E-07	8.40E-05	4.72E-08
35B	Thallium	7440-28-0	3	VP_35	97	0.05	2.28E-07	2.35E-07	2.20E-05	1.24E-08
35B	Vanadium	7440-62-2	3	VP_35	97	0.05	1.09E-04	1.13E-04	1.05E-02	5.92E-06
35B	Zinc	7440-66-6	3	VP_35	97	0.05	1.11E-03	1.15E-03	1.07E-01	6.04E-05
35C	Aluminum	7429-90-5	3	VP_35	94	0.05	9.74E-03	1.01E-02	9.11E-01	5.12E-04
35C	Antimony	7440-36-0	3	VP_35	94	0.05	1.78E-06	1.84E-06	1.67E-04	9.38E-08
35C	Arsenic	7440-38-2	3	VP_35	94	0.05	4.39E-06	4.54E-06	4.11E-04	2.31E-07
35C	Barium	7440-39-3	3	VP_35	94	0.05	2.80E-04	2.89E-04	2.62E-02	1.47E-05
35C	Beryllium	7440-41-7	3	VP_35	94	0.05	5.63E-07	5.82E-07	5.27E-05	2.96E-08
35C	Cadmium	7440-43-9	3	VP_35	94	0.05	3.46E-06	3.57E-06	3.23E-04	1.82E-07
35C	Chromium	7440-47-3	3	VP_35	94	0.05	5.30E-04	5.48E-04	4.96E-02	2.79E-05
35C	Chromium VI	18540-29-9	3	VP_35	94	0.05	2.96E-07	3.06E-07	2.77E-05	1.56E-08
35C	Cobalt	7440-48-4	3	VP_35	94	0.05	1.33E-05	1.37E-05	1.24E-03	6.99E-07

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
35C	Copper	7440-50-8	3	VP_35	94	0.05	2.67E-04	2.76E-04	2.50E-02	1.40E-05
35C	Lead	7439-92-1	3	VP_35	94	0.05	1.31E-04	1.35E-04	1.22E-02	6.87E-06
35C	Manganese	7439-96-5	3	VP_35	94	0.05	6.64E-03	6.87E-03	6.22E-01	3.49E-04
35C	Mercury	7439-97-6	3	VP_35	94	0.05	1.80E-07	1.86E-07	1.68E-05	9.45E-09
35C	Nickel	7440-02-0	3	VP_35	94	0.05	1.06E-04	1.09E-04	9.90E-03	5.56E-06
35C	Selenium	7782-49-2	3	VP_35	94	0.05	5.08E-07	5.25E-07	4.75E-05	2.67E-08
35C	Silver	7440-22-4	3	VP_35	94	0.05	8.69E-07	8.98E-07	8.13E-05	4.57E-08
35C	Thallium	7440-28-0	3	VP_35	94	0.05	2.28E-07	2.35E-07	2.13E-05	1.20E-08
35C	Vanadium	7440-62-2	3	VP_35	94	0.05	1.09E-04	1.13E-04	1.02E-02	5.73E-06
35C	Zinc	7440-66-6	3	VP_35	94	0.05	1.11E-03	1.15E-03	1.04E-01	5.85E-05
35D	Aluminum	7429-90-5	3	VP_35	94	0.03	9.74E-03	1.01E-02	9.11E-01	3.44E-04
35D	Antimony	7440-36-0	3	VP_35	94	0.03	1.78E-06	1.84E-06	1.67E-04	6.30E-08
35D	Arsenic	7440-38-2	3	VP_35	94	0.03	4.39E-06	4.54E-06	4.11E-04	1.55E-07
35D	Barium	7440-39-3	3	VP_35	94	0.03	2.80E-04	2.89E-04	2.62E-02	9.87E-06
35D	Beryllium	7440-41-7	3	VP_35	94	0.03	5.63E-07	5.82E-07	5.27E-05	1.99E-08
35D	Cadmium	7440-43-9	3	VP_35	94	0.03	3.46E-06	3.57E-06	3.23E-04	1.22E-07
35D	Chromium	7440-47-3	3	VP_35	94	0.03	5.30E-04	5.48E-04	4.96E-02	1.87E-05
35D	Chromium VI	18540-29-9	3	VP_35	94	0.03	2.96E-07	3.06E-07	2.77E-05	1.04E-08
35D	Cobalt	7440-48-4	3	VP_35	94	0.03	1.33E-05	1.37E-05	1.24E-03	4.69E-07
35D	Copper	7440-50-8	3	VP_35	94	0.03	2.67E-04	2.76E-04	2.50E-02	9.43E-06
35D	Lead	7439-92-1	3	VP_35	94	0.03	1.31E-04	1.35E-04	1.22E-02	4.61E-06
35D	Manganese	7439-96-5	3	VP_35	94	0.03	6.64E-03	6.87E-03	6.22E-01	2.35E-04
35D	Mercury	7439-97-6	3	VP_35	94	0.03	1.80E-07	1.86E-07	1.68E-05	6.34E-09
35D	Nickel	7440-02-0	3	VP_35	94	0.03	1.06E-04	1.09E-04	9.90E-03	3.74E-06
35D	Selenium	7782-49-2	3	VP_35	94	0.03	5.08E-07	5.25E-07	4.75E-05	1.79E-08
35D	Silver	7440-22-4	3	VP_35	94	0.03	8.69E-07	8.98E-07	8.13E-05	3.07E-08
35D	Thallium	7440-28-0	3	VP_35	94	0.03	2.28E-07	2.35E-07	2.13E-05	8.04E-09
35D	Vanadium	7440-62-2	3	VP_35	94	0.03	1.09E-04	1.13E-04	1.02E-02	3.85E-06
35D	Zinc	7440-66-6	3	VP_35	94	0.03	1.11E-03	1.15E-03	1.04E-01	3.93E-05
35E	Aluminum	7429-90-5	3	VP_35	184	0.09	9.74E-03	1.01E-02	1.79E+00	9.47E-04
35E	Antimony	7440-36-0	3	VP_35	184	0.09	1.78E-06	1.84E-06	3.28E-04	1.74E-07
35E	Arsenic	7440-38-2	3	VP_35	184	0.09	4.39E-06	4.54E-06	8.08E-04	4.27E-07
35E	Barium	7440-39-3	3	VP_35	184	0.09	2.80E-04	2.89E-04	5.15E-02	2.72E-05
35E	Beryllium	7440-41-7	3	VP_35	184	0.09	5.63E-07	5.82E-07	1.04E-04	5.47E-08
35E	Cadmium	7440-43-9	3	VP_35	184	0.09	3.46E-06	3.57E-06	6.36E-04	3.36E-07
35E	Chromium	7440-47-3	3	VP_35	184	0.09	5.30E-04	5.48E-04	9.75E-02	5.15E-05
35E	Chromium VI	18540-29-9	3	VP_35	184	0.09	2.96E-07	3.06E-07	5.44E-05	2.88E-08
35E	Cobalt	7440-48-4	3	VP_35	184	0.09	1.33E-05	1.37E-05	2.45E-03	1.29E-06
35E	Copper	7440-50-8	3	VP_35	184	0.09	2.67E-04	2.76E-04	4.91E-02	2.60E-05
35E	Lead	7439-92-1	3	VP_35	184	0.09	1.31E-04	1.35E-04	2.41E-02	1.27E-05
35E	Manganese	7439-96-5	3	VP_35	184	0.09	6.64E-03	6.87E-03	1.22E+00	6.46E-04
35E	Mercury	7439-97-6	3	VP_35	184	0.09	1.80E-07	1.86E-07	3.31E-05	1.75E-08
35E	Nickel	7440-02-0	3	VP_35	184	0.09	1.06E-04	1.09E-04	1.95E-02	1.03E-05
35E	Selenium	7782-49-2	3	VP_35	184	0.09	5.08E-07	5.25E-07	9.35E-05	4.94E-08
35E	Silver	7440-22-4	3	VP_35	184	0.09	8.69E-07	8.98E-07	1.60E-04	8.45E-08
35E	Thallium	7440-28-0	3	VP_35	184	0.09	2.28E-07	2.35E-07	4.19E-05	2.21E-08
35E	Vanadium	7440-62-2	3	VP_35	184	0.09	1.09E-04	1.13E-04	2.01E-02	1.06E-05
35E	Zinc	7440-66-6	3	VP_35	184	0.09	1.11E-03	1.15E-03	2.05E-01	1.08E-04
13A	Aluminum	7429-90-5	3	VP_13	421	0.15	7.97E-03	8.12E-03	3.35E+00	1.25E-03
13A	Antimony	7440-36-0	3	VP_13	421	0.15	1.46E-06	1.49E-06	6.15E-04	2.29E-07
13A	Arsenic	7440-38-2	3	VP_13	421	0.15	3.59E-06	3.66E-06	1.51E-03	5.63E-07
13A	Barium	7440-39-3	3	VP_13	421	0.15	2.29E-04	2.33E-04	9.63E-02	3.58E-05
13A	Beryllium	7440-41-7	3	VP_13	421	0.15	4.60E-07	4.69E-07	1.94E-04	7.21E-08
13A	Cadmium	7440-43-9	3	VP_13	421	0.15	2.83E-06	2.88E-06	1.19E-03	4.43E-07
13A	Chromium	7440-47-3	3	VP_13	421	0.15	4.33E-04	4.42E-04	1.82E-01	6.79E-05
13A	Chromium VI	18540-29-9	3	VP_13	421	0.15	2.42E-07	2.47E-07	1.02E-04	3.79E-08
13A	Cobalt	7440-48-4	3	VP_13	421	0.15	1.09E-05	1.11E-05	4.58E-03	1.70E-06
13A	Copper	7440-50-8	3	VP_13	421	0.15	2.18E-04	2.23E-04	9.20E-02	3.42E-05
13A	Lead	7439-92-1	3	VP_13	421	0.15	1.07E-04	1.09E-04	4.50E-02	1.67E-05
13A	Manganese	7439-96-5	3	VP_13	421	0.15	5.44E-03	5.54E-03	2.29E+00	8.52E-04
13A	Mercury	7439-97-6	3	VP_13	421	0.15	1.47E-07	1.50E-07	6.19E-05	2.30E-08
13A	Nickel	7440-02-0	3	VP_13	421	0.15	8.66E-05	8.82E-05	3.65E-02	1.36E-05
13A	Selenium	7782-49-2	3	VP_13	421	0.15	4.16E-07	4.23E-07	1.75E-04	6.51E-08
13A	Silver	7440-22-4	3	VP_13	421	0.15	7.11E-07	7.24E-07	2.99E-04	1.11E-07
13A	Thallium	7440-28-0	3	VP_13	421	0.15	1.86E-07	1.90E-07	7.84E-05	2.92E-08
13A	Vanadium	7440-62-2	3	VP_13	421	0.15	8.91E-05	9.08E-05	3.75E-02	1.40E-05
13A	Zinc	7440-66-6	3	VP_13	421	0.15	9.10E-04	9.27E-04	3.83E-01	1.42E-04
13B	Aluminum	7429-90-5	3	VP_13	435	0.16	7.97E-03	8.12E-03	3.46E+00	1.29E-03
13B	Antimony	7440-36-0	3	VP_13	435	0.16	1.46E-06	1.49E-06	6.35E-04	2.36E-07
13B	Arsenic	7440-38-2	3	VP_13	435	0.16	3.59E-06	3.66E-06	1.56E-03	5.81E-07

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
13B	Barium	7440-39-3	3	VP_13	435	0.16	2.29E-04	2.33E-04	9.95E-02	3.70E-05
13B	Beryllium	7440-41-7	3	VP_13	435	0.16	4.60E-07	4.69E-07	2.00E-04	7.44E-08
13B	Cadmium	7440-43-9	3	VP_13	435	0.16	2.83E-06	2.88E-06	1.23E-03	4.57E-07
13B	Chromium	7440-47-3	3	VP_13	435	0.16	4.33E-04	4.42E-04	1.88E-01	7.01E-05
13B	Chromium VI	18540-29-9	3	VP_13	435	0.16	2.42E-07	2.47E-07	1.05E-04	3.91E-08
13B	Cobalt	7440-48-4	3	VP_13	435	0.16	1.09E-05	1.11E-05	4.73E-03	1.76E-06
13B	Copper	7440-50-8	3	VP_13	435	0.16	2.18E-04	2.23E-04	9.50E-02	3.53E-05
13B	Lead	7439-92-1	3	VP_13	435	0.16	1.07E-04	1.09E-04	4.65E-02	1.73E-05
13B	Manganese	7439-96-5	3	VP_13	435	0.16	5.44E-03	5.54E-03	2.36E+00	8.79E-04
13B	Mercury	7439-97-6	3	VP_13	435	0.16	1.47E-07	1.50E-07	6.39E-05	2.38E-08
13B	Nickel	7440-02-0	3	VP_13	435	0.16	8.66E-05	8.82E-05	3.76E-02	1.40E-05
13B	Selenium	7782-49-2	3	VP_13	435	0.16	4.16E-07	4.23E-07	1.81E-04	6.72E-08
13B	Silver	7440-22-4	3	VP_13	435	0.16	7.11E-07	7.24E-07	3.09E-04	1.15E-07
13B	Thallium	7440-28-0	3	VP_13	435	0.16	1.86E-07	1.90E-07	8.10E-05	3.01E-08
13B	Vanadium	7440-62-2	3	VP_13	435	0.16	8.91E-05	9.08E-05	3.88E-02	1.44E-05
13B	Zinc	7440-66-6	3	VP_13	435	0.16	9.10E-04	9.27E-04	3.96E-01	1.47E-04
13C	Aluminum	7429-90-5	3	VP_13	1380	0.50	7.97E-03	8.12E-03	1.10E+01	4.09E-03
13C	Antimony	7440-36-0	3	VP_13	1380	0.50	1.46E-06	1.49E-06	2.01E-03	7.49E-07
13C	Arsenic	7440-38-2	3	VP_13	1380	0.50	3.59E-06	3.66E-06	4.96E-03	1.84E-06
13C	Barium	7440-39-3	3	VP_13	1380	0.50	2.29E-04	2.33E-04	3.16E-01	1.17E-04
13C	Beryllium	7440-41-7	3	VP_13	1380	0.50	4.60E-07	4.69E-07	6.35E-04	2.36E-07
13C	Cadmium	7440-43-9	3	VP_13	1380	0.50	2.83E-06	2.88E-06	3.90E-03	1.45E-06
13C	Chromium	7440-47-3	3	VP_13	1380	0.50	4.33E-04	4.42E-04	5.98E-01	2.22E-04
13C	Chromium VI	18540-29-9	3	VP_13	1380	0.50	2.42E-07	2.47E-07	3.34E-04	1.24E-07
13C	Cobalt	7440-48-4	3	VP_13	1380	0.50	1.09E-05	1.11E-05	1.50E-02	5.58E-06
13C	Copper	7440-50-8	3	VP_13	1380	0.50	2.18E-04	2.23E-04	3.01E-01	1.12E-04
13C	Lead	7439-92-1	3	VP_13	1380	0.50	1.07E-04	1.09E-04	1.48E-01	5.49E-05
13C	Manganese	7439-96-5	3	VP_13	1380	0.50	5.44E-03	5.54E-03	7.50E+00	2.79E-03
13C	Mercury	7439-97-6	3	VP_13	1380	0.50	1.47E-07	1.50E-07	2.03E-04	7.54E-08
13C	Nickel	7440-02-0	3	VP_13	1380	0.50	8.66E-05	8.82E-05	1.19E-01	4.44E-05
13C	Selenium	7782-49-2	3	VP_13	1380	0.50	4.16E-07	4.23E-07	5.73E-04	2.13E-07
13C	Silver	7440-22-4	3	VP_13	1380	0.50	7.11E-07	7.24E-07	9.81E-04	3.65E-07
13C	Thallium	7440-28-0	3	VP_13	1380	0.50	1.86E-07	1.90E-07	2.57E-04	9.56E-08
13C	Vanadium	7440-62-2	3	VP_13	1380	0.50	8.91E-05	9.08E-05	1.23E-01	4.58E-05
13C	Zinc	7440-66-6	3	VP_13	1380	0.50	9.10E-04	9.27E-04	1.26E+00	4.67E-04
20	Aluminum	7429-90-5	3	VP_20	1426	0.52	7.97E-03	8.12E-03	1.14E+01	4.22E-03
20	Antimony	7440-36-0	3	VP_20	1426	0.52	1.46E-06	1.49E-06	2.08E-03	7.74E-07
20	Arsenic	7440-38-2	3	VP_20	1426	0.52	3.59E-06	3.66E-06	5.12E-03	1.91E-06
20	Barium	7440-39-3	3	VP_20	1426	0.52	2.29E-04	2.33E-04	3.26E-01	1.21E-04
20	Beryllium	7440-41-7	3	VP_20	1426	0.52	4.60E-07	4.69E-07	6.56E-04	2.44E-07
20	Cadmium	7440-43-9	3	VP_20	1426	0.52	2.83E-06	2.88E-06	4.03E-03	1.50E-06
20	Chromium	7440-47-3	3	VP_20	1426	0.52	4.33E-04	4.42E-04	6.18E-01	2.30E-04
20	Chromium VI	18540-29-9	3	VP_20	1426	0.52	2.42E-07	2.47E-07	3.45E-04	1.28E-07
20	Cobalt	7440-48-4	3	VP_20	1426	0.52	1.09E-05	1.11E-05	1.55E-02	5.77E-06
20	Copper	7440-50-8	3	VP_20	1426	0.52	2.18E-04	2.23E-04	3.11E-01	1.16E-04
20	Lead	7439-92-1	3	VP_20	1426	0.52	1.07E-04	1.09E-04	1.52E-01	5.67E-05
20	Manganese	7439-96-5	3	VP_20	1426	0.52	5.44E-03	5.54E-03	7.75E+00	2.88E-03
20	Mercury	7439-97-6	3	VP_20	1426	0.52	1.47E-07	1.50E-07	2.10E-04	7.79E-08
20	Nickel	7440-02-0	3	VP_20	1426	0.52	8.66E-05	8.82E-05	1.23E-01	4.59E-05
20	Selenium	7782-49-2	3	VP_20	1426	0.52	4.16E-07	4.23E-07	5.93E-04	2.20E-07
20	Silver	7440-22-4	3	VP_20	1426	0.52	7.11E-07	7.24E-07	1.01E-03	3.77E-07
20	Thallium	7440-28-0	3	VP_20	1426	0.52	1.86E-07	1.90E-07	2.66E-04	9.88E-08
20	Vanadium	7440-62-2	3	VP_20	1426	0.52	8.91E-05	9.08E-05	1.27E-01	4.73E-05
20	Zinc	7440-66-6	3	VP_20	1426	0.52	9.10E-04	9.27E-04	1.30E+00	4.83E-04
2A	Aluminum	7429-90-5	2	VP_2	101	0.05	6.01E-03	6.12E-03	6.06E-01	3.35E-04
2A	Antimony	7440-36-0	2	VP_2	101	0.05	4.70E-06	4.79E-06	4.74E-04	2.62E-07
2A	Arsenic	7440-38-2	2	VP_2	101	0.05	6.55E-06	6.68E-06	6.61E-04	3.66E-07
2A	Barium	7440-39-3	2	VP_2	101	0.05	3.14E-04	3.20E-04	3.17E-02	1.75E-05
2A	Beryllium	7440-41-7	2	VP_2	101	0.05	2.80E-07	2.86E-07	2.83E-05	1.56E-08
2A	Cadmium	7440-43-9	2	VP_2	101	0.05	8.05E-06	8.20E-06	8.12E-04	4.49E-07
2A	Chromium	7440-47-3	2	VP_2	101	0.05	3.16E-04	3.22E-04	3.19E-02	1.76E-05
2A	Chromium VI	18540-29-9	2	VP_2	101	0.05	2.43E-07	2.48E-07	2.45E-05	1.36E-08
2A	Cobalt	7440-48-4	2	VP_2	101	0.05	4.02E-05	4.10E-05	4.06E-03	2.25E-06
2A	Copper	7440-50-8	2	VP_2	101	0.05	3.31E-04	3.37E-04	3.34E-02	1.85E-05
2A	Lead	7439-92-1	2	VP_2	101	0.05	3.22E-04	3.28E-04	3.25E-02	1.80E-05
2A	Manganese	7439-96-5	2	VP_2	101	0.05	2.28E-03	2.32E-03	2.29E-01	1.27E-04
2A	Mercury	7439-97-6	2	VP_2	101	0.05	1.66E-06	1.70E-06	1.68E-04	9.30E-08
2A	Nickel	7440-02-0	2	VP_2	101	0.05	2.70E-04	2.75E-04	2.72E-02	1.50E-05
2A	Selenium	7782-49-2	2	VP_2	101	0.05	3.27E-07	3.33E-07	3.29E-05	1.82E-08
2A	Silver	7440-22-4	2	VP_2	101	0.05	1.54E-06	1.57E-06	1.55E-04	8.59E-08

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
2A	Thallium	7440-28-0	2	VP_2	101	0.05	1.12E-07	1.14E-07	1.13E-05	6.24E-09
2A	Vanadium	7440-62-2	2	VP_2	101	0.05	5.04E-05	5.13E-05	5.08E-03	2.81E-06
2A	Zinc	7440-66-6	2	VP_2	101	0.05	2.17E-03	2.21E-03	2.19E-01	1.21E-04
2B	Aluminum	7429-90-5	2	VP_2	320	0.17	6.01E-03	6.12E-03	1.92E+00	1.06E-03
2B	Antimony	7440-36-0	2	VP_2	320	0.17	4.70E-06	4.79E-06	1.50E-03	8.33E-07
2B	Arsenic	7440-38-2	2	VP_2	320	0.17	6.55E-06	6.68E-06	2.10E-03	1.16E-06
2B	Barium	7440-39-3	2	VP_2	320	0.17	3.14E-04	3.20E-04	1.00E-01	5.56E-05
2B	Beryllium	7440-41-7	2	VP_2	320	0.17	2.80E-07	2.86E-07	8.97E-05	4.97E-08
2B	Cadmium	7440-43-9	2	VP_2	320	0.17	8.05E-06	8.20E-06	2.58E-03	1.43E-06
2B	Chromium	7440-47-3	2	VP_2	320	0.17	3.16E-04	3.22E-04	1.01E-01	5.60E-05
2B	Chromium VI	18540-29-9	2	VP_2	320	0.17	2.43E-07	2.48E-07	7.79E-05	4.31E-08
2B	Cobalt	7440-48-4	2	VP_2	320	0.17	4.02E-05	4.10E-05	1.29E-02	7.13E-06
2B	Copper	7440-50-8	2	VP_2	320	0.17	3.31E-04	3.37E-04	1.06E-01	5.86E-05
2B	Lead	7439-92-1	2	VP_2	320	0.17	3.22E-04	3.28E-04	1.03E-01	5.71E-05
2B	Manganese	7439-96-5	2	VP_2	320	0.17	2.28E-03	2.32E-03	7.28E-01	4.03E-04
2B	Mercury	7439-97-6	2	VP_2	320	0.17	1.66E-06	1.70E-06	5.33E-04	2.95E-07
2B	Nickel	7440-02-0	2	VP_2	320	0.17	2.70E-04	2.75E-04	8.63E-02	4.78E-05
2B	Selenium	7782-49-2	2	VP_2	320	0.17	3.27E-07	3.33E-07	1.05E-04	5.79E-08
2B	Silver	7440-22-4	2	VP_2	320	0.17	1.54E-06	1.57E-06	4.92E-04	2.73E-07
2B	Thallium	7440-28-0	2	VP_2	320	0.17	1.12E-07	1.14E-07	3.57E-05	1.98E-08
2B	Vanadium	7440-62-2	2	VP_2	320	0.17	5.04E-05	5.13E-05	1.61E-02	8.93E-06
2B	Zinc	7440-66-6	2	VP_2	320	0.17	2.17E-03	2.21E-03	6.95E-01	3.85E-04
2C	Aluminum	7429-90-5	2	VP_2	98	0.05	6.01E-03	6.12E-03	5.87E-01	3.25E-04
2C	Antimony	7440-36-0	2	VP_2	98	0.05	4.70E-06	4.79E-06	4.59E-04	2.54E-07
2C	Arsenic	7440-38-2	2	VP_2	98	0.05	6.55E-06	6.68E-06	6.40E-04	3.54E-07
2C	Barium	7440-39-3	2	VP_2	98	0.05	3.14E-04	3.20E-04	3.07E-02	1.70E-05
2C	Beryllium	7440-41-7	2	VP_2	98	0.05	2.80E-07	2.86E-07	2.74E-05	1.52E-08
2C	Cadmium	7440-43-9	2	VP_2	98	0.05	8.05E-06	8.20E-06	7.86E-04	4.35E-07
2C	Chromium	7440-47-3	2	VP_2	98	0.05	3.16E-04	3.22E-04	3.09E-02	1.71E-05
2C	Chromium VI	18540-29-9	2	VP_2	98	0.05	2.43E-07	2.48E-07	2.38E-05	1.32E-08
2C	Cobalt	7440-48-4	2	VP_2	98	0.05	4.02E-05	4.10E-05	3.93E-03	2.18E-06
2C	Copper	7440-50-8	2	VP_2	98	0.05	3.31E-04	3.37E-04	3.23E-02	1.79E-05
2C	Lead	7439-92-1	2	VP_2	98	0.05	3.22E-04	3.28E-04	3.15E-02	1.74E-05
2C	Manganese	7439-96-5	2	VP_2	98	0.05	2.28E-03	2.32E-03	2.22E-01	1.23E-04
2C	Mercury	7439-97-6	2	VP_2	98	0.05	1.66E-06	1.70E-06	1.63E-04	9.00E-08
2C	Nickel	7440-02-0	2	VP_2	98	0.05	2.70E-04	2.75E-04	2.63E-02	1.46E-05
2C	Selenium	7782-49-2	2	VP_2	98	0.05	3.27E-07	3.33E-07	3.19E-05	1.77E-08
2C	Silver	7440-22-4	2	VP_2	98	0.05	1.54E-06	1.57E-06	1.50E-04	8.32E-08
2C	Thallium	7440-28-0	2	VP_2	98	0.05	1.12E-07	1.14E-07	1.09E-05	6.04E-09
2C	Vanadium	7440-62-2	2	VP_2	98	0.05	5.04E-05	5.13E-05	4.92E-03	2.72E-06
2C	Zinc	7440-66-6	2	VP_2	98	0.05	2.17E-03	2.21E-03	2.12E-01	1.17E-04
16	Aluminum	7429-90-5	2	VP_16	173	0.09	4.15E-03	4.23E-03	7.17E-01	3.97E-04
16	Antimony	7440-36-0	2	VP_16	173	0.09	3.25E-06	3.31E-06	5.61E-04	3.11E-07
16	Arsenic	7440-38-2	2	VP_16	173	0.09	4.53E-06	4.61E-06	7.82E-04	4.33E-07
16	Barium	7440-39-3	2	VP_16	173	0.09	2.17E-04	2.21E-04	3.75E-02	2.08E-05
16	Beryllium	7440-41-7	2	VP_16	173	0.09	1.94E-07	1.97E-07	3.35E-05	1.85E-08
16	Cadmium	7440-43-9	2	VP_16	173	0.09	5.56E-06	5.66E-06	9.61E-04	5.32E-07
16	Chromium	7440-47-3	2	VP_16	173	0.09	2.18E-04	2.22E-04	3.77E-02	2.09E-05
16	Chromium VI	18540-29-9	2	VP_16	173	0.09	1.68E-07	1.71E-07	2.91E-05	1.61E-08
16	Cobalt	7440-48-4	2	VP_16	173	0.09	2.78E-05	2.83E-05	4.81E-03	2.66E-06
16	Copper	7440-50-8	2	VP_16	173	0.09	2.28E-04	2.33E-04	3.95E-02	2.19E-05
16	Lead	7439-92-1	2	VP_16	173	0.09	2.23E-04	2.27E-04	3.85E-02	2.13E-05
16	Manganese	7439-96-5	2	VP_16	173	0.09	1.57E-03	1.60E-03	2.72E-01	1.50E-04
16	Mercury	7439-97-6	2	VP_16	173	0.09	1.15E-06	1.17E-06	1.99E-04	1.10E-07
16	Nickel	7440-02-0	2	VP_16	173	0.09	1.86E-04	1.90E-04	3.22E-02	1.78E-05
16	Selenium	7782-49-2	2	VP_16	173	0.09	2.26E-07	2.30E-07	3.90E-05	2.16E-08
16	Silver	7440-22-4	2	VP_16	173	0.09	1.06E-06	1.08E-06	1.84E-04	1.02E-07
16	Thallium	7440-28-0	2	VP_16	173	0.09	7.71E-08	7.86E-08	1.33E-05	7.38E-09
16	Vanadium	7440-62-2	2	VP_16	173	0.09	3.48E-05	3.54E-05	6.01E-03	3.33E-06
16	Zinc	7440-66-6	2	VP_16	173	0.09	1.50E-03	1.53E-03	2.59E-01	1.43E-04
28	Aluminum	7429-90-5	2	VP_28	521	0.27	1.01E-02	1.03E-02	5.27E+00	2.74E-03
28	Antimony	7440-36-0	2	VP_28	521	0.27	7.91E-06	8.06E-06	4.12E-03	2.15E-06
28	Arsenic	7440-38-2	2	VP_28	521	0.27	1.10E-05	1.12E-05	5.75E-03	2.99E-06
28	Barium	7440-39-3	2	VP_28	521	0.27	5.29E-04	5.39E-04	2.75E-01	1.43E-04
28	Beryllium	7440-41-7	2	VP_28	521	0.27	4.72E-07	4.81E-07	2.46E-04	1.28E-07
28	Cadmium	7440-43-9	2	VP_28	521	0.27	1.36E-05	1.38E-05	7.06E-03	3.68E-06
28	Chromium	7440-47-3	2	VP_28	521	0.27	5.32E-04	5.42E-04	2.77E-01	1.44E-04
28	Chromium VI	18540-29-9	2	VP_28	521	0.27	4.10E-07	4.18E-07	2.13E-04	1.11E-07
28	Cobalt	7440-48-4	2	VP_28	521	0.27	6.78E-05	6.90E-05	3.53E-02	1.84E-05
28	Copper	7440-50-8	2	VP_28	521	0.27	5.57E-04	5.68E-04	2.90E-01	1.51E-04

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
28	Lead	7439-92-1	2	VP_28	521	0.27	5.43E-04	5.53E-04	2.83E-01	1.47E-04
28	Manganese	7439-96-5	2	VP_28	521	0.27	3.83E-03	3.90E-03	2.00E+00	1.04E-03
28	Mercury	7439-97-6	2	VP_28	521	0.27	2.80E-06	2.86E-06	1.46E-03	7.60E-07
28	Nickel	7440-02-0	2	VP_28	521	0.27	4.54E-04	4.62E-04	2.36E-01	1.23E-04
28	Selenium	7782-49-2	2	VP_28	521	0.27	5.50E-07	5.60E-07	2.86E-04	1.49E-07
28	Silver	7440-22-4	2	VP_28	521	0.27	2.59E-06	2.64E-06	1.35E-03	7.02E-07
28	Thallium	7440-28-0	2	VP_28	521	0.27	1.88E-07	1.92E-07	9.79E-05	5.10E-08
28	Vanadium	7440-62-2	2	VP_28	521	0.27	8.48E-05	8.64E-05	4.42E-02	2.30E-05
28	Zinc	7440-66-6	2	VP_28	521	0.27	3.65E-03	3.72E-03	1.90E+00	9.91E-04
24	Aluminum	7429-90-5	1	VP_24	2817	2.31	5.50E-03	5.60E-03	1.55E+01	1.30E-02
24	Antimony	7440-36-0	1	VP_24	2817	2.31	3.80E-06	3.87E-06	1.07E-02	8.95E-06
24	Arsenic	7440-38-2	1	VP_24	2817	2.31	6.19E-06	6.31E-06	1.74E-02	1.46E-05
24	Barium	7440-39-3	1	VP_24	2817	2.31	2.55E-04	2.59E-04	7.17E-01	6.00E-04
24	Beryllium	7440-41-7	1	VP_24	2817	2.31	3.15E-07	3.21E-07	8.87E-04	7.42E-07
24	Cadmium	7440-43-9	1	VP_24	2817	2.31	7.49E-06	7.63E-06	2.11E-02	1.77E-05
24	Chromium	7440-47-3	1	VP_24	2817	2.31	3.75E-04	3.82E-04	1.06E+00	8.85E-04
24	Chromium VI	18540-29-9	1	VP_24	2817	2.31	1.73E-07	1.76E-07	4.88E-04	4.08E-07
24	Cobalt	7440-48-4	1	VP_24	2817	2.31	3.92E-05	4.00E-05	1.11E-01	9.25E-05
24	Copper	7440-50-8	1	VP_24	2817	2.31	3.32E-04	3.38E-04	9.35E-01	7.82E-04
24	Lead	7439-92-1	1	VP_24	2817	2.31	2.70E-04	2.75E-04	7.62E-01	6.37E-04
24	Manganese	7439-96-5	1	VP_24	2817	2.31	1.98E-03	2.02E-03	5.58E+00	4.67E-03
24	Mercury	7439-97-6	1	VP_24	2817	2.31	8.12E-07	8.28E-07	2.29E-03	1.91E-06
24	Nickel	7440-02-0	1	VP_24	2817	2.31	2.97E-04	3.02E-04	8.35E-01	6.99E-04
24	Selenium	7782-49-2	1	VP_24	2817	2.31	2.74E-07	2.79E-07	7.73E-04	6.46E-07
24	Silver	7440-22-4	1	VP_24	2817	2.31	1.34E-06	1.36E-06	3.77E-03	3.15E-06
24	Thallium	7440-28-0	1	VP_24	2817	2.31	1.12E-07	1.14E-07	3.14E-04	2.63E-07
24	Vanadium	7440-62-2	1	VP_24	2817	2.31	3.88E-05	3.96E-05	1.09E-01	9.15E-05
24	Zinc	7440-66-6	1	VP_24	2817	2.31	2.15E-03	2.19E-03	6.06E+00	5.07E-03
27	Aluminum	7429-90-5	2	VP_27	393	0.20	1.01E-02	1.03E-02	3.98E+00	2.07E-03
27	Antimony	7440-36-0	2	VP_27	393	0.20	7.91E-06	8.06E-06	3.11E-03	1.62E-06
27	Arsenic	7440-38-2	2	VP_27	393	0.20	1.10E-05	1.12E-05	4.34E-03	2.26E-06
27	Barium	7440-39-3	2	VP_27	393	0.20	5.29E-04	5.39E-04	2.08E-01	1.08E-04
27	Beryllium	7440-41-7	2	VP_27	393	0.20	4.72E-07	4.81E-07	1.86E-04	9.66E-08
27	Cadmium	7440-43-9	2	VP_27	393	0.20	1.36E-05	1.38E-05	5.33E-03	2.77E-06
27	Chromium	7440-47-3	2	VP_27	393	0.20	5.32E-04	5.42E-04	2.09E-01	1.09E-04
27	Chromium VI	18540-29-9	2	VP_27	393	0.20	4.10E-07	4.18E-07	1.61E-04	8.39E-08
27	Cobalt	7440-48-4	2	VP_27	393	0.20	6.78E-05	6.90E-05	2.66E-02	1.39E-05
27	Copper	7440-50-8	2	VP_27	393	0.20	5.57E-04	5.68E-04	2.19E-01	1.14E-04
27	Lead	7439-92-1	2	VP_27	393	0.20	5.43E-04	5.53E-04	2.13E-01	1.11E-04
27	Manganese	7439-96-5	2	VP_27	393	0.20	3.83E-03	3.90E-03	1.51E+00	7.84E-04
27	Mercury	7439-97-6	2	VP_27	393	0.20	2.80E-06	2.86E-06	1.10E-03	5.74E-07
27	Nickel	7440-02-0	2	VP_27	393	0.20	4.54E-04	4.62E-04	1.78E-01	9.29E-05
27	Selenium	7782-49-2	2	VP_27	393	0.20	5.50E-07	5.60E-07	2.16E-04	1.13E-07
27	Silver	7440-22-4	2	VP_27	393	0.20	2.59E-06	2.64E-06	1.02E-03	5.30E-07
27	Thallium	7440-28-0	2	VP_27	393	0.20	1.88E-07	1.92E-07	7.39E-05	3.85E-08
27	Vanadium	7440-62-2	2	VP_27	393	0.20	8.48E-05	8.64E-05	3.33E-02	1.74E-05
27	Zinc	7440-66-6	2	VP_27	393	0.20	3.65E-03	3.72E-03	1.44E+00	7.48E-04
17	Aluminum	7429-90-5	3	VP_17	113	0.06	5.50E-03	5.60E-03	6.22E-01	3.45E-04
17	Antimony	7440-36-0	3	VP_17	113	0.06	1.01E-06	1.03E-06	1.14E-04	6.31E-08
17	Arsenic	7440-38-2	3	VP_17	113	0.06	2.48E-06	2.53E-06	2.81E-04	1.55E-07
17	Barium	7440-39-3	3	VP_17	113	0.06	1.58E-04	1.61E-04	1.79E-02	9.89E-06
17	Beryllium	7440-41-7	3	VP_17	113	0.06	3.18E-07	3.24E-07	3.60E-05	1.99E-08
17	Cadmium	7440-43-9	3	VP_17	113	0.06	1.95E-06	1.99E-06	2.21E-04	1.22E-07
17	Chromium	7440-47-3	3	VP_17	113	0.06	2.99E-04	3.05E-04	3.38E-02	1.87E-05
17	Chromium VI	18540-29-9	3	VP_17	113	0.06	1.67E-07	1.70E-07	1.89E-05	1.05E-08
17	Cobalt	7440-48-4	3	VP_17	113	0.06	7.51E-06	7.65E-06	8.49E-04	4.70E-07
17	Copper	7440-50-8	3	VP_17	113	0.06	1.51E-04	1.54E-04	1.71E-02	9.45E-06
17	Lead	7439-92-1	3	VP_17	113	0.06	7.38E-05	7.52E-05	8.35E-03	4.62E-06
17	Manganese	7439-96-5	3	VP_17	113	0.06	3.75E-03	3.83E-03	4.25E-01	2.35E-04
17	Mercury	7439-97-6	3	VP_17	113	0.06	1.01E-07	1.03E-07	1.15E-05	6.36E-09
17	Nickel	7440-02-0	3	VP_17	113	0.06	5.98E-05	6.09E-05	6.76E-03	3.74E-06
17	Selenium	7782-49-2	3	VP_17	113	0.06	2.87E-07	2.92E-07	3.25E-05	1.80E-08
17	Silver	7440-22-4	3	VP_17	113	0.06	4.91E-07	5.00E-07	5.55E-05	3.07E-08
17	Thallium	7440-28-0	3	VP_17	113	0.06	1.29E-07	1.31E-07	1.45E-05	8.05E-09
17	Vanadium	7440-62-2	3	VP_17	113	0.06	6.16E-05	6.27E-05	6.96E-03	3.86E-06
17	Zinc	7440-66-6	3	VP_17	113	0.06	6.28E-04	6.40E-04	7.11E-02	3.93E-05
37A	Aluminum	7429-90-5	1	VP_37	1185	0.44	5.50E-03	5.60E-03	6.51E+00	2.47E-03
37A	Antimony	7440-36-0	1	VP_37	1185	0.44	3.80E-06	3.87E-06	4.50E-03	1.70E-06
37A	Arsenic	7440-38-2	1	VP_37	1185	0.44	6.19E-06	6.31E-06	7.34E-03	2.78E-06
37A	Barium	7440-39-3	1	VP_37	1185	0.44	2.55E-04	2.59E-04	3.02E-01	1.14E-04

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
37A	Beryllium	7440-41-7	1	VP_37	1185	0.44	3.15E-07	3.21E-07	3.73E-04	1.41E-07
37A	Cadmium	7440-43-9	1	VP_37	1185	0.44	7.49E-06	7.63E-06	8.88E-03	3.36E-06
37A	Chromium	7440-47-3	1	VP_37	1185	0.44	3.75E-04	3.82E-04	4.45E-01	1.68E-04
37A	Chromium VI	18540-29-9	1	VP_37	1185	0.44	1.73E-07	1.76E-07	2.05E-04	7.78E-08
37A	Cobalt	7440-48-4	1	VP_37	1185	0.44	3.92E-05	4.00E-05	4.65E-02	1.76E-05
37A	Copper	7440-50-8	1	VP_37	1185	0.44	3.32E-04	3.38E-04	3.93E-01	1.49E-04
37A	Lead	7439-92-1	1	VP_37	1185	0.44	2.70E-04	2.75E-04	3.20E-01	1.21E-04
37A	Manganese	7439-96-5	1	VP_37	1185	0.44	1.98E-03	2.02E-03	2.35E+00	8.89E-04
37A	Mercury	7439-97-6	1	VP_37	1185	0.44	8.12E-07	8.28E-07	9.62E-04	3.65E-07
37A	Nickel	7440-02-0	1	VP_37	1185	0.44	2.97E-04	3.02E-04	3.51E-01	1.33E-04
37A	Selenium	7782-49-2	1	VP_37	1185	0.44	2.74E-07	2.79E-07	3.25E-04	1.23E-07
37A	Silver	7440-22-4	1	VP_37	1185	0.44	1.34E-06	1.36E-06	1.59E-03	6.01E-07
37A	Thallium	7440-28-0	1	VP_37	1185	0.44	1.12E-07	1.14E-07	1.32E-04	5.01E-08
37A	Vanadium	7440-62-2	1	VP_37	1185	0.44	3.88E-05	3.96E-05	4.60E-02	1.74E-05
37A	Zinc	7440-66-6	1	VP_37	1185	0.44	2.15E-03	2.19E-03	2.55E+00	9.66E-04
37B	Aluminum	7429-90-5	1	VP_37	1347	1.11	5.50E-03	5.60E-03	7.41E+00	6.20E-03
37B	Antimony	7440-36-0	1	VP_37	1347	1.11	3.80E-06	3.87E-06	5.11E-03	4.28E-06
37B	Arsenic	7440-38-2	1	VP_37	1347	1.11	6.19E-06	6.31E-06	8.34E-03	6.98E-06
37B	Barium	7440-39-3	1	VP_37	1347	1.11	2.55E-04	2.59E-04	3.43E-01	2.87E-04
37B	Beryllium	7440-41-7	1	VP_37	1347	1.11	3.15E-07	3.21E-07	4.24E-04	3.55E-07
37B	Cadmium	7440-43-9	1	VP_37	1347	1.11	7.49E-06	7.63E-06	1.01E-02	8.44E-06
37B	Chromium	7440-47-3	1	VP_37	1347	1.11	3.75E-04	3.82E-04	5.05E-01	4.23E-04
37B	Chromium VI	18540-29-9	1	VP_37	1347	1.11	1.73E-07	1.76E-07	2.33E-04	1.95E-07
37B	Cobalt	7440-48-4	1	VP_37	1347	1.11	3.92E-05	4.00E-05	5.28E-02	4.42E-05
37B	Copper	7440-50-8	1	VP_37	1347	1.11	3.32E-04	3.38E-04	4.47E-01	3.74E-04
37B	Lead	7439-92-1	1	VP_37	1347	1.11	2.70E-04	2.75E-04	3.64E-01	3.05E-04
37B	Manganese	7439-96-5	1	VP_37	1347	1.11	1.98E-03	2.02E-03	2.67E+00	2.23E-03
37B	Mercury	7439-97-6	1	VP_37	1347	1.11	8.12E-07	8.28E-07	1.09E-03	9.15E-07
37B	Nickel	7440-02-0	1	VP_37	1347	1.11	2.97E-04	3.02E-04	3.99E-01	3.34E-04
37B	Selenium	7782-49-2	1	VP_37	1347	1.11	2.74E-07	2.79E-07	3.69E-04	3.09E-07
37B	Silver	7440-22-4	1	VP_37	1347	1.11	1.34E-06	1.36E-06	1.80E-03	1.51E-06
37B	Thallium	7440-28-0	1	VP_37	1347	1.11	1.12E-07	1.14E-07	1.50E-04	1.26E-07
37B	Vanadium	7440-62-2	1	VP_37	1347	1.11	3.88E-05	3.96E-05	5.23E-02	4.38E-05
37B	Zinc	7440-66-6	1	VP_37	1347	1.11	2.15E-03	2.19E-03	2.90E+00	2.42E-03
23	Aluminum	7429-90-5	1	VP_23	1306	1.07	5.50E-03	5.60E-03	7.18E+00	6.01E-03
23	Antimony	7440-36-0	1	VP_23	1306	1.07	3.80E-06	3.87E-06	4.96E-03	4.15E-06
23	Arsenic	7440-38-2	1	VP_23	1306	1.07	6.19E-06	6.31E-06	8.09E-03	6.77E-06
23	Barium	7440-39-3	1	VP_23	1306	1.07	2.55E-04	2.59E-04	3.32E-01	2.78E-04
23	Beryllium	7440-41-7	1	VP_23	1306	1.07	3.15E-07	3.21E-07	4.11E-04	3.44E-07
23	Cadmium	7440-43-9	1	VP_23	1306	1.07	7.49E-06	7.63E-06	9.78E-03	8.19E-06
23	Chromium	7440-47-3	1	VP_23	1306	1.07	3.75E-04	3.82E-04	4.90E-01	4.10E-04
23	Chromium VI	18540-29-9	1	VP_23	1306	1.07	1.73E-07	1.76E-07	2.26E-04	1.89E-07
23	Cobalt	7440-48-4	1	VP_23	1306	1.07	3.92E-05	4.00E-05	5.12E-02	4.29E-05
23	Copper	7440-50-8	1	VP_23	1306	1.07	3.32E-04	3.38E-04	4.34E-01	3.63E-04
23	Lead	7439-92-1	1	VP_23	1306	1.07	2.70E-04	2.75E-04	3.53E-01	2.95E-04
23	Manganese	7439-96-5	1	VP_23	1306	1.07	1.98E-03	2.02E-03	2.59E+00	2.16E-03
23	Mercury	7439-97-6	1	VP_23	1306	1.07	8.12E-07	8.28E-07	1.06E-03	8.87E-07
23	Nickel	7440-02-0	1	VP_23	1306	1.07	2.97E-04	3.02E-04	3.87E-01	3.24E-04
23	Selenium	7782-49-2	1	VP_23	1306	1.07	2.74E-07	2.79E-07	3.58E-04	3.00E-07
23	Silver	7440-22-4	1	VP_23	1306	1.07	1.34E-06	1.36E-06	1.75E-03	1.46E-06
23	Thallium	7440-28-0	1	VP_23	1306	1.07	1.12E-07	1.14E-07	1.46E-04	1.22E-07
23	Vanadium	7440-62-2	1	VP_23	1306	1.07	3.88E-05	3.96E-05	5.07E-02	4.24E-05
23	Zinc	7440-66-6	1	VP_23	1306	1.07	2.15E-03	2.19E-03	2.81E+00	2.35E-03
5A	Aluminum	7429-90-5	3	VP_5	515	0.28	7.97E-03	8.12E-03	4.10E+00	2.27E-03
5A	Antimony	7440-36-0	3	VP_5	515	0.28	1.46E-06	1.49E-06	7.52E-04	4.16E-07
5A	Arsenic	7440-38-2	3	VP_5	515	0.28	3.59E-06	3.66E-06	1.85E-03	1.02E-06
5A	Barium	7440-39-3	3	VP_5	515	0.28	2.29E-04	2.33E-04	1.18E-01	6.52E-05
5A	Beryllium	7440-41-7	3	VP_5	515	0.28	4.60E-07	4.69E-07	2.37E-04	1.31E-07
5A	Cadmium	7440-43-9	3	VP_5	515	0.28	2.83E-06	2.88E-06	1.46E-03	8.06E-07
5A	Chromium	7440-47-3	3	VP_5	515	0.28	4.33E-04	4.42E-04	2.23E-01	1.24E-04
5A	Chromium VI	18540-29-9	3	VP_5	515	0.28	2.42E-07	2.47E-07	1.25E-04	6.90E-08
5A	Cobalt	7440-48-4	3	VP_5	515	0.28	1.09E-05	1.11E-05	5.60E-03	3.10E-06
5A	Copper	7440-50-8	3	VP_5	515	0.28	2.18E-04	2.23E-04	1.12E-01	6.23E-05
5A	Lead	7439-92-1	3	VP_5	515	0.28	1.07E-04	1.09E-04	5.51E-02	3.05E-05
5A	Manganese	7439-96-5	3	VP_5	515	0.28	5.44E-03	5.54E-03	2.80E+00	1.55E-03
5A	Mercury	7439-97-6	3	VP_5	515	0.28	1.47E-07	1.50E-07	7.57E-05	4.19E-08
5A	Nickel	7440-02-0	3	VP_5	515	0.28	8.66E-05	8.82E-05	4.46E-02	2.47E-05
5A	Selenium	7782-49-2	3	VP_5	515	0.28	4.16E-07	4.23E-07	2.14E-04	1.19E-07
5A	Silver	7440-22-4	3	VP_5	515	0.28	7.11E-07	7.24E-07	3.66E-04	2.03E-07
5A	Thallium	7440-28-0	3	VP_5	515	0.28	1.86E-07	1.90E-07	9.59E-05	5.31E-08

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
5A	Vanadium	7440-62-2	3	VP_5	515	0.28	8.91E-05	9.08E-05	4.59E-02	2.54E-05
5A	Zinc	7440-66-6	3	VP_5	515	0.28	9.10E-04	9.27E-04	4.69E-01	2.59E-04
5B	Aluminum	7429-90-5	3	VP_5	515	0.19	7.97E-03	8.12E-03	4.10E+00	1.53E-03
5B	Antimony	7440-36-0	3	VP_5	515	0.19	1.46E-06	1.49E-06	7.52E-04	2.80E-07
5B	Arsenic	7440-38-2	3	VP_5	515	0.19	3.59E-06	3.66E-06	1.85E-03	6.88E-07
5B	Barium	7440-39-3	3	VP_5	515	0.19	2.29E-04	2.33E-04	1.18E-01	4.38E-05
5B	Beryllium	7440-41-7	3	VP_5	515	0.19	4.60E-07	4.69E-07	2.37E-04	8.82E-08
5B	Cadmium	7440-43-9	3	VP_5	515	0.19	2.83E-06	2.88E-06	1.46E-03	5.42E-07
5B	Chromium	7440-47-3	3	VP_5	515	0.19	4.33E-04	4.42E-04	2.23E-01	8.30E-05
5B	Chromium VI	18540-29-9	3	VP_5	515	0.19	2.42E-07	2.47E-07	1.25E-04	4.63E-08
5B	Cobalt	7440-48-4	3	VP_5	515	0.19	1.09E-05	1.11E-05	5.60E-03	2.08E-06
5B	Copper	7440-50-8	3	VP_5	515	0.19	2.18E-04	2.23E-04	1.12E-01	4.18E-05
5B	Lead	7439-92-1	3	VP_5	515	0.19	1.07E-04	1.09E-04	5.51E-02	2.05E-05
5B	Manganese	7439-96-5	3	VP_5	515	0.19	5.44E-03	5.54E-03	2.80E+00	1.04E-03
5B	Mercury	7439-97-6	3	VP_5	515	0.19	1.47E-07	1.50E-07	7.57E-05	2.82E-08
5B	Nickel	7440-02-0	3	VP_5	515	0.19	8.66E-05	8.82E-05	4.46E-02	1.66E-05
5B	Selenium	7782-49-2	3	VP_5	515	0.19	4.16E-07	4.23E-07	2.14E-04	7.96E-08
5B	Silver	7440-22-4	3	VP_5	515	0.19	7.11E-07	7.24E-07	3.66E-04	1.36E-07
5B	Thallium	7440-28-0	3	VP_5	515	0.19	1.86E-07	1.90E-07	9.59E-05	3.57E-08
5B	Vanadium	7440-62-2	3	VP_5	515	0.19	8.91E-05	9.08E-05	4.59E-02	1.71E-05
5B	Zinc	7440-66-6	3	VP_5	515	0.19	9.10E-04	9.27E-04	4.69E-01	1.74E-04
22	Aluminum	7429-90-5	3	VP_22	1637	0.61	6.61E-03	6.74E-03	1.08E+01	4.10E-03
22	Antimony	7440-36-0	3	VP_22	1637	0.61	1.21E-06	1.23E-06	1.98E-03	7.52E-07
22	Arsenic	7440-38-2	3	VP_22	1637	0.61	2.98E-06	3.04E-06	4.88E-03	1.85E-06
22	Barium	7440-39-3	3	VP_22	1637	0.61	1.90E-04	1.94E-04	3.11E-01	1.18E-04
22	Beryllium	7440-41-7	3	VP_22	1637	0.61	3.82E-07	3.89E-07	6.26E-04	2.37E-07
22	Cadmium	7440-43-9	3	VP_22	1637	0.61	2.35E-06	2.39E-06	3.84E-03	1.46E-06
22	Chromium	7440-47-3	3	VP_22	1637	0.61	3.60E-04	3.67E-04	5.89E-01	2.23E-04
22	Chromium VI	18540-29-9	3	VP_22	1637	0.61	2.01E-07	2.05E-07	3.29E-04	1.25E-07
22	Cobalt	7440-48-4	3	VP_22	1637	0.61	9.03E-06	9.20E-06	1.48E-02	5.60E-06
22	Copper	7440-50-8	3	VP_22	1637	0.61	1.81E-04	1.85E-04	2.97E-01	1.12E-04
22	Lead	7439-92-1	3	VP_22	1637	0.61	8.88E-05	9.04E-05	1.45E-01	5.51E-05
22	Manganese	7439-96-5	3	VP_22	1637	0.61	4.51E-03	4.60E-03	7.39E+00	2.80E-03
22	Mercury	7439-97-6	3	VP_22	1637	0.61	1.22E-07	1.24E-07	2.00E-04	7.57E-08
22	Nickel	7440-02-0	3	VP_22	1637	0.61	7.19E-05	7.32E-05	1.18E-01	4.46E-05
22	Selenium	7782-49-2	3	VP_22	1637	0.61	3.45E-07	3.52E-07	5.65E-04	2.14E-07
22	Silver	7440-22-4	3	VP_22	1637	0.61	5.90E-07	6.01E-07	9.66E-04	3.66E-07
22	Thallium	7440-28-0	3	VP_22	1637	0.61	1.55E-07	1.58E-07	2.53E-04	9.59E-08
22	Vanadium	7440-62-2	3	VP_22	1637	0.61	7.40E-05	7.54E-05	1.21E-01	4.59E-05
22	Zinc	7440-66-6	3	VP_22	1637	0.61	7.55E-04	7.70E-04	1.24E+00	4.69E-04
25	Aluminum	7429-90-5	1	VP_25	2903	2.38	5.50E-03	5.60E-03	1.60E+01	1.34E-02
25	Antimony	7440-36-0	1	VP_25	2903	2.38	3.80E-06	3.87E-06	1.10E-02	9.22E-06
25	Arsenic	7440-38-2	1	VP_25	2903	2.38	6.19E-06	6.31E-06	1.80E-02	1.50E-05
25	Barium	7440-39-3	1	VP_25	2903	2.38	2.55E-04	2.59E-04	7.39E-01	6.18E-04
25	Beryllium	7440-41-7	1	VP_25	2903	2.38	3.15E-07	3.21E-07	9.14E-04	7.65E-07
25	Cadmium	7440-43-9	1	VP_25	2903	2.38	7.49E-06	7.63E-06	2.18E-02	1.82E-05
25	Chromium	7440-47-3	1	VP_25	2903	2.38	3.75E-04	3.82E-04	1.09E+00	9.11E-04
25	Chromium VI	18540-29-9	1	VP_25	2903	2.38	1.73E-07	1.76E-07	5.03E-04	4.21E-07
25	Cobalt	7440-48-4	1	VP_25	2903	2.38	3.92E-05	4.00E-05	1.14E-01	9.53E-05
25	Copper	7440-50-8	1	VP_25	2903	2.38	3.32E-04	3.38E-04	9.64E-01	8.06E-04
25	Lead	7439-92-1	1	VP_25	2903	2.38	2.70E-04	2.75E-04	7.85E-01	6.57E-04
25	Manganese	7439-96-5	1	VP_25	2903	2.38	1.98E-03	2.02E-03	5.75E+00	4.81E-03
25	Mercury	7439-97-6	1	VP_25	2903	2.38	8.12E-07	8.28E-07	2.36E-03	1.97E-06
25	Nickel	7440-02-0	1	VP_25	2903	2.38	2.97E-04	3.02E-04	8.61E-01	7.20E-04
25	Selenium	7782-49-2	1	VP_25	2903	2.38	2.74E-07	2.79E-07	7.96E-04	6.66E-07
25	Silver	7440-22-4	1	VP_25	2903	2.38	1.34E-06	1.36E-06	3.89E-03	3.25E-06
25	Thallium	7440-28-0	1	VP_25	2903	2.38	1.12E-07	1.14E-07	3.24E-04	2.71E-07
25	Vanadium	7440-62-2	1	VP_25	2903	2.38	3.88E-05	3.96E-05	1.13E-01	9.43E-05
25	Zinc	7440-66-6	1	VP_25	2903	2.38	2.15E-03	2.19E-03	6.25E+00	5.23E-03
26	Aluminum	7429-90-5	1	VP_26	2155	1.77	5.50E-03	5.60E-03	1.18E+01	9.91E-03
26	Antimony	7440-36-0	1	VP_26	2155	1.77	3.80E-06	3.87E-06	8.18E-03	6.84E-06
26	Arsenic	7440-38-2	1	VP_26	2155	1.77	6.19E-06	6.31E-06	1.33E-02	1.12E-05
26	Barium	7440-39-3	1	VP_26	2155	1.77	2.55E-04	2.59E-04	5.49E-01	4.59E-04
26	Beryllium	7440-41-7	1	VP_26	2155	1.77	3.15E-07	3.21E-07	6.79E-04	5.68E-07
26	Cadmium	7440-43-9	1	VP_26	2155	1.77	7.49E-06	7.63E-06	1.61E-02	1.35E-05
26	Chromium	7440-47-3	1	VP_26	2155	1.77	3.75E-04	3.82E-04	8.09E-01	6.77E-04
26	Chromium VI	18540-29-9	1	VP_26	2155	1.77	1.73E-07	1.76E-07	3.73E-04	3.12E-07
26	Cobalt	7440-48-4	1	VP_26	2155	1.77	3.92E-05	4.00E-05	8.46E-02	7.07E-05
26	Copper	7440-50-8	1	VP_26	2155	1.77	3.32E-04	3.38E-04	7.15E-01	5.99E-04
26	Lead	7439-92-1	1	VP_26	2155	1.77	2.70E-04	2.75E-04	5.83E-01	4.87E-04

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
26	Manganese	7439-96-5	1	VP_26	2155	1.77	1.98E-03	2.02E-03	4.27E+00	3.57E-03
26	Mercury	7439-97-6	1	VP_26	2155	1.77	8.12E-07	8.28E-07	1.75E-03	1.46E-06
26	Nickel	7440-02-0	1	VP_26	2155	1.77	2.97E-04	3.02E-04	6.39E-01	5.35E-04
26	Selenium	7782-49-2	1	VP_26	2155	1.77	2.74E-07	2.79E-07	5.91E-04	4.94E-07
26	Silver	7440-22-4	1	VP_26	2155	1.77	1.34E-06	1.36E-06	2.88E-03	2.41E-06
26	Thallium	7440-28-0	1	VP_26	2155	1.77	1.12E-07	1.14E-07	2.40E-04	2.01E-07
26	Vanadium	7440-62-2	1	VP_26	2155	1.77	3.88E-05	3.96E-05	8.37E-02	7.00E-05
26	Zinc	7440-66-6	1	VP_26	2155	1.77	2.15E-03	2.19E-03	4.64E+00	3.88E-03
29	Aluminum	7429-90-5	2	VP_29	749	0.38	1.01E-02	1.03E-02	7.58E+00	3.95E-03
29	Antimony	7440-36-0	2	VP_29	749	0.38	7.91E-06	8.06E-06	5.93E-03	3.09E-06
29	Arsenic	7440-38-2	2	VP_29	749	0.38	1.10E-05	1.12E-05	8.27E-03	4.31E-06
29	Barium	7440-39-3	2	VP_29	749	0.38	5.29E-04	5.39E-04	3.96E-01	2.06E-04
29	Beryllium	7440-41-7	2	VP_29	749	0.38	4.72E-07	4.81E-07	3.54E-04	1.84E-07
29	Cadmium	7440-43-9	2	VP_29	749	0.38	1.36E-05	1.38E-05	1.02E-02	5.29E-06
29	Chromium	7440-47-3	2	VP_29	749	0.38	5.32E-04	5.42E-04	3.99E-01	2.08E-04
29	Chromium VI	18540-29-9	2	VP_29	749	0.38	4.10E-07	4.18E-07	3.07E-04	1.60E-07
29	Cobalt	7440-48-4	2	VP_29	749	0.38	6.78E-05	6.90E-05	5.08E-02	2.64E-05
29	Copper	7440-50-8	2	VP_29	749	0.38	5.57E-04	5.68E-04	4.17E-01	2.17E-04
29	Lead	7439-92-1	2	VP_29	749	0.38	5.43E-04	5.53E-04	4.07E-01	2.12E-04
29	Manganese	7439-96-5	2	VP_29	749	0.38	3.83E-03	3.90E-03	2.87E+00	1.49E-03
29	Mercury	7439-97-6	2	VP_29	749	0.38	2.80E-06	2.86E-06	2.10E-03	1.09E-06
29	Nickel	7440-02-0	2	VP_29	749	0.38	4.54E-04	4.62E-04	3.40E-01	1.77E-04
29	Selenium	7782-49-2	2	VP_29	749	0.38	5.50E-07	5.60E-07	4.12E-04	2.15E-07
29	Silver	7440-22-4	2	VP_29	749	0.38	2.59E-06	2.64E-06	1.94E-03	1.01E-06
29	Thallium	7440-28-0	2	VP_29	749	0.38	1.88E-07	1.92E-07	1.41E-04	7.34E-08
29	Vanadium	7440-62-2	2	VP_29	749	0.38	8.48E-05	8.64E-05	6.36E-02	3.31E-05
29	Zinc	7440-66-6	2	VP_29	749	0.38	3.65E-03	3.72E-03	2.74E+00	1.43E-03
15A	Aluminum	7429-90-5	3	VU_15	462	0.25	2.39E-02	2.58E-02	1.11E+01	6.49E-03
15A	Antimony	7440-36-0	3	VU_15	462	0.25	4.38E-06	4.73E-06	2.03E-03	1.19E-06
15A	Arsenic	7440-38-2	3	VU_15	462	0.25	1.08E-05	1.16E-05	4.98E-03	2.92E-06
15A	Barium	7440-39-3	3	VU_15	462	0.25	6.87E-04	7.41E-04	3.17E-01	1.86E-04
15A	Beryllium	7440-41-7	3	VU_15	462	0.25	1.38E-06	1.49E-06	6.39E-04	3.75E-07
15A	Cadmium	7440-43-9	3	VU_15	462	0.25	8.49E-06	9.16E-06	3.92E-03	2.30E-06
15A	Chromium	7440-47-3	3	VU_15	462	0.25	1.30E-03	1.40E-03	6.01E-01	3.53E-04
15A	Chromium VI	18540-29-9	3	VU_15	462	0.25	7.26E-07	7.84E-07	3.36E-04	1.97E-07
15A	Cobalt	7440-48-4	3	VU_15	462	0.25	3.26E-05	3.52E-05	1.51E-02	8.85E-06
15A	Copper	7440-50-8	3	VU_15	462	0.25	6.55E-04	7.08E-04	3.03E-01	1.78E-04
15A	Lead	7439-92-1	3	VU_15	462	0.25	3.21E-04	3.46E-04	1.48E-01	8.70E-05
15A	Manganese	7439-96-5	3	VU_15	462	0.25	1.63E-02	1.76E-02	7.54E+00	4.43E-03
15A	Mercury	7439-97-6	3	VU_15	462	0.25	4.41E-07	4.76E-07	2.04E-04	1.20E-07
15A	Nickel	7440-02-0	3	VU_15	462	0.25	2.60E-04	2.81E-04	1.20E-01	7.05E-05
15A	Selenium	7782-49-2	3	VU_15	462	0.25	1.25E-06	1.35E-06	5.76E-04	3.38E-07
15A	Silver	7440-22-4	3	VU_15	462	0.25	2.13E-06	2.30E-06	9.86E-04	5.79E-07
15A	Thallium	7440-28-0	3	VU_15	462	0.25	5.59E-07	6.04E-07	2.58E-04	1.52E-07
15A	Vanadium	7440-62-2	3	VU_15	462	0.25	2.68E-04	2.89E-04	1.24E-01	7.26E-05
15A	Zinc	7440-66-6	3	VU_15	462	0.25	2.73E-03	2.95E-03	1.26E+00	7.41E-04
15B	Aluminum	7429-90-5	3	VU_15	84	0.05	2.39E-02	2.58E-02	2.01E+00	1.18E-03
15B	Antimony	7440-36-0	3	VU_15	84	0.05	4.38E-06	4.73E-06	3.68E-04	2.16E-07
15B	Arsenic	7440-38-2	3	VU_15	84	0.05	1.08E-05	1.16E-05	9.05E-04	5.31E-07
15B	Barium	7440-39-3	3	VU_15	84	0.05	6.87E-04	7.41E-04	5.76E-02	3.38E-05
15B	Beryllium	7440-41-7	3	VU_15	84	0.05	1.38E-06	1.49E-06	1.16E-04	6.81E-08
15B	Cadmium	7440-43-9	3	VU_15	84	0.05	8.49E-06	9.16E-06	7.12E-04	4.18E-07
15B	Chromium	7440-47-3	3	VU_15	84	0.05	1.30E-03	1.40E-03	1.09E-01	6.41E-05
15B	Chromium VI	18540-29-9	3	VU_15	84	0.05	7.26E-07	7.84E-07	6.10E-05	3.58E-08
15B	Cobalt	7440-48-4	3	VU_15	84	0.05	3.26E-05	3.52E-05	2.74E-03	1.61E-06
15B	Copper	7440-50-8	3	VU_15	84	0.05	6.55E-04	7.08E-04	5.50E-02	3.23E-05
15B	Lead	7439-92-1	3	VU_15	84	0.05	3.21E-04	3.46E-04	2.69E-02	1.58E-05
15B	Manganese	7439-96-5	3	VU_15	84	0.05	1.63E-02	1.76E-02	1.37E+00	8.04E-04
15B	Mercury	7439-97-6	3	VU_15	84	0.05	4.41E-07	4.76E-07	3.70E-05	2.17E-08
15B	Nickel	7440-02-0	3	VU_15	84	0.05	2.60E-04	2.81E-04	2.18E-02	1.28E-05
15B	Selenium	7782-49-2	3	VU_15	84	0.05	1.25E-06	1.35E-06	1.05E-04	6.14E-08
15B	Silver	7440-22-4	3	VU_15	84	0.05	2.13E-06	2.30E-06	1.79E-04	1.05E-07
15B	Thallium	7440-28-0	3	VU_15	84	0.05	5.59E-07	6.04E-07	4.69E-05	2.75E-08
15B	Vanadium	7440-62-2	3	VU_15	84	0.05	2.68E-04	2.89E-04	2.25E-02	1.32E-05
15B	Zinc	7440-66-6	3	VU_15	84	0.05	2.73E-03	2.95E-03	2.29E-01	1.35E-04
3A	Aluminum	7429-90-5	3	VU_3	360	0.20	2.81E-02	3.04E-02	1.01E+01	5.95E-03
3A	Antimony	7440-36-0	3	VU_3	360	0.20	5.16E-06	5.57E-06	1.86E-03	1.09E-06
3A	Arsenic	7440-38-2	3	VU_3	360	0.20	1.27E-05	1.37E-05	4.57E-03	2.68E-06
3A	Barium	7440-39-3	3	VU_3	360	0.20	8.08E-04	8.73E-04	2.91E-01	1.71E-04
3A	Beryllium	7440-41-7	3	VU_3	360	0.20	1.63E-06	1.76E-06	5.86E-04	3.44E-07

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
3A	Cadmium	7440-43-9	3	VU_3	360	0.20	9.99E-06	1.08E-05	3.60E-03	2.11E-06
3A	Chromium	7440-47-3	3	VU_3	360	0.20	1.53E-03	1.65E-03	5.51E-01	3.23E-04
3A	Chromium VI	18540-29-9	3	VU_3	360	0.20	8.55E-07	9.23E-07	3.08E-04	1.81E-07
3A	Cobalt	7440-48-4	3	VU_3	360	0.20	3.84E-05	4.15E-05	1.38E-02	8.12E-06
3A	Copper	7440-50-8	3	VU_3	360	0.20	7.72E-04	8.33E-04	2.78E-01	1.63E-04
3A	Lead	7439-92-1	3	VU_3	360	0.20	3.78E-04	4.08E-04	1.36E-01	7.98E-05
3A	Manganese	7439-96-5	3	VU_3	360	0.20	1.92E-02	2.07E-02	6.92E+00	4.06E-03
3A	Mercury	7439-97-6	3	VU_3	360	0.20	5.19E-07	5.61E-07	1.87E-04	1.10E-07
3A	Nickel	7440-02-0	3	VU_3	360	0.20	3.06E-04	3.30E-04	1.10E-01	6.46E-05
3A	Selenium	7782-49-2	3	VU_3	360	0.20	1.47E-06	1.59E-06	5.29E-04	3.10E-07
3A	Silver	7440-22-4	3	VU_3	360	0.20	2.51E-06	2.71E-06	9.04E-04	5.31E-07
3A	Thallium	7440-28-0	3	VU_3	360	0.20	6.58E-07	7.11E-07	2.37E-04	1.39E-07
3A	Vanadium	7440-62-2	3	VU_3	360	0.20	3.15E-04	3.40E-04	1.13E-01	6.65E-05
3A	Zinc	7440-66-6	3	VU_3	360	0.20	3.22E-03	3.47E-03	1.16E+00	6.79E-04
3B	Aluminum	7429-90-5	3	VU_3	360	0.13	2.81E-02	3.04E-02	1.01E+01	3.99E-03
3B	Antimony	7440-36-0	3	VU_3	360	0.13	5.16E-06	5.57E-06	1.86E-03	7.32E-07
3B	Arsenic	7440-38-2	3	VU_3	360	0.13	1.27E-05	1.37E-05	4.57E-03	1.80E-06
3B	Barium	7440-39-3	3	VU_3	360	0.13	8.08E-04	8.73E-04	2.91E-01	1.15E-04
3B	Beryllium	7440-41-7	3	VU_3	360	0.13	1.63E-06	1.76E-06	5.86E-04	2.31E-07
3B	Cadmium	7440-43-9	3	VU_3	360	0.13	9.99E-06	1.08E-05	3.60E-03	1.42E-06
3B	Chromium	7440-47-3	3	VU_3	360	0.13	1.53E-03	1.65E-03	5.51E-01	2.17E-04
3B	Chromium VI	18540-29-9	3	VU_3	360	0.13	8.55E-07	9.23E-07	3.08E-04	1.21E-07
3B	Cobalt	7440-48-4	3	VU_3	360	0.13	3.84E-05	4.15E-05	1.38E-02	5.45E-06
3B	Copper	7440-50-8	3	VU_3	360	0.13	7.72E-04	8.33E-04	2.78E-01	1.09E-04
3B	Lead	7439-92-1	3	VU_3	360	0.13	3.78E-04	4.08E-04	1.36E-01	5.36E-05
3B	Manganese	7439-96-5	3	VU_3	360	0.13	1.92E-02	2.07E-02	6.92E+00	2.73E-03
3B	Mercury	7439-97-6	3	VU_3	360	0.13	5.19E-07	5.61E-07	1.87E-04	7.37E-08
3B	Nickel	7440-02-0	3	VU_3	360	0.13	3.06E-04	3.30E-04	1.10E-01	4.34E-05
3B	Selenium	7782-49-2	3	VU_3	360	0.13	1.47E-06	1.59E-06	5.29E-04	2.08E-07
3B	Silver	7440-22-4	3	VU_3	360	0.13	2.51E-06	2.71E-06	9.04E-04	3.56E-07
3B	Thallium	7440-28-0	3	VU_3	360	0.13	6.58E-07	7.11E-07	2.37E-04	9.34E-08
3B	Vanadium	7440-62-2	3	VU_3	360	0.13	3.15E-04	3.40E-04	1.13E-01	4.47E-05
3B	Zinc	7440-66-6	3	VU_3	360	0.13	3.22E-03	3.47E-03	1.16E+00	4.56E-04
10A	Aluminum	7429-90-5	3	VU_10	203	0.11	2.81E-02	3.04E-02	5.71E+00	3.35E-03
10A	Antimony	7440-36-0	3	VU_10	203	0.11	5.16E-06	5.57E-06	1.05E-03	6.14E-07
10A	Arsenic	7440-38-2	3	VU_10	203	0.11	1.27E-05	1.37E-05	2.57E-03	1.51E-06
10A	Barium	7440-39-3	3	VU_10	203	0.11	8.08E-04	8.73E-04	1.64E-01	9.62E-05
10A	Beryllium	7440-41-7	3	VU_10	203	0.11	1.63E-06	1.76E-06	3.30E-04	1.94E-07
10A	Cadmium	7440-43-9	3	VU_10	203	0.11	9.99E-06	1.08E-05	2.03E-03	1.19E-06
10A	Chromium	7440-47-3	3	VU_10	203	0.11	1.53E-03	1.65E-03	3.10E-01	1.82E-04
10A	Chromium VI	18540-29-9	3	VU_10	203	0.11	8.55E-07	9.23E-07	1.73E-04	1.02E-07
10A	Cobalt	7440-48-4	3	VU_10	203	0.11	3.84E-05	4.15E-05	7.79E-03	4.57E-06
10A	Copper	7440-50-8	3	VU_10	203	0.11	7.72E-04	8.33E-04	1.56E-01	9.18E-05
10A	Lead	7439-92-1	3	VU_10	203	0.11	3.78E-04	4.08E-04	7.66E-02	4.49E-05
10A	Manganese	7439-96-5	3	VU_10	203	0.11	1.92E-02	2.07E-02	3.89E+00	2.29E-03
10A	Mercury	7439-97-6	3	VU_10	203	0.11	5.19E-07	5.61E-07	1.05E-04	6.18E-08
10A	Nickel	7440-02-0	3	VU_10	203	0.11	3.06E-04	3.30E-04	6.20E-02	3.64E-05
10A	Selenium	7782-49-2	3	VU_10	203	0.11	1.47E-06	1.59E-06	2.98E-04	1.75E-07
10A	Silver	7440-22-4	3	VU_10	203	0.11	2.51E-06	2.71E-06	5.09E-04	2.99E-07
10A	Thallium	7440-28-0	3	VU_10	203	0.11	6.58E-07	7.11E-07	1.33E-04	7.83E-08
10A	Vanadium	7440-62-2	3	VU_10	203	0.11	3.15E-04	3.40E-04	6.39E-02	3.75E-05
10A	Zinc	7440-66-6	3	VU_10	203	0.11	3.22E-03	3.47E-03	6.52E-01	3.82E-04
10B	Aluminum	7429-90-5	3	VU_10	203	0.07	2.81E-02	3.04E-02	5.71E+00	2.25E-03
10B	Antimony	7440-36-0	3	VU_10	203	0.07	5.16E-06	5.57E-06	1.05E-03	4.12E-07
10B	Arsenic	7440-38-2	3	VU_10	203	0.07	1.27E-05	1.37E-05	2.57E-03	1.01E-06
10B	Barium	7440-39-3	3	VU_10	203	0.07	8.08E-04	8.73E-04	1.64E-01	6.46E-05
10B	Beryllium	7440-41-7	3	VU_10	203	0.07	1.63E-06	1.76E-06	3.30E-04	1.30E-07
10B	Cadmium	7440-43-9	3	VU_10	203	0.07	9.99E-06	1.08E-05	2.03E-03	7.98E-07
10B	Chromium	7440-47-3	3	VU_10	203	0.07	1.53E-03	1.65E-03	3.10E-01	1.22E-04
10B	Chromium VI	18540-29-9	3	VU_10	203	0.07	8.55E-07	9.23E-07	1.73E-04	6.83E-08
10B	Cobalt	7440-48-4	3	VU_10	203	0.07	3.84E-05	4.15E-05	7.79E-03	3.07E-06
10B	Copper	7440-50-8	3	VU_10	203	0.07	7.72E-04	8.33E-04	1.56E-01	6.17E-05
10B	Lead	7439-92-1	3	VU_10	203	0.07	3.78E-04	4.08E-04	7.66E-02	3.02E-05
10B	Manganese	7439-96-5	3	VU_10	203	0.07	1.92E-02	2.07E-02	3.89E+00	1.54E-03
10B	Mercury	7439-97-6	3	VU_10	203	0.07	5.19E-07	5.61E-07	1.05E-04	4.15E-08
10B	Nickel	7440-02-0	3	VU_10	203	0.07	3.06E-04	3.30E-04	6.20E-02	2.44E-05
10B	Selenium	7782-49-2	3	VU_10	203	0.07	1.47E-06	1.59E-06	2.98E-04	1.17E-07
10B	Silver	7440-22-4	3	VU_10	203	0.07	2.51E-06	2.71E-06	5.09E-04	2.01E-07
10B	Thallium	7440-28-0	3	VU_10	203	0.07	6.58E-07	7.11E-07	1.33E-04	5.26E-08
10B	Vanadium	7440-62-2	3	VU_10	203	0.07	3.15E-04	3.40E-04	6.39E-02	2.52E-05

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
10B	Zinc	7440-66-6	3	VU_10	203	0.07	3.22E-03	3.47E-03	6.52E-01	2.57E-04
6A	Aluminum	7429-90-5	3	VU_6	446	0.24	2.81E-02	3.04E-02	1.26E+01	7.37E-03
6A	Antimony	7440-36-0	3	VU_6	446	0.24	5.16E-06	5.57E-06	2.30E-03	1.35E-06
6A	Arsenic	7440-38-2	3	VU_6	446	0.24	1.27E-05	1.37E-05	5.67E-03	3.32E-06
6A	Barium	7440-39-3	3	VU_6	446	0.24	8.08E-04	8.73E-04	3.61E-01	2.12E-04
6A	Beryllium	7440-41-7	3	VU_6	446	0.24	1.63E-06	1.76E-06	7.26E-04	4.26E-07
6A	Cadmium	7440-43-9	3	VU_6	446	0.24	9.99E-06	1.08E-05	4.46E-03	2.62E-06
6A	Chromium	7440-47-3	3	VU_6	446	0.24	1.53E-03	1.65E-03	6.83E-01	4.01E-04
6A	Chromium VI	18540-29-9	3	VU_6	446	0.24	8.55E-07	9.23E-07	3.82E-04	2.24E-07
6A	Cobalt	7440-48-4	3	VU_6	446	0.24	3.84E-05	4.15E-05	1.71E-02	1.01E-05
6A	Copper	7440-50-8	3	VU_6	446	0.24	7.72E-04	8.33E-04	3.44E-01	2.02E-04
6A	Lead	7439-92-1	3	VU_6	446	0.24	3.78E-04	4.08E-04	1.69E-01	9.89E-05
6A	Manganese	7439-96-5	3	VU_6	446	0.24	1.92E-02	2.07E-02	8.57E+00	5.03E-03
6A	Mercury	7439-97-6	3	VU_6	446	0.24	5.19E-07	5.61E-07	2.32E-04	1.36E-07
6A	Nickel	7440-02-0	3	VU_6	446	0.24	3.06E-04	3.30E-04	1.37E-01	8.01E-05
6A	Selenium	7782-49-2	3	VU_6	446	0.24	1.47E-06	1.59E-06	6.55E-04	3.85E-07
6A	Silver	7440-22-4	3	VU_6	446	0.24	2.51E-06	2.71E-06	1.12E-03	6.58E-07
6A	Thallium	7440-28-0	3	VU_6	446	0.24	6.58E-07	7.11E-07	2.94E-04	1.72E-07
6A	Vanadium	7440-62-2	3	VU_6	446	0.24	3.15E-04	3.40E-04	1.41E-01	8.25E-05
6A	Zinc	7440-66-6	3	VU_6	446	0.24	3.22E-03	3.47E-03	1.43E+00	8.42E-04
6B	Aluminum	7429-90-5	3	VU_6	446	0.16	2.81E-02	3.04E-02	1.26E+01	4.95E-03
6B	Antimony	7440-36-0	3	VU_6	446	0.16	5.16E-06	5.57E-06	2.30E-03	9.08E-07
6B	Arsenic	7440-38-2	3	VU_6	446	0.16	1.27E-05	1.37E-05	5.67E-03	2.23E-06
6B	Barium	7440-39-3	3	VU_6	446	0.16	8.08E-04	8.73E-04	3.61E-01	1.42E-04
6B	Beryllium	7440-41-7	3	VU_6	446	0.16	1.63E-06	1.76E-06	7.26E-04	2.86E-07
6B	Cadmium	7440-43-9	3	VU_6	446	0.16	9.99E-06	1.08E-05	4.46E-03	1.76E-06
6B	Chromium	7440-47-3	3	VU_6	446	0.16	1.53E-03	1.65E-03	6.83E-01	2.69E-04
6B	Chromium VI	18540-29-9	3	VU_6	446	0.16	8.55E-07	9.23E-07	3.82E-04	1.50E-07
6B	Cobalt	7440-48-4	3	VU_6	446	0.16	3.84E-05	4.15E-05	1.71E-02	6.76E-06
6B	Copper	7440-50-8	3	VU_6	446	0.16	7.72E-04	8.33E-04	3.44E-01	1.36E-04
6B	Lead	7439-92-1	3	VU_6	446	0.16	3.78E-04	4.08E-04	1.69E-01	6.65E-05
6B	Manganese	7439-96-5	3	VU_6	446	0.16	1.92E-02	2.07E-02	8.57E+00	3.38E-03
6B	Mercury	7439-97-6	3	VU_6	446	0.16	5.19E-07	5.61E-07	2.32E-04	9.14E-08
6B	Nickel	7440-02-0	3	VU_6	446	0.16	3.06E-04	3.30E-04	1.37E-01	5.38E-05
6B	Selenium	7782-49-2	3	VU_6	446	0.16	1.47E-06	1.59E-06	6.55E-04	2.58E-07
6B	Silver	7440-22-4	3	VU_6	446	0.16	2.51E-06	2.71E-06	1.12E-03	4.42E-07
6B	Thallium	7440-28-0	3	VU_6	446	0.16	6.58E-07	7.11E-07	2.94E-04	1.16E-07
6B	Vanadium	7440-62-2	3	VU_6	446	0.16	3.15E-04	3.40E-04	1.41E-01	5.54E-05
6B	Zinc	7440-66-6	3	VU_6	446	0.16	3.22E-03	3.47E-03	1.43E+00	5.66E-04
18A	Aluminum	7429-90-5	3	VU_18	2827	1.03	2.78E-02	3.00E-02	7.85E+01	3.09E-02
18A	Antimony	7440-36-0	3	VU_18	2827	1.03	5.09E-06	5.49E-06	1.44E-02	5.67E-06
18A	Arsenic	7440-38-2	3	VU_18	2827	1.03	1.25E-05	1.35E-05	3.54E-02	1.40E-05
18A	Barium	7440-39-3	3	VU_18	2827	1.03	7.97E-04	8.61E-04	2.25E+00	8.88E-04
18A	Beryllium	7440-41-7	3	VU_18	2827	1.03	1.60E-06	1.73E-06	4.54E-03	1.79E-06
18A	Cadmium	7440-43-9	3	VU_18	2827	1.03	9.86E-06	1.06E-05	2.79E-02	1.10E-05
18A	Chromium	7440-47-3	3	VU_18	2827	1.03	1.51E-03	1.63E-03	4.27E+00	1.68E-03
18A	Chromium VI	18540-29-9	3	VU_18	2827	1.03	8.43E-07	9.11E-07	2.38E-03	9.40E-07
18A	Cobalt	7440-48-4	3	VU_18	2827	1.03	3.79E-05	4.09E-05	1.07E-01	4.22E-05
18A	Copper	7440-50-8	3	VU_18	2827	1.03	7.61E-04	8.22E-04	2.15E+00	8.48E-04
18A	Lead	7439-92-1	3	VU_18	2827	1.03	3.73E-04	4.02E-04	1.05E+00	4.15E-04
18A	Manganese	7439-96-5	3	VU_18	2827	1.03	1.90E-02	2.05E-02	5.36E+01	2.11E-02
18A	Mercury	7439-97-6	3	VU_18	2827	1.03	5.12E-07	5.53E-07	1.45E-03	5.71E-07
18A	Nickel	7440-02-0	3	VU_18	2827	1.03	3.02E-04	3.26E-04	8.53E-01	3.36E-04
18A	Selenium	7782-49-2	3	VU_18	2827	1.03	1.45E-06	1.56E-06	4.09E-03	1.61E-06
18A	Silver	7440-22-4	3	VU_18	2827	1.03	2.48E-06	2.68E-06	7.01E-03	2.76E-06
18A	Thallium	7440-28-0	3	VU_18	2827	1.03	6.49E-07	7.01E-07	1.84E-03	7.23E-07
18A	Vanadium	7440-62-2	3	VU_18	2827	1.03	3.11E-04	3.35E-04	8.78E-01	3.46E-04
18A	Zinc	7440-66-6	3	VU_18	2827	1.03	3.17E-03	3.42E-03	8.97E+00	3.53E-03
18B	Aluminum	7429-90-5	3	VU_18	617	0.23	2.78E-02	3.00E-02	1.71E+01	6.87E-03
18B	Antimony	7440-36-0	3	VU_18	617	0.23	5.09E-06	5.49E-06	3.14E-03	1.26E-06
18B	Arsenic	7440-38-2	3	VU_18	617	0.23	1.25E-05	1.35E-05	7.72E-03	3.10E-06
18B	Barium	7440-39-3	3	VU_18	617	0.23	7.97E-04	8.61E-04	4.92E-01	1.97E-04
18B	Beryllium	7440-41-7	3	VU_18	617	0.23	1.60E-06	1.73E-06	9.89E-04	3.97E-07
18B	Cadmium	7440-43-9	3	VU_18	617	0.23	9.86E-06	1.06E-05	6.08E-03	2.44E-06
18B	Chromium	7440-47-3	3	VU_18	617	0.23	1.51E-03	1.63E-03	9.31E-01	3.74E-04
18B	Chromium VI	18540-29-9	3	VU_18	617	0.23	8.43E-07	9.11E-07	5.20E-04	2.09E-07
18B	Cobalt	7440-48-4	3	VU_18	617	0.23	3.79E-05	4.09E-05	2.34E-02	9.38E-06
18B	Copper	7440-50-8	3	VU_18	617	0.23	7.61E-04	8.22E-04	4.69E-01	1.88E-04
18B	Lead	7439-92-1	3	VU_18	617	0.23	3.73E-04	4.02E-04	2.30E-01	9.23E-05
18B	Manganese	7439-96-5	3	VU_18	617	0.23	1.90E-02	2.05E-02	1.17E+01	4.69E-03

Table B-9. Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
18B	Mercury	7439-97-6	3	VU_18	617	0.23	5.12E-07	5.53E-07	3.16E-04	1.27E-07
18B	Nickel	7440-02-0	3	VU_18	617	0.23	3.02E-04	3.26E-04	1.86E-01	7.47E-05
18B	Selenium	7782-49-2	3	VU_18	617	0.23	1.45E-06	1.56E-06	8.93E-04	3.59E-07
18B	Silver	7440-22-4	3	VU_18	617	0.23	2.48E-06	2.68E-06	1.53E-03	6.14E-07
18B	Thallium	7440-28-0	3	VU_18	617	0.23	6.49E-07	7.01E-07	4.00E-04	1.61E-07
18B	Vanadium	7440-62-2	3	VU_18	617	0.23	3.11E-04	3.35E-04	1.92E-01	7.69E-05
18B	Zinc	7440-66-6	3	VU_18	617	0.23	3.17E-03	3.42E-03	1.96E+00	7.85E-04
19	Aluminum	7429-90-5	3	VU_19	494	0.18	2.59E-02	2.80E-02	1.28E+01	5.15E-03
19	Antimony	7440-36-0	3	VU_19	494	0.18	4.75E-06	5.13E-06	2.35E-03	9.43E-07
19	Arsenic	7440-38-2	3	VU_19	494	0.18	1.17E-05	1.26E-05	5.78E-03	2.32E-06
19	Barium	7440-39-3	3	VU_19	494	0.18	7.45E-04	8.04E-04	3.68E-01	1.48E-04
19	Beryllium	7440-41-7	3	VU_19	494	0.18	1.50E-06	1.62E-06	7.41E-04	2.97E-07
19	Cadmium	7440-43-9	3	VU_19	494	0.18	9.21E-06	9.94E-06	4.55E-03	1.83E-06
19	Chromium	7440-47-3	3	VU_19	494	0.18	1.41E-03	1.52E-03	6.97E-01	2.80E-04
19	Chromium VI	18540-29-9	3	VU_19	494	0.18	7.88E-07	8.51E-07	3.89E-04	1.56E-07
19	Cobalt	7440-48-4	3	VU_19	494	0.18	3.54E-05	3.82E-05	1.75E-02	7.03E-06
19	Copper	7440-50-8	3	VU_19	494	0.18	7.11E-04	7.68E-04	3.51E-01	1.41E-04
19	Lead	7439-92-1	3	VU_19	494	0.18	3.48E-04	3.76E-04	1.72E-01	6.91E-05
19	Manganese	7439-96-5	3	VU_19	494	0.18	1.77E-02	1.91E-02	8.75E+00	3.51E-03
19	Mercury	7439-97-6	3	VU_19	494	0.18	4.78E-07	5.17E-07	2.36E-04	9.50E-08
19	Nickel	7440-02-0	3	VU_19	494	0.18	2.82E-04	3.04E-04	1.39E-01	5.59E-05
19	Selenium	7782-49-2	3	VU_19	494	0.18	1.35E-06	1.46E-06	6.69E-04	2.68E-07
19	Silver	7440-22-4	3	VU_19	494	0.18	2.31E-06	2.50E-06	1.14E-03	4.59E-07
19	Thallium	7440-28-0	3	VU_19	494	0.18	6.06E-07	6.55E-07	3.00E-04	1.20E-07
19	Vanadium	7440-62-2	3	VU_19	494	0.18	2.90E-04	3.13E-04	1.43E-01	5.76E-05
19	Zinc	7440-66-6	3	VU_19	494	0.18	2.96E-03	3.20E-03	1.46E+00	5.88E-04
21	Aluminum	7429-90-5	3	VU_21	1964	0.73	2.59E-02	2.80E-02	5.09E+01	2.05E-02
21	Antimony	7440-36-0	3	VU_21	1964	0.73	4.75E-06	5.13E-06	9.33E-03	3.75E-06
21	Arsenic	7440-38-2	3	VU_21	1964	0.73	1.17E-05	1.26E-05	2.30E-02	9.22E-06
21	Barium	7440-39-3	3	VU_21	1964	0.73	7.45E-04	8.04E-04	1.46E+00	5.87E-04
21	Beryllium	7440-41-7	3	VU_21	1964	0.73	1.50E-06	1.62E-06	2.94E-03	1.18E-06
21	Cadmium	7440-43-9	3	VU_21	1964	0.73	9.21E-06	9.94E-06	1.81E-02	7.26E-06
21	Chromium	7440-47-3	3	VU_21	1964	0.73	1.41E-03	1.52E-03	2.77E+00	1.11E-03
21	Chromium VI	18540-29-9	3	VU_21	1964	0.73	7.88E-07	8.51E-07	1.55E-03	6.21E-07
21	Cobalt	7440-48-4	3	VU_21	1964	0.73	3.54E-05	3.82E-05	6.95E-02	2.79E-05
21	Copper	7440-50-8	3	VU_21	1964	0.73	7.11E-04	7.68E-04	1.40E+00	5.61E-04
21	Lead	7439-92-1	3	VU_21	1964	0.73	3.48E-04	3.76E-04	6.83E-01	2.74E-04
21	Manganese	7439-96-5	3	VU_21	1964	0.73	1.77E-02	1.91E-02	3.48E+01	1.40E-02
21	Mercury	7439-97-6	3	VU_21	1964	0.73	4.78E-07	5.17E-07	9.40E-04	3.77E-07
21	Nickel	7440-02-0	3	VU_21	1964	0.73	2.82E-04	3.04E-04	5.53E-01	2.22E-04
21	Selenium	7782-49-2	3	VU_21	1964	0.73	1.35E-06	1.46E-06	2.66E-03	1.07E-06
21	Silver	7440-22-4	3	VU_21	1964	0.73	2.31E-06	2.50E-06	4.55E-03	1.83E-06
21	Thallium	7440-28-0	3	VU_21	1964	0.73	6.06E-07	6.55E-07	1.19E-03	4.78E-07
21	Vanadium	7440-62-2	3	VU_21	1964	0.73	2.90E-04	3.13E-04	5.70E-01	2.29E-04
21	Zinc	7440-66-6	3	VU_21	1964	0.73	2.96E-03	3.20E-03	5.82E+00	2.34E-03

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Notes:
1. Annual Vehicle Miles Traveled (VMT) were estimated based on the annual number of round trips multiplied by the distance of each segment.
2. Hourly VMT were estimated based on the maximum hourly number of round trips multiplied by the distance of each segment.
3. Applied annual average truck weight to the TAC emission factor for unit vehicle weight derived in Tables B-6a and B-6b.
4. Applied maximum hourly average truck weight to the TAC emission factor for unit vehicle weight derived in Tables B-6a and B-6b.
5. Estimated based on annual emission factor multiplied by the annual VMT.
6. Estimated based on max. hourly emission factor multiplied by the max. hourly VMT.

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_1	Aluminum	7429-90-5	7.64E+00	3.53E-03
VP_1	Antimony	7440-36-0	1.40E-03	6.48E-07
VP_1	Arsenic	7440-38-2	3.44E-03	1.59E-06
VP_1	Barium	7440-39-3	2.19E-01	1.01E-04
VP_1	Beryllium	7440-41-7	4.41E-04	2.04E-07
VP_1	Cadmium	7440-43-9	2.71E-03	1.25E-06
VP_1	Chromium	7440-47-3	4.15E-01	1.92E-04
VP_1	Chromium VI	18540-29-9	2.32E-04	1.07E-07
VP_1	Cobalt	7440-48-4	1.04E-02	4.82E-06
VP_1	Copper	7440-50-8	2.09E-01	9.69E-05
VP_1	Lead	7439-92-1	1.02E-01	4.74E-05
VP_1	Manganese	7439-96-5	5.21E+00	2.41E-03
VP_1	Mercury	7439-97-6	1.41E-04	6.52E-08
VP_1	Nickel	7440-02-0	8.30E-02	3.84E-05
VP_1	Selenium	7782-49-2	3.98E-04	1.84E-07
VP_1	Silver	7440-22-4	6.82E-04	3.15E-07
VP_1	Thallium	7440-28-0	1.79E-04	8.26E-08
VP_1	Vanadium	7440-62-2	8.55E-02	3.96E-05
VP_1	Zinc	7440-66-6	8.72E-01	4.04E-04
VP_13	Aluminum	7429-90-5	1.78E+01	6.62E-03
VP_13	Antimony	7440-36-0	3.26E-03	1.21E-06
VP_13	Arsenic	7440-38-2	8.03E-03	2.99E-06
VP_13	Barium	7440-39-3	5.11E-01	1.90E-04
VP_13	Beryllium	7440-41-7	1.03E-03	3.83E-07
VP_13	Cadmium	7440-43-9	6.32E-03	2.35E-06
VP_13	Chromium	7440-47-3	9.69E-01	3.60E-04
VP_13	Chromium VI	18540-29-9	5.41E-04	2.01E-07
VP_13	Cobalt	7440-48-4	2.43E-02	9.04E-06
VP_13	Copper	7440-50-8	4.88E-01	1.82E-04
VP_13	Lead	7439-92-1	2.39E-01	8.89E-05
VP_13	Manganese	7439-96-5	1.22E+01	4.52E-03
VP_13	Mercury	7439-97-6	3.29E-04	1.22E-07
VP_13	Nickel	7440-02-0	1.94E-01	7.20E-05
VP_13	Selenium	7782-49-2	9.29E-04	3.46E-07
VP_13	Silver	7440-22-4	1.59E-03	5.91E-07
VP_13	Thallium	7440-28-0	4.16E-04	1.55E-07
VP_13	Vanadium	7440-62-2	1.99E-01	7.41E-05
VP_13	Zinc	7440-66-6	2.03E+00	7.57E-04
VP_16	Aluminum	7429-90-5	7.17E-01	3.97E-04
VP_16	Antimony	7440-36-0	5.61E-04	3.11E-07
VP_16	Arsenic	7440-38-2	7.82E-04	4.33E-07
VP_16	Barium	7440-39-3	3.75E-02	2.08E-05
VP_16	Beryllium	7440-41-7	3.35E-05	1.85E-08
VP_16	Cadmium	7440-43-9	9.61E-04	5.32E-07
VP_16	Chromium	7440-47-3	3.77E-02	2.09E-05
VP_16	Chromium VI	18540-29-9	2.91E-05	1.61E-08
VP_16	Cobalt	7440-48-4	4.81E-03	2.66E-06
VP_16	Copper	7440-50-8	3.95E-02	2.19E-05
VP_16	Lead	7439-92-1	3.85E-02	2.13E-05
VP_16	Manganese	7439-96-5	2.72E-01	1.50E-04
VP_16	Mercury	7439-97-6	1.99E-04	1.10E-07
VP_16	Nickel	7440-02-0	3.22E-02	1.78E-05
VP_16	Selenium	7782-49-2	3.90E-05	2.16E-08
VP_16	Silver	7440-22-4	1.84E-04	1.02E-07
VP_16	Thallium	7440-28-0	1.33E-05	7.38E-09
VP_16	Vanadium	7440-62-2	6.01E-03	3.33E-06
VP_16	Zinc	7440-66-6	2.59E-01	1.43E-04
VP_17	Aluminum	7429-90-5	6.22E-01	3.45E-04
VP_17	Antimony	7440-36-0	1.14E-04	6.31E-08
VP_17	Arsenic	7440-38-2	2.81E-04	1.55E-07
VP_17	Barium	7440-39-3	1.79E-02	9.89E-06
VP_17	Beryllium	7440-41-7	3.60E-05	1.99E-08
VP_17	Cadmium	7440-43-9	2.21E-04	1.22E-07
VP_17	Chromium	7440-47-3	3.38E-02	1.87E-05
VP_17	Chromium VI	18540-29-9	1.89E-05	1.05E-08
VP_17	Cobalt	7440-48-4	8.49E-04	4.70E-07
VP_17	Copper	7440-50-8	1.71E-02	9.45E-06
VP_17	Lead	7439-92-1	8.35E-03	4.62E-06
VP_17	Manganese	7439-96-5	4.25E-01	2.35E-04
VP_17	Mercury	7439-97-6	1.15E-05	6.36E-09
VP_17	Nickel	7440-02-0	6.76E-03	3.74E-06

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_17	Selenium	7782-49-2	3.25E-05	1.80E-08
VP_17	Silver	7440-22-4	5.55E-05	3.07E-08
VP_17	Thallium	7440-28-0	1.45E-05	8.05E-09
VP_17	Vanadium	7440-62-2	6.96E-03	3.86E-06
VP_17	Zinc	7440-66-6	7.11E-02	3.93E-05
VP_2	Aluminum	7429-90-5	3.11E+00	1.72E-03
VP_2	Antimony	7440-36-0	2.44E-03	1.35E-06
VP_2	Arsenic	7440-38-2	3.40E-03	1.88E-06
VP_2	Barium	7440-39-3	1.63E-01	9.02E-05
VP_2	Beryllium	7440-41-7	1.45E-04	8.05E-08
VP_2	Cadmium	7440-43-9	4.17E-03	2.31E-06
VP_2	Chromium	7440-47-3	1.64E-01	9.08E-05
VP_2	Chromium VI	18540-29-9	1.26E-04	6.99E-08
VP_2	Cobalt	7440-48-4	2.09E-02	1.16E-05
VP_2	Copper	7440-50-8	1.72E-01	9.50E-05
VP_2	Lead	7439-92-1	1.67E-01	9.26E-05
VP_2	Manganese	7439-96-5	1.18E+00	6.53E-04
VP_2	Mercury	7439-97-6	8.63E-04	4.78E-07
VP_2	Nickel	7440-02-0	1.40E-01	7.74E-05
VP_2	Selenium	7782-49-2	1.69E-04	9.38E-08
VP_2	Silver	7440-22-4	7.98E-04	4.42E-07
VP_2	Thallium	7440-28-0	5.79E-05	3.21E-08
VP_2	Vanadium	7440-62-2	2.61E-02	1.45E-05
VP_2	Zinc	7440-66-6	1.13E+00	6.23E-04
VP_20	Aluminum	7429-90-5	1.14E+01	4.22E-03
VP_20	Antimony	7440-36-0	2.08E-03	7.74E-07
VP_20	Arsenic	7440-38-2	5.12E-03	1.91E-06
VP_20	Barium	7440-39-3	3.26E-01	1.21E-04
VP_20	Beryllium	7440-41-7	6.56E-04	2.44E-07
VP_20	Cadmium	7440-43-9	4.03E-03	1.50E-06
VP_20	Chromium	7440-47-3	6.18E-01	2.30E-04
VP_20	Chromium VI	18540-29-9	3.45E-04	1.28E-07
VP_20	Cobalt	7440-48-4	1.55E-02	5.77E-06
VP_20	Copper	7440-50-8	3.11E-01	1.16E-04
VP_20	Lead	7439-92-1	1.52E-01	5.67E-05
VP_20	Manganese	7439-96-5	7.75E+00	2.88E-03
VP_20	Mercury	7439-97-6	2.10E-04	7.79E-08
VP_20	Nickel	7440-02-0	1.23E-01	4.59E-05
VP_20	Selenium	7782-49-2	5.93E-04	2.20E-07
VP_20	Silver	7440-22-4	1.01E-03	3.77E-07
VP_20	Thallium	7440-28-0	2.66E-04	9.88E-08
VP_20	Vanadium	7440-62-2	1.27E-01	4.73E-05
VP_20	Zinc	7440-66-6	1.30E+00	4.83E-04
VP_22	Aluminum	7429-90-5	1.08E+01	4.10E-03
VP_22	Antimony	7440-36-0	1.98E-03	7.52E-07
VP_22	Arsenic	7440-38-2	4.88E-03	1.85E-06
VP_22	Barium	7440-39-3	3.11E-01	1.18E-04
VP_22	Beryllium	7440-41-7	6.26E-04	2.37E-07
VP_22	Cadmium	7440-43-9	3.84E-03	1.46E-06
VP_22	Chromium	7440-47-3	5.89E-01	2.23E-04
VP_22	Chromium VI	18540-29-9	3.29E-04	1.25E-07
VP_22	Cobalt	7440-48-4	1.48E-02	5.60E-06
VP_22	Copper	7440-50-8	2.97E-01	1.12E-04
VP_22	Lead	7439-92-1	1.45E-01	5.51E-05
VP_22	Manganese	7439-96-5	7.39E+00	2.80E-03
VP_22	Mercury	7439-97-6	2.00E-04	7.57E-08
VP_22	Nickel	7440-02-0	1.18E-01	4.46E-05
VP_22	Selenium	7782-49-2	5.65E-04	2.14E-07
VP_22	Silver	7440-22-4	9.66E-04	3.66E-07
VP_22	Thallium	7440-28-0	2.53E-04	9.59E-08
VP_22	Vanadium	7440-62-2	1.21E-01	4.59E-05
VP_22	Zinc	7440-66-6	1.24E+00	4.69E-04
VP_23	Aluminum	7429-90-5	7.18E+00	6.01E-03
VP_23	Antimony	7440-36-0	4.96E-03	4.15E-06
VP_23	Arsenic	7440-38-2	8.09E-03	6.77E-06
VP_23	Barium	7440-39-3	3.32E-01	2.78E-04
VP_23	Beryllium	7440-41-7	4.11E-04	3.44E-07
VP_23	Cadmium	7440-43-9	9.78E-03	8.19E-06
VP_23	Chromium	7440-47-3	4.90E-01	4.10E-04
VP_23	Chromium VI	18540-29-9	2.26E-04	1.89E-07
VP_23	Cobalt	7440-48-4	5.12E-02	4.29E-05

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_23	Copper	7440-50-8	4.34E-01	3.63E-04
VP_23	Lead	7439-92-1	3.53E-01	2.95E-04
VP_23	Manganese	7439-96-5	2.59E+00	2.16E-03
VP_23	Mercury	7439-97-6	1.06E-03	8.87E-07
VP_23	Nickel	7440-02-0	3.87E-01	3.24E-04
VP_23	Selenium	7782-49-2	3.58E-04	3.00E-07
VP_23	Silver	7440-22-4	1.75E-03	1.46E-06
VP_23	Thallium	7440-28-0	1.46E-04	1.22E-07
VP_23	Vanadium	7440-62-2	5.07E-02	4.24E-05
VP_23	Zinc	7440-66-6	2.81E+00	2.35E-03
VP_24	Aluminum	7429-90-5	1.55E+01	1.30E-02
VP_24	Antimony	7440-36-0	1.07E-02	8.95E-06
VP_24	Arsenic	7440-38-2	1.74E-02	1.46E-05
VP_24	Barium	7440-39-3	7.17E-01	6.00E-04
VP_24	Beryllium	7440-41-7	8.87E-04	7.42E-07
VP_24	Cadmium	7440-43-9	2.11E-02	1.77E-05
VP_24	Chromium	7440-47-3	1.06E+00	8.85E-04
VP_24	Chromium VI	18540-29-9	4.88E-04	4.08E-07
VP_24	Cobalt	7440-48-4	1.11E-01	9.25E-05
VP_24	Copper	7440-50-8	9.35E-01	7.82E-04
VP_24	Lead	7439-92-1	7.62E-01	6.37E-04
VP_24	Manganese	7439-96-5	5.58E+00	4.67E-03
VP_24	Mercury	7439-97-6	2.29E-03	1.91E-06
VP_24	Nickel	7440-02-0	8.35E-01	6.99E-04
VP_24	Selenium	7782-49-2	7.73E-04	6.46E-07
VP_24	Silver	7440-22-4	3.77E-03	3.15E-06
VP_24	Thallium	7440-28-0	3.14E-04	2.63E-07
VP_24	Vanadium	7440-62-2	1.09E-01	9.15E-05
VP_24	Zinc	7440-66-6	6.06E+00	5.07E-03
VP_25	Aluminum	7429-90-5	1.60E+01	1.34E-02
VP_25	Antimony	7440-36-0	1.10E-02	9.22E-06
VP_25	Arsenic	7440-38-2	1.80E-02	1.50E-05
VP_25	Barium	7440-39-3	7.39E-01	6.18E-04
VP_25	Beryllium	7440-41-7	9.14E-04	7.65E-07
VP_25	Cadmium	7440-43-9	2.18E-02	1.82E-05
VP_25	Chromium	7440-47-3	1.09E+00	9.11E-04
VP_25	Chromium VI	18540-29-9	5.03E-04	4.21E-07
VP_25	Cobalt	7440-48-4	1.14E-01	9.53E-05
VP_25	Copper	7440-50-8	9.64E-01	8.06E-04
VP_25	Lead	7439-92-1	7.85E-01	6.57E-04
VP_25	Manganese	7439-96-5	5.75E+00	4.81E-03
VP_25	Mercury	7439-97-6	2.36E-03	1.97E-06
VP_25	Nickel	7440-02-0	8.61E-01	7.20E-04
VP_25	Selenium	7782-49-2	7.96E-04	6.66E-07
VP_25	Silver	7440-22-4	3.89E-03	3.25E-06
VP_25	Thallium	7440-28-0	3.24E-04	2.71E-07
VP_25	Vanadium	7440-62-2	1.13E-01	9.43E-05
VP_25	Zinc	7440-66-6	6.25E+00	5.23E-03
VP_26	Aluminum	7429-90-5	1.18E+01	9.91E-03
VP_26	Antimony	7440-36-0	8.18E-03	6.84E-06
VP_26	Arsenic	7440-38-2	1.33E-02	1.12E-05
VP_26	Barium	7440-39-3	5.49E-01	4.59E-04
VP_26	Beryllium	7440-41-7	6.79E-04	5.68E-07
VP_26	Cadmium	7440-43-9	1.61E-02	1.35E-05
VP_26	Chromium	7440-47-3	8.09E-01	6.77E-04
VP_26	Chromium VI	18540-29-9	3.73E-04	3.12E-07
VP_26	Cobalt	7440-48-4	8.46E-02	7.07E-05
VP_26	Copper	7440-50-8	7.15E-01	5.99E-04
VP_26	Lead	7439-92-1	5.83E-01	4.87E-04
VP_26	Manganese	7439-96-5	4.27E+00	3.57E-03
VP_26	Mercury	7439-97-6	1.75E-03	1.46E-06
VP_26	Nickel	7440-02-0	6.39E-01	5.35E-04
VP_26	Selenium	7782-49-2	5.91E-04	4.94E-07
VP_26	Silver	7440-22-4	2.88E-03	2.41E-06
VP_26	Thallium	7440-28-0	2.40E-04	2.01E-07
VP_26	Vanadium	7440-62-2	8.37E-02	7.00E-05
VP_26	Zinc	7440-66-6	4.64E+00	3.88E-03
VP_27	Aluminum	7429-90-5	3.98E+00	2.07E-03
VP_27	Antimony	7440-36-0	3.11E-03	1.62E-06
VP_27	Arsenic	7440-38-2	4.34E-03	2.26E-06
VP_27	Barium	7440-39-3	2.08E-01	1.08E-04

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_27	Beryllium	7440-41-7	1.86E-04	9.66E-08
VP_27	Cadmium	7440-43-9	5.33E-03	2.77E-06
VP_27	Chromium	7440-47-3	2.09E-01	1.09E-04
VP_27	Chromium VI	18540-29-9	1.61E-04	8.39E-08
VP_27	Cobalt	7440-48-4	2.66E-02	1.39E-05
VP_27	Copper	7440-50-8	2.19E-01	1.14E-04
VP_27	Lead	7439-92-1	2.13E-01	1.11E-04
VP_27	Manganese	7439-96-5	1.51E+00	7.84E-04
VP_27	Mercury	7439-97-6	1.10E-03	5.74E-07
VP_27	Nickel	7440-02-0	1.78E-01	9.29E-05
VP_27	Selenium	7782-49-2	2.16E-04	1.13E-07
VP_27	Silver	7440-22-4	1.02E-03	5.30E-07
VP_27	Thallium	7440-28-0	7.39E-05	3.85E-08
VP_27	Vanadium	7440-62-2	3.33E-02	1.74E-05
VP_27	Zinc	7440-66-6	1.44E+00	7.48E-04
VP_28	Aluminum	7429-90-5	5.27E+00	2.74E-03
VP_28	Antimony	7440-36-0	4.12E-03	2.15E-06
VP_28	Arsenic	7440-38-2	5.75E-03	2.99E-06
VP_28	Barium	7440-39-3	2.75E-01	1.43E-04
VP_28	Beryllium	7440-41-7	2.46E-04	1.28E-07
VP_28	Cadmium	7440-43-9	7.06E-03	3.68E-06
VP_28	Chromium	7440-47-3	2.77E-01	1.44E-04
VP_28	Chromium VI	18540-29-9	2.13E-04	1.11E-07
VP_28	Cobalt	7440-48-4	3.53E-02	1.84E-05
VP_28	Copper	7440-50-8	2.90E-01	1.51E-04
VP_28	Lead	7439-92-1	2.83E-01	1.47E-04
VP_28	Manganese	7439-96-5	2.00E+00	1.04E-03
VP_28	Mercury	7439-97-6	1.46E-03	7.60E-07
VP_28	Nickel	7440-02-0	2.36E-01	1.23E-04
VP_28	Selenium	7782-49-2	2.86E-04	1.49E-07
VP_28	Silver	7440-22-4	1.35E-03	7.02E-07
VP_28	Thallium	7440-28-0	9.79E-05	5.10E-08
VP_28	Vanadium	7440-62-2	4.42E-02	2.30E-05
VP_28	Zinc	7440-66-6	1.90E+00	9.91E-04
VP_29	Aluminum	7429-90-5	7.58E+00	3.95E-03
VP_29	Antimony	7440-36-0	5.93E-03	3.09E-06
VP_29	Arsenic	7440-38-2	8.27E-03	4.31E-06
VP_29	Barium	7440-39-3	3.96E-01	2.06E-04
VP_29	Beryllium	7440-41-7	3.54E-04	1.84E-07
VP_29	Cadmium	7440-43-9	1.02E-02	5.29E-06
VP_29	Chromium	7440-47-3	3.99E-01	2.08E-04
VP_29	Chromium VI	18540-29-9	3.07E-04	1.60E-07
VP_29	Cobalt	7440-48-4	5.08E-02	2.64E-05
VP_29	Copper	7440-50-8	4.17E-01	2.17E-04
VP_29	Lead	7439-92-1	4.07E-01	2.12E-04
VP_29	Manganese	7439-96-5	2.87E+00	1.49E-03
VP_29	Mercury	7439-97-6	2.10E-03	1.09E-06
VP_29	Nickel	7440-02-0	3.40E-01	1.77E-04
VP_29	Selenium	7782-49-2	4.12E-04	2.15E-07
VP_29	Silver	7440-22-4	1.94E-03	1.01E-06
VP_29	Thallium	7440-28-0	1.41E-04	7.34E-08
VP_29	Vanadium	7440-62-2	6.36E-02	3.31E-05
VP_29	Zinc	7440-66-6	2.74E+00	1.43E-03
VP_30	Aluminum	7429-90-5	6.01E+00	2.85E-03
VP_30	Antimony	7440-36-0	1.10E-03	5.22E-07
VP_30	Arsenic	7440-38-2	2.71E-03	1.28E-06
VP_30	Barium	7440-39-3	1.73E-01	8.18E-05
VP_30	Beryllium	7440-41-7	3.48E-04	1.65E-07
VP_30	Cadmium	7440-43-9	2.13E-03	1.01E-06
VP_30	Chromium	7440-47-3	3.27E-01	1.55E-04
VP_30	Chromium VI	18540-29-9	1.83E-04	8.65E-08
VP_30	Cobalt	7440-48-4	8.21E-03	3.89E-06
VP_30	Copper	7440-50-8	1.65E-01	7.81E-05
VP_30	Lead	7439-92-1	8.07E-02	3.82E-05
VP_30	Manganese	7439-96-5	4.11E+00	1.94E-03
VP_30	Mercury	7439-97-6	1.11E-04	5.26E-08
VP_30	Nickel	7440-02-0	6.54E-02	3.10E-05
VP_30	Selenium	7782-49-2	3.14E-04	1.49E-07
VP_30	Silver	7440-22-4	5.37E-04	2.54E-07
VP_30	Thallium	7440-28-0	1.41E-04	6.66E-08
VP_30	Vanadium	7440-62-2	6.73E-02	3.19E-05

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_30	Zinc	7440-66-6	6.87E-01	3.25E-04
VP_31	Aluminum	7429-90-5	1.17E+01	5.54E-03
VP_31	Antimony	7440-36-0	2.15E-03	1.02E-06
VP_31	Arsenic	7440-38-2	5.29E-03	2.50E-06
VP_31	Barium	7440-39-3	3.37E-01	1.59E-04
VP_31	Beryllium	7440-41-7	6.78E-04	3.20E-07
VP_31	Cadmium	7440-43-9	4.17E-03	1.97E-06
VP_31	Chromium	7440-47-3	6.39E-01	3.02E-04
VP_31	Chromium VI	18540-29-9	3.57E-04	1.68E-07
VP_31	Cobalt	7440-48-4	1.60E-02	7.57E-06
VP_31	Copper	7440-50-8	3.22E-01	1.52E-04
VP_31	Lead	7439-92-1	1.58E-01	7.44E-05
VP_31	Manganese	7439-96-5	8.01E+00	3.78E-03
VP_31	Mercury	7439-97-6	2.17E-04	1.02E-07
VP_31	Nickel	7440-02-0	1.28E-01	6.02E-05
VP_31	Selenium	7782-49-2	6.12E-04	2.89E-07
VP_31	Silver	7440-22-4	1.05E-03	4.95E-07
VP_31	Thallium	7440-28-0	2.74E-04	1.30E-07
VP_31	Vanadium	7440-62-2	1.31E-01	6.20E-05
VP_31	Zinc	7440-66-6	1.34E+00	6.33E-04
VP_33	Aluminum	7429-90-5	4.02E+00	1.98E-03
VP_33	Antimony	7440-36-0	7.37E-04	3.63E-07
VP_33	Arsenic	7440-38-2	1.81E-03	8.94E-07
VP_33	Barium	7440-39-3	1.16E-01	5.69E-05
VP_33	Beryllium	7440-41-7	2.33E-04	1.15E-07
VP_33	Cadmium	7440-43-9	1.43E-03	7.04E-07
VP_33	Chromium	7440-47-3	2.19E-01	1.08E-04
VP_33	Chromium VI	18540-29-9	1.22E-04	6.02E-08
VP_33	Cobalt	7440-48-4	5.49E-03	2.71E-06
VP_33	Copper	7440-50-8	1.10E-01	5.43E-05
VP_33	Lead	7439-92-1	5.40E-02	2.66E-05
VP_33	Manganese	7439-96-5	2.75E+00	1.35E-03
VP_33	Mercury	7439-97-6	7.42E-05	3.66E-08
VP_33	Nickel	7440-02-0	4.37E-02	2.15E-05
VP_33	Selenium	7782-49-2	2.10E-04	1.03E-07
VP_33	Silver	7440-22-4	3.59E-04	1.77E-07
VP_33	Thallium	7440-28-0	9.41E-05	4.63E-08
VP_33	Vanadium	7440-62-2	4.50E-02	2.22E-05
VP_33	Zinc	7440-66-6	4.60E-01	2.26E-04
VP_34	Aluminum	7429-90-5	3.88E+00	1.87E-03
VP_34	Antimony	7440-36-0	7.12E-04	3.43E-07
VP_34	Arsenic	7440-38-2	1.75E-03	8.44E-07
VP_34	Barium	7440-39-3	1.12E-01	5.37E-05
VP_34	Beryllium	7440-41-7	2.24E-04	1.08E-07
VP_34	Cadmium	7440-43-9	1.38E-03	6.64E-07
VP_34	Chromium	7440-47-3	2.11E-01	1.02E-04
VP_34	Chromium VI	18540-29-9	1.18E-04	5.69E-08
VP_34	Cobalt	7440-48-4	5.30E-03	2.56E-06
VP_34	Copper	7440-50-8	1.06E-01	5.13E-05
VP_34	Lead	7439-92-1	5.21E-02	2.51E-05
VP_34	Manganese	7439-96-5	2.65E+00	1.28E-03
VP_34	Mercury	7439-97-6	7.17E-05	3.45E-08
VP_34	Nickel	7440-02-0	4.22E-02	2.03E-05
VP_34	Selenium	7782-49-2	2.03E-04	9.76E-08
VP_34	Silver	7440-22-4	3.47E-04	1.67E-07
VP_34	Thallium	7440-28-0	9.08E-05	4.38E-08
VP_34	Vanadium	7440-62-2	4.35E-02	2.09E-05
VP_34	Zinc	7440-66-6	4.44E-01	2.14E-04
VP_35	Aluminum	7429-90-5	5.50E+00	2.69E-03
VP_35	Antimony	7440-36-0	1.01E-03	4.92E-07
VP_35	Arsenic	7440-38-2	2.48E-03	1.21E-06
VP_35	Barium	7440-39-3	1.58E-01	7.71E-05
VP_35	Beryllium	7440-41-7	3.18E-04	1.55E-07
VP_35	Cadmium	7440-43-9	1.95E-03	9.54E-07
VP_35	Chromium	7440-47-3	2.99E-01	1.46E-04
VP_35	Chromium VI	18540-29-9	1.67E-04	8.16E-08
VP_35	Cobalt	7440-48-4	7.50E-03	3.67E-06
VP_35	Copper	7440-50-8	1.51E-01	7.37E-05
VP_35	Lead	7439-92-1	7.38E-02	3.60E-05
VP_35	Manganese	7439-96-5	3.75E+00	1.83E-03
VP_35	Mercury	7439-97-6	1.01E-04	4.96E-08

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_35	Nickel	7440-02-0	5.97E-02	2.92E-05
VP_35	Selenium	7782-49-2	2.87E-04	1.40E-07
VP_35	Silver	7440-22-4	4.91E-04	2.40E-07
VP_35	Thallium	7440-28-0	1.28E-04	6.28E-08
VP_35	Vanadium	7440-62-2	6.15E-02	3.01E-05
VP_35	Zinc	7440-66-6	6.28E-01	3.07E-04
VP_37	Aluminum	7429-90-5	1.39E+01	8.66E-03
VP_37	Antimony	7440-36-0	9.61E-03	5.98E-06
VP_37	Arsenic	7440-38-2	1.57E-02	9.76E-06
VP_37	Barium	7440-39-3	6.44E-01	4.01E-04
VP_37	Beryllium	7440-41-7	7.97E-04	4.96E-07
VP_37	Cadmium	7440-43-9	1.90E-02	1.18E-05
VP_37	Chromium	7440-47-3	9.50E-01	5.91E-04
VP_37	Chromium VI	18540-29-9	4.39E-04	2.73E-07
VP_37	Cobalt	7440-48-4	9.93E-02	6.18E-05
VP_37	Copper	7440-50-8	8.40E-01	5.23E-04
VP_37	Lead	7439-92-1	6.84E-01	4.26E-04
VP_37	Manganese	7439-96-5	5.02E+00	3.12E-03
VP_37	Mercury	7439-97-6	2.06E-03	1.28E-06
VP_37	Nickel	7440-02-0	7.51E-01	4.67E-04
VP_37	Selenium	7782-49-2	6.94E-04	4.32E-07
VP_37	Silver	7440-22-4	3.39E-03	2.11E-06
VP_37	Thallium	7440-28-0	2.82E-04	1.76E-07
VP_37	Vanadium	7440-62-2	9.83E-02	6.12E-05
VP_37	Zinc	7440-66-6	5.45E+00	3.39E-03
VP_5	Aluminum	7429-90-5	8.21E+00	3.80E-03
VP_5	Antimony	7440-36-0	1.50E-03	6.96E-07
VP_5	Arsenic	7440-38-2	3.70E-03	1.71E-06
VP_5	Barium	7440-39-3	2.36E-01	1.09E-04
VP_5	Beryllium	7440-41-7	4.74E-04	2.19E-07
VP_5	Cadmium	7440-43-9	2.91E-03	1.35E-06
VP_5	Chromium	7440-47-3	4.46E-01	2.07E-04
VP_5	Chromium VI	18540-29-9	2.49E-04	1.15E-07
VP_5	Cobalt	7440-48-4	1.12E-02	5.18E-06
VP_5	Copper	7440-50-8	2.25E-01	1.04E-04
VP_5	Lead	7439-92-1	1.10E-01	5.10E-05
VP_5	Manganese	7439-96-5	5.60E+00	2.59E-03
VP_5	Mercury	7439-97-6	1.51E-04	7.01E-08
VP_5	Nickel	7440-02-0	8.92E-02	4.13E-05
VP_5	Selenium	7782-49-2	4.28E-04	1.98E-07
VP_5	Silver	7440-22-4	7.32E-04	3.39E-07
VP_5	Thallium	7440-28-0	1.92E-04	8.88E-08
VP_5	Vanadium	7440-62-2	9.18E-02	4.25E-05
VP_5	Zinc	7440-66-6	9.37E-01	4.34E-04
VP_7	Aluminum	7429-90-5	5.49E-01	2.54E-04
VP_7	Antimony	7440-36-0	1.01E-04	4.65E-08
VP_7	Arsenic	7440-38-2	2.47E-04	1.14E-07
VP_7	Barium	7440-39-3	1.58E-02	7.29E-06
VP_7	Beryllium	7440-41-7	3.17E-05	1.47E-08
VP_7	Cadmium	7440-43-9	1.95E-04	9.01E-08
VP_7	Chromium	7440-47-3	2.98E-02	1.38E-05
VP_7	Chromium VI	18540-29-9	1.67E-05	7.71E-09
VP_7	Cobalt	7440-48-4	7.49E-04	3.47E-07
VP_7	Copper	7440-50-8	1.50E-02	6.96E-06
VP_7	Lead	7439-92-1	7.36E-03	3.41E-06
VP_7	Manganese	7439-96-5	3.74E-01	1.73E-04
VP_7	Mercury	7439-97-6	1.01E-05	4.68E-09
VP_7	Nickel	7440-02-0	5.96E-03	2.76E-06
VP_7	Selenium	7782-49-2	2.86E-05	1.32E-08
VP_7	Silver	7440-22-4	4.90E-05	2.27E-08
VP_7	Thallium	7440-28-0	1.28E-05	5.93E-09
VP_7	Vanadium	7440-62-2	6.14E-03	2.84E-06
VP_7	Zinc	7440-66-6	6.27E-02	2.90E-05
VU_10	Aluminum	7429-90-5	1.14E+01	5.60E-03
VU_10	Antimony	7440-36-0	2.09E-03	1.03E-06
VU_10	Arsenic	7440-38-2	5.15E-03	2.52E-06
VU_10	Barium	7440-39-3	3.28E-01	1.61E-04
VU_10	Beryllium	7440-41-7	6.60E-04	3.24E-07
VU_10	Cadmium	7440-43-9	4.05E-03	1.99E-06
VU_10	Chromium	7440-47-3	6.21E-01	3.05E-04
VU_10	Chromium VI	18540-29-9	3.47E-04	1.70E-07

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VU_10	Cobalt	7440-48-4	1.56E-02	7.64E-06
VU_10	Copper	7440-50-8	3.13E-01	1.53E-04
VU_10	Lead	7439-92-1	1.53E-01	7.51E-05
VU_10	Manganese	7439-96-5	7.79E+00	3.82E-03
VU_10	Mercury	7439-97-6	2.11E-04	1.03E-07
VU_10	Nickel	7440-02-0	1.24E-01	6.08E-05
VU_10	Selenium	7782-49-2	5.95E-04	2.92E-07
VU_10	Silver	7440-22-4	1.02E-03	5.00E-07
VU_10	Thallium	7440-28-0	2.67E-04	1.31E-07
VU_10	Vanadium	7440-62-2	1.28E-01	6.26E-05
VU_10	Zinc	7440-66-6	1.30E+00	6.39E-04
VU_15	Aluminum	7429-90-5	1.31E+01	7.66E-03
VU_15	Antimony	7440-36-0	2.39E-03	1.40E-06
VU_15	Arsenic	7440-38-2	5.89E-03	3.46E-06
VU_15	Barium	7440-39-3	3.75E-01	2.20E-04
VU_15	Beryllium	7440-41-7	7.55E-04	4.43E-07
VU_15	Cadmium	7440-43-9	4.64E-03	2.72E-06
VU_15	Chromium	7440-47-3	7.10E-01	4.17E-04
VU_15	Chromium VI	18540-29-9	3.97E-04	2.33E-07
VU_15	Cobalt	7440-48-4	1.78E-02	1.05E-05
VU_15	Copper	7440-50-8	3.58E-01	2.10E-04
VU_15	Lead	7439-92-1	1.75E-01	1.03E-04
VU_15	Manganese	7439-96-5	8.91E+00	5.23E-03
VU_15	Mercury	7439-97-6	2.41E-04	1.41E-07
VU_15	Nickel	7440-02-0	1.42E-01	8.33E-05
VU_15	Selenium	7782-49-2	6.81E-04	4.00E-07
VU_15	Silver	7440-22-4	1.17E-03	6.84E-07
VU_15	Thallium	7440-28-0	3.05E-04	1.79E-07
VU_15	Vanadium	7440-62-2	1.46E-01	8.58E-05
VU_15	Zinc	7440-66-6	1.49E+00	8.75E-04
VU_18	Aluminum	7429-90-5	9.56E+01	3.78E-02
VU_18	Antimony	7440-36-0	1.75E-02	6.93E-06
VU_18	Arsenic	7440-38-2	4.31E-02	1.71E-05
VU_18	Barium	7440-39-3	2.75E+00	1.09E-03
VU_18	Beryllium	7440-41-7	5.53E-03	2.19E-06
VU_18	Cadmium	7440-43-9	3.39E-02	1.34E-05
VU_18	Chromium	7440-47-3	5.20E+00	2.06E-03
VU_18	Chromium VI	18540-29-9	2.90E-03	1.15E-06
VU_18	Cobalt	7440-48-4	1.31E-01	5.16E-05
VU_18	Copper	7440-50-8	2.62E+00	1.04E-03
VU_18	Lead	7439-92-1	1.28E+00	5.07E-04
VU_18	Manganese	7439-96-5	6.53E+01	2.58E-02
VU_18	Mercury	7439-97-6	1.76E-03	6.98E-07
VU_18	Nickel	7440-02-0	1.04E+00	4.11E-04
VU_18	Selenium	7782-49-2	4.99E-03	1.97E-06
VU_18	Silver	7440-22-4	8.53E-03	3.37E-06
VU_18	Thallium	7440-28-0	2.24E-03	8.84E-07
VU_18	Vanadium	7440-62-2	1.07E+00	4.23E-04
VU_18	Zinc	7440-66-6	1.09E+01	4.32E-03
VU_21	Aluminum	7429-90-5	5.09E+01	2.05E-02
VU_21	Antimony	7440-36-0	9.33E-03	3.75E-06
VU_21	Arsenic	7440-38-2	2.30E-02	9.22E-06
VU_21	Barium	7440-39-3	1.46E+00	5.87E-04
VU_21	Beryllium	7440-41-7	2.94E-03	1.18E-06
VU_21	Cadmium	7440-43-9	1.81E-02	7.26E-06
VU_21	Chromium	7440-47-3	2.77E+00	1.11E-03
VU_21	Chromium VI	18540-29-9	1.55E-03	6.21E-07
VU_21	Cobalt	7440-48-4	6.95E-02	2.79E-05
VU_21	Copper	7440-50-8	1.40E+00	5.61E-04
VU_21	Lead	7439-92-1	6.83E-01	2.74E-04
VU_21	Manganese	7439-96-5	3.48E+01	1.40E-02
VU_21	Mercury	7439-97-6	9.40E-04	3.77E-07
VU_21	Nickel	7440-02-0	5.53E-01	2.22E-04
VU_21	Selenium	7782-49-2	2.66E-03	1.07E-06
VU_21	Silver	7440-22-4	4.55E-03	1.83E-06
VU_21	Thallium	7440-28-0	1.19E-03	4.78E-07
VU_21	Vanadium	7440-62-2	5.70E-01	2.29E-04
VU_21	Zinc	7440-66-6	5.82E+00	2.34E-03
VU_3	Aluminum	7429-90-5	2.03E+01	9.94E-03
VU_3	Antimony	7440-36-0	3.71E-03	1.82E-06
VU_3	Arsenic	7440-38-2	9.14E-03	4.48E-06

Table B-10. Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VU_3	Barium	7440-39-3	5.82E-01	2.85E-04
VU_3	Beryllium	7440-41-7	1.17E-03	5.74E-07
VU_3	Cadmium	7440-43-9	7.19E-03	3.53E-06
VU_3	Chromium	7440-47-3	1.10E+00	5.41E-04
VU_3	Chromium VI	18540-29-9	6.16E-04	3.02E-07
VU_3	Cobalt	7440-48-4	2.77E-02	1.36E-05
VU_3	Copper	7440-50-8	5.56E-01	2.73E-04
VU_3	Lead	7439-92-1	2.72E-01	1.33E-04
VU_3	Manganese	7439-96-5	1.38E+01	6.78E-03
VU_3	Mercury	7439-97-6	3.74E-04	1.83E-07
VU_3	Nickel	7440-02-0	2.20E-01	1.08E-04
VU_3	Selenium	7782-49-2	1.06E-03	5.19E-07
VU_3	Silver	7440-22-4	1.81E-03	8.87E-07
VU_3	Thallium	7440-28-0	4.74E-04	2.32E-07
VU_3	Vanadium	7440-62-2	2.27E-01	1.11E-04
VU_3	Zinc	7440-66-6	2.31E+00	1.14E-03
VU_6	Aluminum	7429-90-5	2.51E+01	1.23E-02
VU_6	Antimony	7440-36-0	4.60E-03	2.26E-06
VU_6	Arsenic	7440-38-2	1.13E-02	5.56E-06
VU_6	Barium	7440-39-3	7.22E-01	3.54E-04
VU_6	Beryllium	7440-41-7	1.45E-03	7.12E-07
VU_6	Cadmium	7440-43-9	8.92E-03	4.38E-06
VU_6	Chromium	7440-47-3	1.37E+00	6.71E-04
VU_6	Chromium VI	18540-29-9	7.63E-04	3.74E-07
VU_6	Cobalt	7440-48-4	3.43E-02	1.68E-05
VU_6	Copper	7440-50-8	6.89E-01	3.38E-04
VU_6	Lead	7439-92-1	3.37E-01	1.65E-04
VU_6	Manganese	7439-96-5	1.71E+01	8.41E-03
VU_6	Mercury	7439-97-6	4.64E-04	2.27E-07
VU_6	Nickel	7440-02-0	2.73E-01	1.34E-04
VU_6	Selenium	7782-49-2	1.31E-03	6.43E-07
VU_6	Silver	7440-22-4	2.24E-03	1.10E-06
VU_6	Thallium	7440-28-0	5.87E-04	2.88E-07
VU_6	Vanadium	7440-62-2	2.81E-01	1.38E-04
VU_6	Zinc	7440-66-6	2.87E+00	1.41E-03
VU_19	Aluminum	7429-90-5	1.28E+01	5.15E-03
VU_19	Antimony	7440-36-0	2.35E-03	9.43E-07
VU_19	Arsenic	7440-38-2	5.78E-03	2.32E-06
VU_19	Barium	7440-39-3	3.68E-01	1.48E-04
VU_19	Beryllium	7440-41-7	7.41E-04	2.97E-07
VU_19	Cadmium	7440-43-9	4.55E-03	1.83E-06
VU_19	Chromium	7440-47-3	6.97E-01	2.80E-04
VU_19	Chromium VI	18540-29-9	3.89E-04	1.56E-07
VU_19	Cobalt	7440-48-4	1.75E-02	7.03E-06
VU_19	Copper	7440-50-8	3.51E-01	1.41E-04
VU_19	Lead	7439-92-1	1.72E-01	6.91E-05
VU_19	Manganese	7439-96-5	8.75E+00	3.51E-03
VU_19	Mercury	7439-97-6	2.36E-04	9.50E-08
VU_19	Nickel	7440-02-0	1.39E-01	5.59E-05
VU_19	Selenium	7782-49-2	6.69E-04	2.68E-07
VU_19	Silver	7440-22-4	1.14E-03	4.59E-07
VU_19	Thallium	7440-28-0	3.00E-04	1.20E-07
VU_19	Vanadium	7440-62-2	1.43E-01	5.76E-05
VU_19	Zinc	7440-66-6	1.46E+00	5.88E-04

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Note:
1. Each segment is used by one or more truck types as shown in Table B-9. This table summarizes the total emissions for each segment segment and we modeled each segment as a source group in AERMOD.

Table B-11 TAC Emissions from Slag Handing and Storage Piles Wind Erosion
TAMCO Steel Mill
Rancho Cucamonga, California

Introduction:
This emission source includes fugitive emissions from slag piles as well as front-end loader dumping operations.

Parameters:

Year 2011 slag produced	36,984	tons/year	Estimated as 15% of 2011 production per TAMCO
Maximum hourly slag processed	20.1	tons/hour	Estimated as 15% of maximum hourly production (134 ton/hr) per TAMCO

1) Aggregate handling emissions

Emission factor:			**Reference**
Aerodynamic particle size multiplier (PM_{10})	0.35		AP-42, Section 13.2.4
Mean wind speed	5.2	mph	Annual average windspeed (2005-2009) for the SCAQMD Fontana meteorological station
Moisture content	0.92	%	AP-42, Table 13.2.4-1, mean for slag
PM_{10} emission factor	3.5E-03	lb/ton	AP-42, Section 13.2.4

TACs in slag: Based on the average analytical results (weight %) for slag samples taken in 2005, 2011, and 2012

Aluminum (not analyzed)	0	mg/kg
Antimony	10	mg/kg
Arsenic	7	mg/kg
Barium	957	mg/kg
Beryllium	4	mg/kg
Cadmium	1	mg/kg
Cobalt (not analyzed)	22	mg/kg
Copper	672	mg/kg
Chromium (Total)	2055	mg/kg
Hexavalent Chromium	0.04	mg/kg
Lead	22	mg/kg
Manganese	25719	mg/kg
Mercury	0.19	mg/kg
Molybdenum	50	mg/kg
Nickel	208	mg/kg
Phosphorus	755	mg/kg
Selenium	3	mg/kg
Silver	2	mg/kg
Thallium	1	mg/kg
Titanium	3383	mg/kg
Vanadium	430	mg/kg
Zinc	302	mg/kg

Year 2011 Annual emissions estimate:
Year 2011 emissions = emission factor x (Year 2011 slag handled)

PM_{10}	36,984	tons/yr	x	3.5E-03	lbs/ton	=	1.30E+02	lbs/yr	=	6.5E-02 tons/yr
TAC Emissions from slag piles										
Aluminum	129.6	lb PM_{10}/yr	x	0.0E+00	lb Al/lb PM_{10}	=	0.00E+00	lbs/yr	=	0.0E+00 tons/yr
Antimony	129.6	lb PM_{10}/yr	x	9.6E-06	lb Sb/lb PM_{10}	=	1.24E-03	lbs/yr	=	6.2E-07 tons/yr
Arsenic	129.6	lb PM_{10}/yr	x	7.1E-06	lb As/ lb PM_{10}	=	9.20E-04	lbs/yr	=	4.6E-07 tons/yr
Barium	129.6	lb PM_{10}/yr	x	9.6E-04	lb Ba/ lb PM_{10}	=	1.24E-01	lbs/yr	=	6.2E-05 tons/yr
Beryllium	129.6	lb PM_{10}/yr	x	4.1E-06	lb Be/ lb PM_{10}	=	5.31E-04	lbs/yr	=	2.7E-07 tons/yr
Cadmium	129.6	lb PM_{10}/yr	x	9.7E-07	lb Cd/ lb PM_{10}	=	1.25E-04	lbs/yr	=	6.3E-08 tons/yr
Cobalt	129.6	lb PM_{10}/yr	x	2.2E-05	lb Co/ lb PM_{10}	=	2.88E-03	lbs/yr	=	1.4E-06 tons/yr
Copper	129.6	lb PM_{10}/yr	x	6.7E-04	lb Cu/ lb PM_{10}	=	8.71E-02	lbs/yr	=	4.4E-05 tons/yr
Chromium	129.6	lb PM_{10}/yr	x	2.1E-03	lb Cr/ lb PM_{10}	=	2.66E-01	lbs/yr	=	1.3E-04 tons/yr
Hexavalent Chromium	129.6	lb PM_{10}/yr	x	4.0E-08	lb Cr^{6+}/ lb PM_{10}	=	5.18E-06	lbs/yr	=	2.6E-09 tons/yr
Lead	129.6	lb PM_{10}/yr	x	2.2E-05	lb Pb/ lb PM_{10}	=	2.79E-03	lbs/yr	=	1.4E-06 tons/yr
Manganese	129.6	lb PM_{10}/yr	x	2.6E-02	lb Mn/ lb PM_{10}	=	3.33E+00	lbs/yr	=	1.7E-03 tons/yr
Mercury	129.6	lb PM_{10}/yr	x	1.9E-07	lb Hg/ lb PM_{10}	=	2.44E-05	lbs/yr	=	1.2E-08 tons/yr
Molybdenum	129.6	lb PM_{10}/yr	x	5.0E-05	lb Mo/ lb PM_{10}	=	6.46E-03	lbs/yr	=	3.2E-06 tons/yr
Nickel	129.6	lb PM_{10}/yr	x	2.1E-04	lb Ni/ lb PM_{10}	=	2.70E-02	lbs/yr	=	1.3E-05 tons/yr
Phosphorus	129.6	lb PM_{10}/yr	x	7.5E-04	lb P/ lb PM_{10}	=	9.78E-02	lbs/yr	=	4.9E-05 tons/yr
Selenium	129.6	lb PM_{10}/yr	x	2.5E-06	lb Se/ lb PM_{10}	=	3.28E-04	lbs/yr	=	1.6E-07 tons/yr
Silver	129.6	lb PM_{10}/yr	x	2.2E-06	lb Ag/ lb PM_{10}	=	2.81E-04	lbs/yr	=	1.4E-07 tons/yr
Thallium	129.6	lb PM_{10}/yr	x	1.3E-06	lb Th/ lb PM_{10}	=	1.74E-04	lbs/yr	=	8.7E-08 tons/yr
Titanium	129.6	lb PM_{10}/yr	x	3.4E-03	lb Ti/ lb PM_{10}	=	4.38E-01	lbs/yr	=	2.2E-04 tons/yr
Vanadium	129.6	lb PM_{10}/yr	x	4.3E-04	lb V/ lb PM_{10}	=	5.57E-02	lbs/yr	=	2.8E-05 tons/yr
Zinc	129.6	lb PM_{10}/yr	x	3.0E-04	lb Zn/ lb PM_{10}	=	3.91E-02	lbs/yr	=	2.0E-05 tons/yr

Table B-11 TAC Emissions from Slag Handing and Storage Piles Wind Erosion
TAMCO Steel Mill
Rancho Cucamonga, California

Maximum hourly emission estimates:

Maximum hourly emissions = emission factor x (Maximum hour rate slg handled)

PM_{10}	20.1	tons/hr	x	3.5E-03	lbs/ton	=	0.07	lbs/hr
TAC Emissions from slag piles								
Aluminum	0.07	lb PM_{10}/hr	x	0.0E+00	lb Al/lb PM_{10}	=	0.00E+00	lbs/hr
Antimony	0.07	lb PM_{10}/hr	x	9.6E-06	lb Sb/lb PM_{10}	=	6.75E-07	lbs/hr
Arsenic	0.07	lb PM_{10}/hr	x	7.1E-06	lb As/ lb PM_{10}	=	5.00E-07	lbs/hr
Barium	0.07	lb PM_{10}/hr	x	9.6E-04	lb Ba/ lb PM_{10}	=	6.74E-05	lbs/hr
Beryllium	0.07	lb PM_{10}/hr	x	4.1E-06	lb Be/ lb PM_{10}	=	2.89E-07	lbs/hr
Cadmium	0.07	lb PM_{10}/hr	x	9.7E-07	lb Cd/ lb PM_{10}	=	6.81E-08	lbs/hr
Cobalt	0.07	lb PM_{10}/hr	x	2.2E-05	lb Co/ lb PM_{10}	=	1.57E-06	lbs/hr
Copper	0.07	lb PM_{10}/hr	x	6.7E-04	lb Cu/ lb PM_{10}	=	4.73E-05	lbs/hr
Chromium	0.07	lb PM_{10}/hr	x	2.1E-03	lb Cr/ lb PM_{10}	=	1.45E-04	lbs/hr
Hexavalent Chromium	0.07	lb PM_{10}/hr	x	4.0E-08	lb Cr^{6+}/ lb PM_{10}	=	2.82E-09	lbs/hr
Lead	0.07	lb PM_{10}/hr	x	2.2E-05	lb Pb/ lb PM_{10}	=	1.51E-06	lbs/hr
Manganese	0.07	lb PM_{10}/hr	x	2.6E-02	lb Mn/ lb PM_{10}	=	1.81E-03	lbs/hr
Mercury	0.07	lb PM_{10}/hr	x	1.9E-07	lb Hg/ lb PM_{10}	=	1.33E-08	lbs/hr
Molybdenum	0.07	lb PM_{10}/hr	x	5.0E-05	lb Mo/ lb PM_{10}	=	3.51E-06	lbs/hr
Nickel	0.07	lb PM_{10}/hr	x	2.1E-04	lb Ni/ lb PM_{10}	=	1.47E-05	lbs/hr
Phosphorus	0.07	lb PM_{10}/hr	x	7.5E-04	lb P/ lb PM_{10}	=	5.31E-05	lbs/hr
Selenium	0.07	lb PM_{10}/hr	x	2.5E-06	lb Se/ lb PM_{10}	=	1.78E-07	lbs/hr
Silver	0.07	lb PM_{10}/hr	x	2.2E-06	lb Ag/ lb PM_{10}	=	1.53E-07	lbs/hr
Thallium	0.07	lb PM_{10}/hr	x	1.3E-06	lb Th/ lb PM_{10}	=	9.45E-08	lbs/hr
Titanium	0.07	lb PM_{10}/hr	x	3.4E-03	lb Ti/ lb PM_{10}	=	2.38E-04	lbs/hr
Vanadium	0.07	lb PM_{10}/hr	x	4.3E-04	lb V/ lb PM_{10}	=	3.03E-05	lbs/hr
Zinc	0.07	lb PM_{10}/hr	x	3.0E-04	lb Zn/ lb PM_{10}	=	2.12E-05	lbs/hr

2) Slag storage pile - wind erosion

Aggregate silt content	5.3	%	Mean value for Iron and steel production - Slag; AP-42, Table 13.2.4-1.
Percent of time mean wind speed exceeds 12 mph	6.69	%	Obtained from meteorological data used for modeling
Days with >0.01 inches of precipitation	27	days	2011 precipitation data collected at TAMCO's onsite met station
Area of piles	2.74	acres	Assumed 50% of the slag storage area covered with slag piles (estimated based on the 2011 aerial photo).

Storage Piles: PM_{10} Emissions (lb/day) = 1.7 x (silt content/1.5) x ((365-precipitation days)/235) x (wind speed percent/15) x (TSP fraction x Area) x (1 - control efficiency)
USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

PM emission factor	3.854	lb/day/acre		
PM_{10} emission factor	1.823	lb/day/acre	PM_{10}/TSP ratio = (0.35/0.74)	Based on the particle size multiplier from AP-42 13.2.4
Annual PM_{10} Emissions	1825.273	lb/yr		
	0.913	ton/yr		
Maximum Hourly Emissions	5.001	lb/hr	Assume all daily erosion happens in an hour	

Annual TAC Emissions from Slag Piles

Aluminum	1825.273	lb PM_{10}/yr	x	0.0E+00	lb Al/lb PM_{10}	=	0.00E+00	lbs/yr
Antimony	1825.273	lb PM_{10}/yr	x	9.6E-06	lb Sb/lb PM_{10}	=	1.75E-02	lbs/yr
Arsenic	1825.273	lb PM_{10}/yr	x	7.1E-06	lb As/ lb PM_{10}	=	1.30E-02	lbs/yr
Barium	1825.273	lb PM_{10}/yr	x	9.6E-04	lb Ba/ lb PM_{10}	=	1.75E+00	lbs/yr
Beryllium	1825.273	lb PM_{10}/yr	x	4.1E-06	lb Be/ lb PM_{10}	=	7.48E-03	lbs/yr
Cadmium	1825.273	lb PM_{10}/yr	x	9.7E-07	lb Cd/ lb PM_{10}	=	1.76E-03	lbs/yr
Cobalt	1825.273	lb PM_{10}/yr	x	2.2E-05	lb Co/ lb PM_{10}	=	4.06E-02	lbs/yr
Copper	1825.273	lb PM_{10}/yr	x	6.7E-04	lb Cu/ lb PM_{10}	=	1.23E+00	lbs/yr
Chromium	1825.273	lb PM_{10}/yr	x	2.1E-03	lb Cr/ lb PM_{10}	=	3.75E+00	lbs/yr
Hexavalent Chromium	1825.273	lb PM_{10}/yr	x	4.0E-08	lb Cr^{6+}/ lb PM_{10}	=	7.30E-05	lbs/yr
Lead	1825.273	lb PM_{10}/yr	x	2.2E-05	lb Pb/ lb PM_{10}	=	3.92E-02	lbs/yr
Manganese	1825.273	lb PM_{10}/yr	x	2.6E-02	lb Mn/ lb PM_{10}	=	4.69E+01	lbs/yr
Mercury	1825.273	lb PM_{10}/yr	x	1.9E-07	lb Hg/ lb PM_{10}	=	3.44E-04	lbs/yr
Molybdenum	1825.273	lb PM_{10}/yr	x	5.0E-05	lb Mo/ lb PM_{10}	=	9.10E-02	lbs/yr
Nickel	1825.273	lb PM_{10}/yr	x	2.1E-04	lb Ni/ lb PM_{10}	=	3.80E-01	lbs/yr
Phosphorus	1825.273	lb PM_{10}/yr	x	7.5E-04	lb P/ lb PM_{10}	=	1.38E+00	lbs/yr
Selenium	1825.273	lb PM_{10}/yr	x	2.5E-06	lb Se/ lb PM_{10}	=	4.62E-03	lbs/yr
Silver	1825.273	lb PM_{10}/yr	x	2.2E-06	lb Ag/ lb PM_{10}	=	3.95E-03	lbs/yr
Thallium	1825.273	lb PM_{10}/yr	x	1.3E-06	lb Th/ lb PM_{10}	=	2.45E-03	lbs/yr
Titanium	1825.273	lb PM_{10}/yr	x	3.4E-03	lb Ti/ lb PM_{10}	=	6.17E+00	lbs/yr
Vanadium	1825.273	lb PM_{10}/yr	x	4.3E-04	lb V/ lb PM_{10}	=	7.85E-01	lbs/yr
Zinc	1825.273	lb PM_{10}/yr	x	3.0E-04	lb Zn/ lb PM_{10}	=	5.50E-01	lbs/yr

Table B-11 TAC Emissions from Slag Handing and Storage Piles Wind Erosion
TAMCO Steel Mill
Rancho Cucamonga, California

Maximum Hourly TAC Emissions from slag piles

Aluminum	5.0007479	lb PM_{10}/hr	x	0.0E+00	lb Al/lb PM_{10}	=	0.00E+00	lbs/hr
Antimony	5.0007479	lb PM_{10}/hr	x	9.6E-06	lb Sb/lb PM_{10}	=	4.79E-05	lbs/hr
Arsenic	5.0007479	lb PM_{10}/hr	x	7.1E-06	lb As/ lb PM_{10}	=	3.55E-05	lbs/hr
Barium	5.0007479	lb PM_{10}/hr	x	9.6E-04	lb Ba/ lb PM_{10}	=	4.78E-03	lbs/hr
Beryllium	5.0007479	lb PM_{10}/hr	x	4.1E-06	lb Be/ lb PM_{10}	=	2.05E-05	lbs/hr
Cadmium	5.0007479	lb PM_{10}/hr	x	9.7E-07	lb Cd/ lb PM_{10}	=	4.83E-06	lbs/hr
Cobalt	5.0007479	lb PM_{10}/hr	x	2.2E-05	lb Co/ lb PM_{10}	=	1.11E-04	lbs/hr
Copper	5.0007479	lb PM_{10}/hr	x	6.7E-04	lb Cu/ lb PM_{10}	=	3.36E-03	lbs/hr
Chromium	5.0007479	lb PM_{10}/hr	x	2.1E-03	lb Cr/ lb PM_{10}	=	1.03E-02	lbs/hr
Hexavalent Chromium	5.0007479	lb PM_{10}/hr	x	4.0E-08	lb Cr^{6+}/ lb PM_{10}	=	2.00E-07	lbs/hr
Lead	5.0007479	lb PM_{10}/hr	x	2.2E-05	lb Pb/ lb PM_{10}	=	1.08E-04	lbs/hr
Manganese	5.0007479	lb PM_{10}/hr	x	2.6E-02	lb Mn/ lb PM_{10}	=	1.29E-01	lbs/hr
Mercury	5.0007479	lb PM_{10}/hr	x	1.9E-07	lb Hg/ lb PM_{10}	=	9.42E-07	lbs/hr
Molybdenum	5.0007479	lb PM_{10}/hr	x	5.0E-05	lb Mo/ lb PM_{10}	=	2.49E-04	lbs/hr
Nickel	5.0007479	lb PM_{10}/hr	x	2.1E-04	lb Ni/ lb PM_{10}	=	1.04E-03	lbs/hr
Phosphorus	5.0007479	lb PM_{10}/hr	x	7.5E-04	lb P/ lb PM_{10}	=	3.77E-03	lbs/hr
Selenium	5.0007479	lb PM_{10}/hr	x	2.5E-06	lb Se/ lb PM_{10}	=	1.27E-05	lbs/hr
Silver	5.0007479	lb PM_{10}/hr	x	2.2E-06	lb Ag/ lb PM_{10}	=	1.08E-05	lbs/hr
Thallium	5.0007479	lb PM_{10}/hr	x	1.3E-06	lb Th/ lb PM_{10}	=	6.71E-06	lbs/hr
Titanium	5.0007479	lb PM_{10}/hr	x	3.4E-03	lb Ti/ lb PM_{10}	=	1.69E-02	lbs/hr
Vanadium	5.0007479	lb PM_{10}/hr	x	4.3E-04	lb V/ lb PM_{10}	=	2.15E-03	lbs/hr
Zinc	5.0007479	lb PM_{10}/hr	x	3.0E-04	lb Zn/ lb PM_{10}	=	1.51E-03	lbs/hr

Table B-12 PM_{10} Emissions from Slag Crushing, Screening and Conveying

TAMCO Steel Mill
Rancho Cucamonga, California

Throughput

Annual	80,276	tons/year	Slag processed in 2011 was 80,276 tons which included both fresh slag generation and backlog material, per TAMCO
Maximum Hourly	150	tons/hour	Obtained from TAMCO

Emission Factors [1]

Operation	Uncontrolled Emission Factor (lbs/ton Processed)	Controlled Emission Factor (lbs/ton Processed)	EPA AP-42 Control Efficiency, %
	PM_{10}	PM_{10}	PM_{10}
Batch Transfer[2]	4.30E-03	1.80E-04	95.8%
Crusher	2.40E-03	5.40E-04	77.5%
Screening	8.70E-03	7.40E-04	91.5%
Conveyor Transfer Point	1.10E-03	4.60E-05	95.8%

1. Source: EPA AP-42, Section 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing. Table 11.19.2-2.
2. EPA, AP-42, Section 12.5, Table 12.5-4 Batch drop (low silt slag), uncontrolled. Controlled emission factor is calculated using the same control efficiency as the conveyor transfer point.

Product (based on 2011 data)

Product	Max (lbs/hr)	% of Feed
overs pile	10.5	7.0%
1/2" plus scarp	10.5	7.0%
1/2" x 3/8" scrap	12.0	8.0%
3/8" minus scrap	21.0	14.0%
0-1"	61.5	41.0%
1-3"	34.5	23.0%
Total	150.0	100.0%

Based on Tube City slag processing flow diagram included in the permit application A/N/ 517133

PM_{10} Emissions from Aggregate Operation

Process Weights:	Feed Fraction[1]	Maximum Hourly Flow Rate	Annual Flow Rate	Maximum Hourly Uncontrolled Emissions	Maximum Hourly Controlled Emissions	Annual Average Uncontrolled Emissions	Annual Average Controlled Emissions
		tons/hour	tons/year	lbs/hr	lbs/hr	lbs/yr	lbs/yr
Crushing	24%	36.00	19266	8.64E-02	1.94E-02	4.62E+01	1.04E+01
Screening							
S1: Ferrous Screen	29%	43.50	23280	3.78E-01	3.22E-02	2.03E+02	1.72E+01
S2: Non-Ferrous Screen	84%	126.00	67432	1.10E+00	9.32E-02	5.87E+02	4.99E+01
Conveyor Transfer Point							
T1: Load Feeder (Batch trans	100%	150	80276	6.45E-01	2.70E-02	3.45E+02	1.44E+01
T2: Continous transfer to over	7%	11	5619	1.16E-02	4.83E-04	6.18E+00	2.58E-01
T3: Feeder to C1	120%	180	96331	1.98E-01	8.28E-03	1.06E+02	4.43E+00
T4: C1 to S1/C4	120%	180	96331	1.98E-01	8.28E-03	1.06E+02	4.43E+00
T5: S1 to A scrap pile	7%	11	5619	1.16E-02	4.83E-04	6.18E+00	2.58E-01
T6: S1 to C2	8%	12	6422	1.32E-02	5.52E-04	7.06E+00	2.95E-01
T7: C2 to B scrap pile	8%	12	6422	1.32E-02	5.52E-04	7.06E+00	2.95E-01
T8: S1 to C3	14%	21	11239	2.31E-02	9.66E-04	1.24E+01	5.17E-01
T9: C3 to C scrap pile	14%	21	11239	2.31E-02	9.66E-04	1.24E+01	5.17E-01
T10: C4 to S2	84%	126	67432	1.39E-01	5.80E-03	7.42E+01	3.10E+00
T11: S2 to C5	23%	35	18463	3.80E-02	1.59E-03	2.03E+01	8.49E-01
T12: C5 to slag pile	23%	35	18463	3.80E-02	1.59E-03	2.03E+01	8.49E-01
T13: S2 to C11	41%	62	32913	6.77E-02	2.83E-03	3.62E+01	1.51E+00
T14: C11 to C10	41%	62	32913	6.77E-02	2.83E-03	3.62E+01	1.51E+00
T15: C10 to slag pile	41%	62	32913	6.77E-02	2.83E-03	3.62E+01	1.51E+00
T16: S2 to C6	20%	30	16055	3.30E-02	1.38E-03	1.77E+01	7.39E-01
T17: C6 to crusher	20%	30	16055	3.30E-02	1.38E-03	1.77E+01	7.39E-01
T18: Crusher to C7	20%	30	16055	3.30E-02	1.38E-03	1.77E+01	7.39E-01
T19: C7 to C8	20%	30	16055	3.30E-02	1.38E-03	1.77E+01	7.39E-01
T20: C8 to C9	20%	30	16055	3.30E-02	1.38E-03	1.77E+01	7.39E-01
T21: C9 to C1	20%	30	16055	3.30E-02	1.38E-03	1.77E+01	7.39E-01
Total				**3.31E+00**	**2.18E-01**	**1.77E+03**	**1.17E+02**

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Notes:
1. Emissions are estimated following an approach in the SCAQMD permit evaluation for a similar equipment A/N 517133 that was previously issued to the same operation at the same facility.
2. From permit application A/N/ 517133 attachment for PM_{10} average emission estimates.

Conversion

2000	lbs/ton
2.2046	lbs/kg
1000	g/kg
2544.5	(Btu/hr)/hp
1.00E+06	Btu/MMBtu
1000	gal/mgal

Table B-13 PM_{10} Emissions from Slag Crushing, Screening and Conveying
TAMCO Steel Mill
Rancho Cucamonga, California

Slag Processing Unit: PM_{10} Emissions

Emissions	CAS #	Wt % in Slag	Maximum Hourly Uncontrolled Emissions	Maximum Hourly Controlled Emissions	Annual Average Uncontrolled Emissions	Annual Average Controlled Emissions
			lbs/hr	lbs/hr	lbs/yr	lbs/yr
PM_{10}	--	--	3.31	0.22	1773.14	116.74

Slag Processing Unit: TAC Emissions

Emissions	CAS #	ppm in Slag[1]	Maximum Hourly Uncontrolled Emissions	Maximum Hourly Controlled Emissions	Annual Average Uncontrolled Emissions	Annual Average Controlled Emissions
			lbs/hr	lbs/hr	lbs/yr	lbs/yr
Aluminum	7429-90-5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	7440-36-0	9.58E+00	3.18E-05	2.09E-06	1.70E-02	1.12E-03
Arsenic	7440-38-2	7.10E+00	2.35E-05	1.55E-06	1.26E-02	8.29E-04
Barium	7440-39-3	9.57E+02	3.17E-03	2.09E-04	1.70E+00	1.12E-01
Beryllium	7440-41-7	4.10E+00	1.36E-05	8.94E-07	7.27E-03	4.79E-04
Cadmium	7440-43-9	9.67E-01	3.20E-06	2.11E-07	1.71E-03	1.13E-04
Cobalt	7440-484	2.23E+01	7.37E-05	4.85E-06	3.95E-02	2.60E-03
Copper	7440-50-8	6.72E+02	2.23E-03	1.47E-04	1.19E+00	7.85E-02
Chromium	7440-47-3	2.06E+03	6.81E-03	4.48E-04	3.64E+00	2.40E-01
Hexavalent Chromium	18540-29-9	4.00E-02	1.33E-07	8.73E-09	7.09E-05	4.67E-06
Lead	7439-92-1	2.15E+01	7.12E-05	4.69E-06	3.81E-02	2.51E-03
Mercury	7439-97-6	1.88E-01	6.24E-07	4.11E-08	3.34E-04	2.20E-05
Molybdenum	7439-98-7	4.98E+01	1.65E-04	1.09E-05	8.84E-02	5.82E-03
Manganese	7439-96-5	2.57E+04	8.52E-02	5.61E-03	4.56E+01	3.00E+00
Nickel	7440-02-0	2.08E+02	6.90E-04	4.54E-05	3.69E-01	2.43E-02
Phosphorus	7723-14-0	7.55E+02	2.50E-03	1.65E-04	1.34E+00	8.81E-02
Selenium	7782-49-2	2.53E+00	8.39E-06	5.52E-07	4.49E-03	2.96E-04
Silver	7440-22-4	2.17E+00	7.18E-06	4.73E-07	3.84E-03	2.53E-04
Thallium	7440-28-0	1.34E+00	4.45E-06	2.93E-07	2.38E-03	1.57E-04
Titanium	7440-32-6	3.38E+03	1.12E-02	7.38E-04	6.00E+00	3.95E-01
Vanadium	7440-62-2	4.30E+02	1.42E-03	9.38E-05	7.62E-01	5.02E-02
Zinc	7440-66-6	3.02E+02	9.99E-04	6.58E-05	5.35E-01	3.52E-02

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Note:
1. Based on the average analytical results for slag samples taken in 2005, 2011, and 2012

Table B-14 Fugitive TAC Emissions from Transferring Baghouse Dust from the Screw Conveyor to the Railcar
TAMCO Steel Mill
Rancho Cucamonga, California

Emission source: Fugitive Emissions from Transferring Baghouse Dust from the Screw Conveyor to the Railcar

Introduction:
This emission source includes fugitive dust emissions from the screw conveyor during transferring the baghouse dust to the railcars.

Parameters:		**Notes**
2011 Baghouse dust collected	3390 ton/yr	Based on baghouse dust from annual hazardous waste export reports
Maximum hourly process rate at screw conveyor	1.5 ton/hr	Obtained from TAMCO
Emission Factor:		
Uncontrolled PM_{10} emission factor	0.013 lb/ton	AP-42 Section 12.5, Table 12.5-4. Uncontrolled PM_{10} emission factor for continuous drop conveyor transfer station at Iron and Steel Mill.

2011 PM_{10} Emission Estimates:
Annual PM_{10} emissions = emission factor * (2011 baghouse dust collected)

Annual PM_{10} from Screw Conveyor 44.07 lb/yr

Maximum Hourly PM_{10} Emission Estimates:
Hourly PM_{10} emissions = emission factor * (maximum hourly baghouse dust handled at screw conveyor)

Hourly PM_{10} from Screw Conveyor 0.0195 lb/hr

Metal Fraction in the Dust

	Metal Emission Factor, lb/ton (Table 2-1, December 2010 Delta Source Test)	Metal Fraction (Baghouse Dust Lab Report, 9/17/2012)
Total Particulates	0.302	
Arsenic[1]	0.000008	0.001%
Barium[1]		0.036%
Cadmium[1]	0.000197	0.08%
Chromium[1]	0.000714	0.20%
Chromium VI[1]		0.0001%
Cobalt[1]		0.002%
Copper[1]		0.27%
Lead[1]	0.0058	1.93%
Mercury[1]		0.00005%
Manganese[2]	0.0045	1.49%
Nickel[1]	0.000173	0.03%
Vanadium[1]		0.01%
Zinc[1]	0.061	26%

1. TAC fraction based on baghouse dust test results used for emission estimation except for manganese as it was not tested.
2. Calculated as the ratio of the manganese emission factor to the particulate emission factor obtained from the Delta source test.

Annual TAC Emission Estimates:

Arsenic	5.91E-04	lb/yr
Barium	1.58E-02	lb/yr
Cadmium	3.55E-02	lb/yr
Chromium	8.59E-02	lb/yr
Hexavalent Chromium	4.02E-05	lb/yr
Cobalt	9.34E-04	lb/yr
Copper	1.18E-01	lb/yr
Lead	8.51E-01	lb/yr
Mercury	2.18E-05	lb/yr
Manganese	6.57E-01	lb/yr
Nickel	1.14E-02	lb/yr
Vanadium	6.57E-03	lb/yr
Zinc	1.15E+01	lb/yr

Maximum Hourly TAC Emission Estimates:

Arsenic	2.61E-07	lb/hr
Barium	6.98E-06	lb/hr
Cadmium	1.57E-05	lb/hr
Chromium	3.80E-05	lb/hr
Hexavalent Chromium	1.78E-08	lb/hr
Cobalt	4.13E-07	lb/hr
Copper	5.23E-05	lb/hr
Lead	3.76E-04	lb/hr
Mercury	9.65E-09	lb/hr
Manganese	2.91E-04	lb/hr
Nickel	5.03E-06	lb/hr
Vanadium	2.91E-06	lb/hr
Zinc	5.07E-03	lb/hr

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Table B-15 Fugitive TAC Emissions from Scrap Handling
TAMCO Steel Mill
Rancho Cucamonga, California

Introduction:
This emission source includes emissions associated with scrap transfer to and from the scrap piles at the scrap yard

Parameters:

Year 2011 scrap handled	274,000	tons/yr	Scrap consumed in 2011 (per accounting stats) from TAMCO
Maximum hourly scrap handled	225	tons/hr	Obtained from TAMCO, assumed 10 trucks per hour and each truck load is 22.5 tons

Emission factor:

			Reference
PM_{10} (batch drop front end loader)	0.0043	lb/ton	AP-42, Section 12.5, Table 12.5-4 (low-silt slag)

2011 PM_{10} emissions estimate:
Maximum potential emissions = emission factor * (quantity received and removed at pile)

Annual PM_{10} from building and removing scrap pile	1178.2	lbs/yr
Hourly PM_{10} from building and removing scrap pile	0.9675	lbs/hr

2011 TACs emissions estimate:

Chemical	Metal Concentration (ppm)	Annual Emissions (lb/yr)	Maximum Hourly Emissions (lb/hr)
Aluminum	10,475	1.23E+01	1.01E-02
Antimony	7.2	8.52E-03	7.00E-06
Arsenic	11.8	1.39E-02	1.14E-05
Barium	485	5.71E-01	4.69E-04
Beryllium	0.6	7.07E-04	5.81E-07
Cadmium	14.3	1.68E-02	1.38E-05
Cobalt	74.8	8.81E-02	7.23E-05
Copper	633	7.45E-01	6.12E-04
Chromium	715	8.42E-01	6.92E-04
Hexavalent Chromium	0.3	3.89E-04	3.19E-07
Lead	515	6.07E-01	4.98E-04
Manganese	3,775	4.45E+00	3.65E-03
Mercury	1.5	1.82E-03	1.50E-06
Nickel	565	6.66E-01	5.47E-04
Silver	2.6	3.00E-03	2.47E-06
Selenium	0.5	6.16E-04	5.06E-07
Thallium	0.2	2.50E-04	2.06E-07
Vanadium	74	8.72E-02	7.16E-05
Zinc	4,100	4.83E+00	3.97E-03

Note:
1. The metal concentrations are based on the analytical results from ENVIRON's dust samples collected in June 2013 and they are also found in Table B-5.

Table B-16. TAC Emissions from Various Combustion Devices and Storage Tanks
TAMCO Steel Mill
Rancho Cucamonga, California

Form ID - Line No. (from	Device Description	Equipment ID	Pollutant	CAS #	Annual Throughput[1]		Emission Factor[1]	Annual Emissions[1]	Heat Input Rating[2]	Max Hourly Emissions[3]
					Quantity	Unit	lb/throughput	lb/yr	MMBTU/hr	lb/hr
B1-1	ITAM Billet Furnace	D7	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	390.54	MMscf/yr	0.0001	3.91E-02		1.15E-05
B1-1	ITAM Billet Furnace	D7	Formaldehyde	50000	390.54	MMscf/yr	0.0036	1.41E+00		4.13E-04
B1-1	ITAM Billet Furnace	D7	Benzene	71432	390.54	MMscf/yr	0.0017	6.64E-01		1.95E-04
B1-1	ITAM Billet Furnace	D7	Ammonia	7664417	390.54	MMscf/yr	3.2	1.25E+03		3.67E-01
B1-1	ITAM Billet Furnace	D7	Naphthalene	91203	390.54	MMscf/yr	0.0003	1.17E-01		3.44E-05
B1-1	ITAM Billet Furnace	D7	Ethyl benzene	100414	390.54	MMscf/yr	0.002	7.81E-01	120.4	2.29E-04
B1-1	ITAM Billet Furnace	D7	Acrolein	107028	390.54	MMscf/yr	0.0008	3.12E-01		9.17E-05
B1-1	ITAM Billet Furnace	D7	Toluene	108883	390.54	MMscf/yr	0.0078	3.05E+00		8.94E-04
B1-1	ITAM Billet Furnace	D7	Hexane	110543	390.54	MMscf/yr	0.0013	5.08E-01		1.49E-04
B1-1	ITAM Billet Furnace	D7	Xylenes	1330207	390.54	MMscf/yr	0.0058	2.27E+00		6.65E-04
B1-1	ITAM Billet Furnace	D7	Acetaldehyde	75070	390.54	MMscf/yr	0.0009	3.51E-01		1.03E-04
B1-2	Vertical Ladle Heater	D1	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	19.18	MMscf/yr	0.0001	1.92E-03		1.13E-06
B1-2	Vertical Ladle Heater	D1	Formaldehyde	50000	19.18	MMscf/yr	0.0123	2.36E-01		1.39E-04
B1-2	Vertical Ladle Heater	D1	Benzene	71432	19.18	MMscf/yr	0.0058	1.11E-01		6.57E-05
B1-2	Vertical Ladle Heater	D1	Ammonia	7664417	19.18	MMscf/yr	3.2	6.14E+01		3.63E-02
B1-2	Vertical Ladle Heater	D1	Naphthalene	91203	19.18	MMscf/yr	0.0003	5.75E-03		3.40E-06
B1-2	Vertical Ladle Heater	D1	Ethyl benzene	100414	19.18	MMscf/yr	0.0069	1.32E-01	11.9	7.82E-05
B1-2	Vertical Ladle Heater	D1	Acrolein	107028	19.18	MMscf/yr	0.0027	5.18E-02		3.06E-05
B1-2	Vertical Ladle Heater	D1	Toluene	108883	19.18	MMscf/yr	0.0265	5.08E-01		3.00E-04
B1-2	Vertical Ladle Heater	D1	Hexane	110543	19.18	MMscf/yr	0.0046	8.82E-02		5.21E-05
B1-2	Vertical Ladle Heater	D1	Xylenes	1330207	19.18	MMscf/yr	0.0197	3.78E-01		2.23E-04
B1-2	Vertical Ladle Heater	D1	Acetaldehyde	75070	19.18	MMscf/yr	0.0031	5.95E-02		3.51E-05
B1-3	Electric Arc Furnace	D4	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	51.23	MMscf/yr	0.0001	5.12E-03		5.94E-06
B1-3	Electric Arc Furnace	D4	Formaldehyde	50000	51.23	MMscf/yr	0.0123	6.30E-01		7.31E-04
B1-3	Electric Arc Furnace	D4	Benzene	71432	51.23	MMscf/yr	0.0058	2.97E-01		3.45E-04
B1-3	Electric Arc Furnace	D4	Ammonia	7664417	51.23	MMscf/yr	3.2	1.64E+02		1.90E-01
B1-3	Electric Arc Furnace	D4	Naphthalene	91203	51.23	MMscf/yr	0.0003	1.54E-02		1.78E-05
B1-3	Electric Arc Furnace	D4	Ethyl benzene	100414	51.23	MMscf/yr	0.0069	3.53E-01	62.4	4.10E-04
B1-3	Electric Arc Furnace	D4	Acrolein	107028	51.23	MMscf/yr	0.0027	1.38E-01		1.60E-04
B1-3	Electric Arc Furnace	D4	Toluene	108883	51.23	MMscf/yr	0.0265	1.36E+00		1.57E-03
B1-3	Electric Arc Furnace	D4	Hexane	110543	51.23	MMscf/yr	0.00460	2.36E-01		2.73E-04
B1-3	Electric Arc Furnace	D4	Xylenes	1330207	51.23	MMscf/yr	0.0197	1.01E+00		1.17E-03
B1-3	Electric Arc Furnace	D4	Acetaldehyde	75070	51.23	MMscf/yr	0.0031	1.59E-01		1.84E-04
B1-4	South Ladle Heater	D2	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	37.10	MMscf/yr	0.0001	3.71E-03		1.56E-06
B1-4	South Ladle Heater	D2	Formaldehyde	50000	37.10	MMscf/yr	0.012	4.56E-01		1.92E-04
B1-4	South Ladle Heater	D2	Benzene	71432	37.10	MMscf/yr	0.0058	2.15E-01		9.06E-05
B1-4	South Ladle Heater	D2	Ammonia	7664417	37.10	MMscf/yr	3.2	1.19E+02		5.00E-02
B1-4	South Ladle Heater	D2	Naphthalene	91203	37.10	MMscf/yr	0.0003	1.11E-02		4.69E-06
B1-4	South Ladle Heater	D2	Ethyl benzene	100414	37.10	MMscf/yr	0.0069	2.56E-01	16.4	1.08E-04
B1-4	South Ladle Heater	D2	Acrolein	107028	37.10	MMscf/yr	0.0027	1.00E-01		4.22E-05
B1-4	South Ladle Heater	D2	Toluene	108883	37.10	MMscf/yr	0.0265	9.83E-01		4.14E-04
B1-4	South Ladle Heater	D2	Hexane	110543	37.10	MMscf/yr	0.0046	1.71E-01		7.18E-05
B1-4	South Ladle Heater	D2	Xylenes	1330207	37.10	MMscf/yr	0.0197	7.31E-01		3.08E-04
B1-4	South Ladle Heater	D2	Acetaldehyde	75070	37.10	MMscf/yr	0.0031	1.15E-01		4.84E-05
B1-5	North Ladle Heater	D3	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	34.83	MMscf/yr	0.0001	3.48E-03		1.56E-06
B1-5	North Ladle Heater	D3	Formaldehyde	50000	34.83	MMscf/yr	0.012	4.28E-01		1.92E-04
B1-5	North Ladle Heater	D3	Benzene	71432	34.83	MMscf/yr	0.0058	2.02E-01		9.06E-05
B1-5	North Ladle Heater	D3	Ammonia	7664417	34.83	MMscf/yr	3.2	1.11E+02		5.00E-02
B1-5	North Ladle Heater	D3	Naphthalene	91203	34.83	MMscf/yr	0.0003	1.04E-02		4.69E-06
B1-5	North Ladle Heater	D3	Ethyl benzene	100414	34.83	MMscf/yr	0.0069	2.40E-01	16.4	1.08E-04
B1-5	North Ladle Heater	D3	Acrolein	107028	34.83	MMscf/yr	0.0027	9.40E-02		4.22E-05
B1-5	North Ladle Heater	D3	Toluene	108883	34.83	MMscf/yr	0.0265	9.23E-01		4.14E-04
B1-5	North Ladle Heater	D3	Hexane	110543	34.83	MMscf/yr	0.0046	1.60E-01		7.18E-05
B1-5	North Ladle Heater	D3	Xylenes	1330207	34.83	MMscf/yr	0.0197	6.86E-01		3.08E-04
B1-5	North Ladle Heater	D3	Acetaldehyde	75070	34.83	MMscf/yr	0.0031	1.08E-01		4.84E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	1.97	MMscf/yr	0.0001	1.97E-04		1.90E-07
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Formaldehyde	50000	1.97	MMscf/yr	0.017	3.35E-02		3.24E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Benzene	71432	1.97	MMscf/yr	0.008	1.58E-02		1.52E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Ammonia	7664417	1.97	MMscf/yr	3.2	6.30E+00		6.10E-03
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Naphthalene	91203	1.97	MMscf/yr	0.0003	5.91E-04		5.71E-07
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Ethyl benzene	100414	1.97	MMscf/yr	0.0095	1.87E-02	2	1.81E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Acrolein	107028	1.97	MMscf/yr	0.0027	5.32E-03		5.14E-06
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Toluene	108883	1.97	MMscf/yr	0.0366	7.21E-02		6.97E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Hexane	110543	1.97	MMscf/yr	0.0063	1.24E-02		1.20E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Xylenes	1330207	1.97	MMscf/yr	0.0272	5.36E-02		5.18E-05
B1U-1	Meltshop 219 Exempt Equipment	Exempt	Acetaldehyde	75070	1.97	MMscf/yr	0.0043	8.47E-03		8.19E-06
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	2.37	MMscf/yr	0.0001	2.37E-04		1.90E-07
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Formaldehyde	50000	2.37	MMscf/yr	0.017	4.03E-02		3.24E-05
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Benzene	71432	2.37	MMscf/yr	0.008	1.90E-02		1.52E-05
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Ammonia	7664417	2.37	MMscf/yr	3.2	7.58E+00		6.10E-03
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Naphthalene	91203	2.37	MMscf/yr	0.0003	7.11E-04		5.71E-07
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Ethyl benzene	100414	2.37	MMscf/yr	0.0095	2.25E-02	2	1.81E-05
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Acrolein	107028	2.37	MMscf/yr	0.0027	6.40E-03		5.14E-06
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Toluene	108883	2.37	MMscf/yr	0.0366	8.67E-02		6.97E-05
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Hexane	110543	2.37	MMscf/yr	0.0063	1.49E-02		1.20E-05
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Xylenes	1330207	2.37	MMscf/yr	0.0272	6.45E-02		5.18E-05
B1U-2	Rolling Mill 219 Exempt Equipment	Exempt	Acetaldehyde	75070	2.37	MMscf/yr	0.0043	1.02E-02		8.19E-06
B1U-3	South Tundish Heater	Exempt	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	4.11	MMscf/yr	0.0001	4.11E-04		1.90E-07
B1U-3	South Tundish Heater	Exempt	Formaldehyde	50000	4.11	MMscf/yr	0.017	6.99E-02		3.24E-05
B1U-3	South Tundish Heater	Exempt	Benzene	71432	4.11	MMscf/yr	0.008	3.29E-02		1.52E-05
B1U-3	South Tundish Heater	Exempt	Ammonia	7664417	4.11	MMscf/yr	3.2	1.32E+01		6.10E-03
B1U-3	South Tundish Heater	Exempt	Naphthalene	91203	4.11	MMscf/yr	0.0003	1.23E-03		5.71E-07
B1U-3	South Tundish Heater	Exempt	Ethyl benzene	100414	4.11	MMscf/yr	0.0095	3.90E-02	2	1.81E-05
B1U-3	South Tundish Heater	Exempt	Acrolein	107028	4.11	MMscf/yr	0.0027	1.11E-02		5.14E-06
B1U-3	South Tundish Heater	Exempt	Toluene	108883	4.11	MMscf/yr	0.0366	1.50E-01		6.97E-05
B1U-3	South Tundish Heater	Exempt	Hexane	110543	4.11	MMscf/yr	0.0063	2.59E-02		1.20E-05
B1U-3	South Tundish Heater	Exempt	Xylenes	1330207	4.11	MMscf/yr	0.0272	1.12E-01		5.18E-05
B1U-3	South Tundish Heater	Exempt	Acetaldehyde	75070	4.11	MMscf/yr	0.0043	1.77E-02		8.19E-06
B1U-4	North Tundish Heater	Exempt	Polynuclear Aromatic Hydrocarbons (PAHs)	1151	4.07	MMscf/yr	0.0001	4.07E-04		1.90E-07
B1U-4	North Tundish Heater	Exempt	Formaldehyde	50000	4.07	MMscf/yr	0.017	6.92E-02		3.24E-05
B1U-4	North Tundish Heater	Exempt	Benzene	71432	4.07	MMscf/yr	0.008	3.26E-02		1.52E-05
B1U-4	North Tundish Heater	Exempt	Ammonia	7664417	4.07	MMscf/yr	3.2	1.30E+01		6.10E-03
B1U-4	North Tundish Heater	Exempt	Naphthalene	91203	4.07	MMscf/yr	0.0003	1.22E-03		5.71E-07
B1U-4	North Tundish Heater	Exempt	Ethyl benzene	100414	4.07	MMscf/yr	0.0095	3.87E-02	2	1.81E-05
B1U-4	North Tundish Heater	Exempt	Acrolein	107028	4.07	MMscf/yr	0.0027	1.10E-02		5.14E-06
B1U-4	North Tundish Heater	Exempt	Toluene	108883	4.07	MMscf/yr	0.0366	1.49E-01		6.97E-05
B1U-4	North Tundish Heater	Exempt	Hexane	110543	4.07	MMscf/yr	0.0063	2.56E-02		1.20E-05
B1U-4	North Tundish Heater	Exempt	Xylenes	1330207	4.07	MMscf/yr	0.027200	1.11E-01		5.18E-05
B1U-4	North Tundish Heater	Exempt	Acetaldehyde	75070	4.07	MMscf/yr	0.0043	1.75E-02		8.19E-06
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Hexane	110543	3.38	1000 gals/yr	0.0144	4.87E-02	See Note 3	3.51E-05

Table B-16. TAC Emissions from Various Combustion Devices and Storage Tanks
TAMCO Steel Mill
Rancho Cucamonga, California

Form ID - Line No. (from	Device Description	Equipment ID	Pollutant	CAS #	Annual Throughput[1]		Emission Factor[1]	Annual Emissions[1]	Heat Input Rating[2]	Max Hourly Emissions[3]
					Quantity	Unit	lb/throughput	lb/yr	MMBTU/hr	lb/hr
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Benzene	71432	3.38	1000 gals/yr	0.0259	8.76E-02	See Note 3	6.32E-05
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Toluene	108883	3.38	1000 gals/yr	0.1008	3.41E-01	See Note 3	2.46E-04
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Ethylbenzene	100414	3.38	1000 gals/yr	0.0202	6.81E-02	See Note 3	4.91E-05
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Xylenes	1330207	3.38	1000 gals/yr	0.1008	3.41E-01	See Note 3	2.46E-04
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Isopropyl benzene	98828	3.38	1000 gals/yr	0.0072	2.43E-02	See Note 3	1.76E-05
B4-2	Fuel Dispensing Facility (Gasoline)	D14	1,2,4-Trimethylbenzene	95636	3.38	1000 gals/yr	0.0360	1.22E-01	See Note 3	8.78E-05
B4-2	Fuel Dispensing Facility (Gasoline)	D14	Cyclohexane	110827	3.38	1000 gals/yr	0.0035	1.17E-02	See Note 3	8.42E-06
B4U-1	Fuel Dispensing Facility (Diesel)	-	Toluene	108883	115.68	1000 gals/yr	0.00001	9.72E-04	See Note 3	7.01E-07
B4U-1	Fuel Dispensing Facility (Diesel)	-	Ethylbenzene	100414	115.68	1000 gals/yr	0.000003	3.24E-04	See Note 3	2.34E-07
B4U-1	Fuel Dispensing Facility (Diesel)	-	Xylenes	1330207	115.68	1000 gals/yr	0.0001	9.39E-03	See Note 3	6.77E-06
B4U-1	Fuel Dispensing Facility (Diesel)	-	1,2,4-Trimethylbenzene	95636	115.68	1000 gals/yr	0.0003	3.24E-02	See Note 3	2.34E-05

P:\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\Emissions\[2011 Gerdau HARP emissions_rev2015.xlsx]T-B16 Combustion Sources

Notes:
1. Annual emissions were calculated based on the 2011 throughout data and the AQMD default emission factors for fuel combustion per Appendix B of Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory. For emissions of TACs from baghouse, See Table B-1.
2. The heat input ratings for these combustion sources were obtained from the Title V permit or provided by TAMCO. For exempt sources, it is assumed 2 MMBtu/hr per Rule 219.
3. The maximum hourly emissions for the combustion devices using natural gas as fuel have been calculated using the maximum hourly heat input rating. For the dispensing station, the hours of operation has been calculated using a 8 hr/day, 5 days/week and 52 weeks/yr schedule.

Calculation Factors

1050	Btu/scf; HHV of Natural Gas
2080	hrs/year (operating hours for the gasoline dispensing station (8 hrs/day, 5 days/week,52 weeks/year)
1.5	Factor for converting average hourly emissions to maximum 1-hr emissions
1.44	lb/1,000 gal; gasoline underground storage tanks
0.028	lb/1,000 gal; diesel underground storage tanks

Appendix C

Annual and Maximum Hourly Concentrations at MEIR, MEIW, PMI, and Monitors

Table C-1. Comparison of the Ambient Monitoring and the Modeled Concentrations
TAMCO Steel Mill
Rancho Cucamonga, California

Monitor ID	Location	Nickel Concentration (ug/m^3)						
		Ambient Monitoring[1]		MATESIV Background at Fontana	Modeled Annual Concentration (ug/m3)	AERMOD Modeling[2] + Background[4] (annual average)	Monitor/Model	
		All Data	Exclude Santa Ana Wind				All Data	Exclude Santa Ana Wind
#1	SA Recycling	0.011	0.010	0.004	0.003	0.007	1.6	1.5
#2	S. Baghouse	0.013	0.012	0.004	0.013	0.017	0.8	0.7
#3	N Office	0.016	0.016	0.004	0.017	0.021	0.7	0.7
#4	E Fenceline	0.012	0.012	0.004	0.005	0.009	1.4	1.4
						Averages	**1.1**	**1.1**

Monitor ID	Location	Manganese Concentration (ug/m3)						
		Ambient Monitoring[1]		MATESIV Background at Fontana	Modeled Annual Concentration (ug/m3)	AERMOD Modeling[2] + Background[4] (annual average)	Monitor/Model	
		All Data	Exclude Santa Ana Wind				All Data	Exclude Santa Ana Wind
#1	SA Recycling	0.265	0.253	0.056	0.140	0.196	1.3	1.3
#2	S. Baghouse	0.272	0.199	0.056	0.177	0.233	1.2	0.9
#3	N Office	0.380	0.366	0.056	0.219	0.275	1.4	1.3
#4	E Fenceline	0.401	0.392	0.056	0.165	0.221	1.8	1.8
						Averages	**1.4**	**1.3**

Monitor ID	Location	Lead Concentration (ug/m3)						
		Ambient Monitoring[3]		MATESIV Background at Fontana	Modeled Annual Concentration (ug/m3)	AERMOD Modeling[2] + Background[4] (annual average)	Monitor/Model	
		All Data	Exclude Santa Ana Wind				All Data	Exclude Santa Ana Wind
#1	SA Recycling	0.025	0.023	0.010	0.019	0.029	0.9	0.8
#2	S. Baghouse	0.108	0.057	0.010	0.176	0.186	0.6	0.3
#3	N Office	0.048	0.047	0.010	0.053	0.063	0.8	0.8
#4	E Fenceline	0.035	0.035	0.010	0.034	0.044	0.8	0.8
						Averages	**0.8**	**0.7**

Average of averages	**1.1**	**1.0**

\\wclaofps1\projects\G\Gerdau\0528453C Ameristeel Lit Support\HRA_rev2015\Report\App C - GLC\[Monitors GLC_AVRG_revised_2015.xlsx]Table C- 2

Notes:
1. Based on the daily average monitoring concentration during October 2012 through October 2013.
2. Based on the annual average concentration from the HARP output
3. Based on the daily average monitoring concentration during February 2013 through February 2014.
4. Background concentrations are based on the MATES IV data at Fontana.

Table C-2. Ground Level Concentrations at Maximum Locations
TAMCO Steel Mill
Rancho Cucamonga, California

		1-hr Concentration		Annual Concentration			
		AHI MEIR	AHI MEIW/PMI	Cancer MEIR	Cancer MEIW	CHI MEIR	CHI MEIW
		Rec 1501	Rec 4146	Rec 1351	Rec 974	Rec 1351	Rec 1106
Chemical	CAS	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
1,1,2,2-Tetrachloroethane	79345	1.92E-05	3.87E-04	1.41E-08	6.99E-08	1.41E-08	1.92E-07
1,1,2-Trichloroethane	79005	1.16E-05	2.33E-04	8.52E-09	4.23E-08	8.52E-09	1.16E-07
1,2,4-Trimethylbenzene	95636	8.28E-02	4.75E-01	1.58E-04	6.19E-04	1.58E-04	9.94E-04
1,2-Dichloropropane	78875	9.88E-06	1.99E-04	7.26E-09	3.61E-08	7.26E-09	9.91E-08
1,3-Butadiene	106990	5.45E-02	3.11E-01	1.00E-04	3.95E-04	1.00E-04	6.45E-04
1,3-Dichloropropene	542756	9.66E-06	1.94E-04	7.10E-09	3.52E-08	7.10E-09	9.68E-08
Acetaldehyde	75070	5.23E-02	3.31E-01	1.11E-04	5.77E-04	1.11E-04	6.72E-04
Acrolein	107028	1.50E-02	1.20E-01	3.93E-05	2.72E-04	3.93E-05	2.21E-04
Aluminum	7429905	1.91E+00	9.36E+00	1.75E-02	5.80E-02	1.75E-02	3.13E-01
Ammonia	7664417	1.73E+00	1.91E+01	2.37E-02	2.19E-01	2.37E-02	1.20E-01
Antimony	7440360	1.03E-03	5.68E-03	5.36E-06	1.97E-05	5.36E-06	6.21E-05
Arsenic	7440382	2.34E-03	1.61E-02	2.90E-05	1.68E-04	2.90E-05	2.11E-04
Barium	7440393	1.03E-01	4.62E-01	6.12E-04	2.13E-03	6.12E-04	9.24E-03
Benzene	71432	2.28E-01	1.31E+00	4.56E-04	2.05E-03	4.56E-04	2.82E-03
Beryllium	7440417	3.28E-04	1.40E-03	2.52E-06	1.24E-05	2.52E-06	2.39E-05
Cadmium	7440439	2.41E-02	2.32E-01	5.87E-04	4.58E-03	5.87E-04	1.68E-03
Carbon tetrachloride	56235	1.35E-05	2.71E-04	9.88E-09	4.91E-08	9.88E-09	1.35E-07
Chlorine	7782505	2.67E-02	1.49E-01	4.98E-05	1.95E-04	4.98E-05	3.18E-04
Chloroform	67663	1.04E-05	2.09E-04	7.64E-09	3.80E-08	7.64E-09	1.04E-07
Chromium	7440473	2.25E-01	1.11E+00	1.98E-03	1.07E-02	1.98E-03	1.98E-02
Chromium VI	18540299	1.92E-03	1.86E-02	4.75E-05	3.72E-04	4.75E-05	1.36E-04
Cobalt	7440484	6.06E-03	4.78E-02	4.19E-05	1.55E-04	4.19E-05	4.71E-04
Copper	7440508	2.64E-01	2.12E+00	4.85E-03	3.50E-02	4.85E-03	2.08E-02
Cyclohexane	110827	9.17E-05	1.53E-03	4.56E-07	1.64E-06	4.56E-07	1.52E-06
Dioxin and Furan	1086	1.98E-07	1.94E-06	3.40E-09	2.68E-08	3.40E-09	9.16E-09
DPM	9901	2.27E+00	8.62E+00	9.10E-03	8.16E-02	9.10E-03	2.62E-02
Ethyl benzene	100414	1.01E-01	5.91E-01	2.26E-04	1.20E-03	2.26E-04	1.33E-03
Ethylene dibromide	106934	1.61E-05	3.25E-04	1.18E-08	5.88E-08	1.18E-08	1.62E-07
Ethylene dichloride	107062	8.55E-06	1.72E-04	6.28E-09	3.12E-08	6.28E-09	8.57E-08
Formaldehyde	50000	2.24E-01	1.51E+00	4.64E-04	2.38E-03	4.64E-04	2.85E-03
Fluorides	1101	7.37E+00	7.25E+01	1.86E-01	1.47E+00	1.86E-01	5.02E-01
Hexane	110543	8.79E-02	5.08E-01	1.88E-04	9.44E-04	1.88E-04	1.12E-03
Isopropyl benzene	98828	1.92E-04	3.20E-03	9.48E-07	3.40E-06	9.48E-07	3.16E-06
Lead	7439921	4.13E-01	3.89E+00	9.59E-03	7.40E-02	9.59E-03	2.95E-02
Manganese	7439965	2.34E+00	8.99E+00	1.82E-02	8.77E-02	1.82E-02	2.30E-01
Mercury	7439976	4.63E-02	4.55E-01	1.20E-03	9.48E-03	1.20E-03	3.25E-03
Methanol	67561	4.78E-02	3.00E-01	8.64E-05	3.41E-04	8.64E-05	5.65E-04
Methyl ethyl ketone	78933	3.89E-03	2.17E-02	7.23E-06	2.84E-05	7.23E-06	4.62E-05
Methyl tert-butyl ether	1634044	1.21E-01	6.74E-01	2.25E-04	8.81E-04	2.25E-04	1.44E-03
Methylene chloride	75092	3.12E-05	6.28E-04	2.29E-08	1.14E-07	2.29E-08	3.13E-07
m-Xylene	108383	2.89E-01	1.61E+00	5.36E-04	2.10E-03	5.36E-04	3.43E-03
Naphthalene	91203	8.66E-03	5.03E-02	1.80E-05	8.24E-05	1.80E-05	1.12E-04
Nickel	7440020	7.63E-02	5.98E-01	8.93E-04	5.61E-03	8.93E-04	5.27E-03
o-Xylene	95476	1.01E-01	5.62E-01	1.87E-04	7.35E-04	1.87E-04	1.20E-03
PAHs, total	1151	5.39E-05	5.94E-04	7.39E-07	6.84E-06	7.39E-07	3.76E-06
Phosphorus	7723140	2.92E-02	6.60E-02	3.85E-05	1.53E-04	3.85E-05	7.05E-05
Selenium	7782492	4.32E-04	2.21E-03	4.91E-06	1.42E-05	4.91E-06	4.59E-05
Silver	7440224	3.48E-04	1.97E-03	2.17E-06	7.72E-06	2.17E-06	2.93E-05
Styrene	100425	8.44E-03	4.72E-02	1.57E-05	6.17E-05	1.57E-05	1.01E-04
Thallium	7440280	9.44E-05	3.17E-04	4.67E-07	1.58E-06	4.67E-07	7.43E-06
Toluene	108883	4.57E-01	2.66E+00	9.95E-04	5.09E-03	9.95E-04	5.91E-03
Vanadium	7440622	3.56E-02	1.18E-01	2.06E-04	6.91E-04	2.06E-04	3.52E-03
Vinyl chloride	75014	5.44E-06	1.09E-04	4.00E-09	1.98E-08	4.00E-09	5.45E-08
Xylenes	1330207	1.31E-02	1.62E-01	1.35E-04	1.41E-03	1.35E-04	5.09E-04
Zinc	7440666	4.73E+00	4.51E+01	1.12E-01	8.74E-01	1.12E-01	3.33E-01

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Appendix D

AERMOD Modeling Files

Appendix D
Description of Submitted AERMOD files in CD-ROM

1. readme_AERMOD input files.xlsx
    a. Includes a complete list of AERMOD input files submitted
2. \BPIP
    a. Includes building downwash input and output files for point sources
3. \Census
    a. Includes AERMOD input (*.ami) and output files (*.plt) for census receptors
    b. AERMOD output files (*.plt) used for HARP Onramp processing
4. \Grid
    a. Includes AERMOD input (*.ami) and output files (*.plt) for grid and boundary receptors
    b. AERMOD output files (*.plt) used for HARP Onramp processing
5. \Monitor
    a. Includes AERMOD input (*.ami) and output files (*.plt) for TAMCO montiors
    b. AERMOD output files (*.plt) used for HARP Onramp processing
6. \Sensitive
    a. Includes AERMOD input (*.ami) and output files (*.plt) for sensitive receptors
    b. AERMOD output files (*.plt) used for HARP Onramp processing
7. \Met
    a. AERMOD surface and profile files: font6.SFC and font6. PFL
8. \Terrain
    a. Includes NED data (n34w118.tif and n35w118.tif)for AERMAP runs
9. \PbNAAQS
    a. Includes AERMOD input (*.ami) for lead emission sources and hourly emission rate file (EAF2.hrl)
    b. \output
        i. AERMOD post files (*.pst) for boundary receptors
    c. \output-grid
        i. AERMOD post files (*.pst) for grid receptors
    d. \LEADPOST
        i. \Bdry: LEADPOST files for boundary receptors
        ii. \Gid: LEADPOST files for grid receptors

Appendix E

HARP Files

Appendix E
Description of Submitted HARP Files in CD-ROM

1. Site parameters
    a. Gerdau AB2588.sit – HARP Site-specific parameters used for residential risk modeling scenario
    b. Gerdau AB2588-worker.sit – HARP Site-specific parameters used for worker risk modeling scenario
2. EMS files
    a. Based on 2011 emissions inventory
    b. TAMCO emissions_2011_with Emergency DICEs.ems – unmitigated emission file from HARP for ALL sources
    c. TAMCO emissions_2011_without Emergency DICEs.ems – unmitigated emission file from HARP for all sources except for diesel emergency generators (Emergency DICEs)
    d. TAMCO emissions_2011mit_with Emergency DICEs.ems – mitigated emission file from HARP for ALL sources
3. Tra files
    a. HARP traction files for the following scenarios
    b. 2011_rev2015 – All sources with unmitigated emissions
    c. 2011_rev2015_woEG.tra – All sources except for Emergency DICEs with unmitigated emissions
    d. 2011mit_rev2015.tra -– All sources with mitigated emissions
    e. 2011_Emg_DICEs.tra – Emergency DICEs only with unmitigated emissions
4. HARP onramp
    a. Source-receptor and XOQ files created by HARP On-Ramp fro grid, census, montior, and sensitive receptors.
5. HARP risk reports_census receptors
    a. Includes risk HARP risk reports, *.RSK files (point estimate risk values), and csv files (ground level concentrations, emission data; source and receptor lists) generated by HARP for census receptors for the following scenarios
    b. \emergency DICEs – risk reports for the Emergency DICEs only
    c. \with emergency DICEs – risk reports for all sources based on unmitigated emissions
    d. \without emergency DICEs – risk reports for all sources except for Emergency DICEs based on unmitigated emissions
6. HARP risk reports_grid receptors
    a. Includes risk HARP risk reports, *.RSK files (point estimate risk values generated by HARP), and csv files (ground level concentrations, emission data; source and receptor lists) for grid receptors for the following scenarios
    b. \emergency DICEs – risk reports for the Emergency DICEs
    c. \with emergency DICEs – risk reports for all sources based on unmitigated and mitigated emissions
    d. \without emergency DICEs – risk reports for all sources except for Emergency DICEs based on unmitigated emissions

   e. \mitigated with Emergency DICEs – risk reports for all sources based on emissions
7. HARP risk reports_sensitive receptors
   a. Includes risk HARP risk reports, *.RSK files (point estimate risk values), and csv files (ground level concentrations, emission data; source and receptor lists) generated by HARP for sensitive receptors for the following scenarios
   b. \emergency DICEs – risk reports for the Emergency DICEs
   c. \with emergency DICEs – risk reports for all sources based on unmitigated emissions
   d. \without emergency DICEs – risk reports for all sources except for Emergency DICEs based on unmitigated emissions

Appendix F

Emission Calculations and Risk Summary for the Current Mitigation Measures

Appendix F
Emission Calculations and Risk Summary for the Current Mitigation Measures

Because that TAMCO has already implemented measures to reduce toxic air contaminant (TAC) emissions, ENVIRON evaluate the worker cancer risk and hazard index (HI) for the following mitigated scenarios:

- Mitigation 1: Increased roadway sweeping using a PM_{10} efficient sweeper and applied chemical dust suppressants on unpaved roads and storage piles; and
- Mitigation 2: Rented a solar powered light tower to assist Gerdau to develop plans to convert the diesel light towers to solar or electric operation.

This analysis focused on risks for worker exposure only as the residential cancer risk and HI are below the SCAQMD Rule 1402 action level for a risk reduction plan.

Emissions

ENVIRON calculated the mitigated TAC emissions for the entrained road dust using the site-specific silt data (as shown in Table F-1) from the sampling results collected in 2013. We followed the same methodology for emission calculations as described in Section 2.2.2. Tables F-2 through F-5 show the calculated TAC emissions for the entrained road dust. We zeroed out diesel particulate matter (DPM) emissions from the light stands as they have been converted to solar-powered engines. For other sources, the unmitigated TAC emissions were used in this analysis.

Dispersion Modeling

ENVIRON followed the same modeling assumptions as discussed in Chapter 3 because there are no source configuration changes as a result of these mitigation measures.

Cancer Risk and HI Results

As discussed in Chapter 4, ENVIRON used HARP to estimate risk and HI associated with the TAC emissions from TAMCO. Table F-6 shows the cancer risk, chronic HI (HIC), and acute HI (HIA) at the maximally exposed individual worker (MEIW). Compare to the results for the unmitigated scenario, we found that the HIC and HIA at the MEIW will decrease from 3.48 to 2.73 and from 3.04 to 2.88, respectively and are below the SCAQMD action level for a risk reduction plan of 3. These reductions are due to the decrease in the road dust contribution as a result of lower silt content on the roadways caused by improved street sweeping and other housekeeping measures.

Because all the diesel light towers are converted to solar power, along with the cancer risk reduction from the road dust controls discussed above, cancer risk at the MEIW will decrease from 24.6 in a million to 20.2 in a million, which is below the SCAQMD action level for a risk reduction plan of 25 in a million.

Table F-1. Average Silt Loading or Silt Content by Route Group
TAMCO Steel Mill
Rancho Cucamonga, California

Road Surface	Sample ID	Location ID	Approximate Area Sampled (ft^2)	Approximate Area Sampled (m^2)	Silt Mass (g)	Total Sample Mass (g)	Silt Loading or Silt Content (g/m^2 or %)	Route Group	Average Silt Loading or Content (g/m^2 or %)
Paved	P7	P7	197	18.3	17.68	49.69	0.97	1	8.71
Paved	P6	P6	119	11.1	22.66	67.02	2.05	1	8.71
Paved	P3	P3	210	19.5	49.07	113.84	2.52	1	8.71
Paved	U5	U5	5	0.5	13.62	70.28	29.32	1	8.71
Paved	P2	P2A, P2B, P2C	164	15.2	25.99	111.37	1.71	2	16.32
Paved	P4	P4	7	0.7	11.67	27.54	17.94	2	16.32
Paved	U5	U5	5	0.5	13.62	70.28	29.32	2	16.32
Paved	P11	P11	84	7.8	15.07	130.04	1.93	3	1.31
Paved	P5	P5	236	21.9	20.88	74.78	0.95	3	1.31
Paved	P1	P1A, P1B, P1C	166	15.4	14.43	102.77	0.94	3	1.31
Paved	P9	P9	266	24.7	19.94	56.29	0.81	3	1.31
Paved	P10	P10	143	13.3	23.66	122.31	1.78	3	1.31
Paved	P8	P8	103	9.6	14.1	117.33	1.47	3	1.31
Unpaved	U4	U4	26	2.4	1.33	97.83	1%	3	4%
Unpaved	U2	U2	1	0.1	2.45	130.04	2%	3	4%
Unpaved	U3	U3	1	0.1	7.81	95.75	8%	3	4%
Unpaved	U1	U1	2	0.1	6.88	204.57	3%	3	4%
Unpaved	U6	U6	2	0.2	7.35	99.77	7%	3	4%

\\wclaofps1\projects\G\Gerdau\0528453C Ameristeel Lit Support\ATIR\[Road Dust Emission Estimation 2011 mitigated rev2015.xlsx]avg Silt fraction (2011 mit)

Table F-2. Mitigated Entrained Road Dust Toxic Metal Emission Factors - Paved Road
TAMCO Steel Mill
Rancho Cucamonga, California

Route Group		Chemicals	CAS #	TAC Concentration[1] (mg/kg)	Silt Loading[2] (g/m^2)	Vehicle Weight (tons)	Annual PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Annual Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)	Hourly PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Hourly Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)
1	Scrap Delivery	Aluminum	7429-90-5	10,475	8.71	1	0.02	1.62E-04	0.02	1.65E-04
1		Antimony	7440-36-0	7	8.71	1	0.02	1.12E-07	0.02	1.14E-07
1		Arsenic	7440-38-2	12	8.71	1	0.02	1.83E-07	0.02	1.86E-07
1		Barium	7440-39-3	485	8.71	1	0.02	7.51E-06	0.02	7.65E-06
1		Beryllium	7440-41-7	1	8.71	1	0.02	9.29E-09	0.02	9.47E-09
1		Cadmium	7440-43-9	14	8.71	1	0.02	2.21E-07	0.02	2.25E-07
1		Chromium	7440-47-3	715	8.71	1	0.02	1.11E-05	0.02	1.13E-05
1		Cobalt	7440-48-4	75	8.71	1	0.02	1.16E-06	0.02	1.18E-06
1		Copper	7440-50-8	633	8.71	1	0.02	9.79E-06	0.02	9.98E-06
1		Lead	7439-92-1	515	8.71	1	0.02	7.97E-06	0.02	8.12E-06
1		Manganese	7439-96-5	3,775	8.71	1	0.02	5.84E-05	0.02	5.96E-05
1		Nickel	7440-02-0	565	8.71	1	0.02	8.75E-06	0.02	8.91E-06
1		Selenium	7782-49-2	1	8.71	1	0.02	8.09E-09	0.02	8.24E-09
1		Silver	7440-22-4	3	8.71	1	0.02	3.95E-08	0.02	4.02E-08
1		Thallium	7440-28-0	0.2	8.71	1	0.02	3.29E-09	0.02	3.35E-09
1		Vanadium	7440-62-2	74	8.71	1	0.02	1.15E-06	0.02	1.17E-06
1		Zinc	7440-66-6	4,100	8.71	1	0.02	6.35E-05	0.02	6.47E-05
1		Chromium VI	18540-29-9	0.3	8.71	1	0.02	5.11E-09	0.02	5.21E-09
1		Mercury	7439-97-6	2	8.71	1	0.02	2.40E-08	0.02	2.44E-08
2	Delivery from Scrap Yard to Melt Shop	Aluminum	7429-90-5	9,500	16.32	1	0.03	2.60E-04	0.03	2.65E-04
2		Antimony	7440-36-0	7	16.32	1	0.03	2.04E-07	0.03	2.08E-07
2		Arsenic	7440-38-2	10	16.32	1	0.03	2.84E-07	0.03	2.90E-07
2		Barium	7440-39-3	497	16.32	1	0.03	1.36E-05	0.03	1.39E-05
2		Beryllium	7440-41-7	0.4	16.32	1	0.03	1.22E-08	0.03	1.24E-08
2		Cadmium	7440-43-9	13	16.32	1	0.03	3.49E-07	0.03	3.56E-07
2		Chromium	7440-47-3	500	16.32	1	0.03	1.37E-05	0.03	1.40E-05
2		Cobalt	7440-48-4	64	16.32	1	0.03	1.75E-06	0.03	1.78E-06
2		Copper	7440-50-8	523	16.32	1	0.03	1.43E-05	0.03	1.46E-05
2		Lead	7439-92-1	510	16.32	1	0.03	1.40E-05	0.03	1.42E-05
2		Manganese	7439-96-5	3,600	16.32	1	0.03	9.87E-05	0.03	1.01E-04
2		Nickel	7440-02-0	426	16.32	1	0.03	1.17E-05	0.03	1.19E-05
2		Selenium	7782-49-2	1	16.32	1	0.03	1.42E-08	0.03	1.44E-08
2		Silver	7440-22-4	2	16.32	1	0.03	6.67E-08	0.03	6.80E-08
2		Thallium	7440-28-0	0	16.32	1	0.03	4.84E-09	0.03	4.93E-09
2		Vanadium	7440-62-2	80	16.32	1	0.03	2.18E-06	0.03	2.23E-06
2		Zinc	7440-66-6	3,433	16.32	1	0.03	9.41E-05	0.03	9.59E-05
2		Chromium VI	18540-29-9	0.4	16.32	1	0.03	1.06E-08	0.03	1.08E-08
2		Mercury	7439-97-6	3	16.32	1	0.03	7.22E-08	0.03	7.36E-08
3	Other Truck Routes	Aluminum	7429-90-5	12,600	1.31	1	0.00	3.49E-05	0.00	3.55E-05
3		Antimony	7440-36-0	2	1.31	1	0.00	6.39E-09	0.00	6.51E-09
3		Arsenic	7440-38-2	6	1.31	1	0.00	1.57E-08	0.00	1.60E-08
3		Barium	7440-39-3	362	1.31	1	0.00	1.00E-06	0.00	1.02E-06
3		Beryllium	7440-41-7	1	1.31	1	0.00	2.02E-09	0.00	2.05E-09
3		Cadmium	7440-43-9	4	1.31	1	0.00	1.24E-08	0.00	1.26E-08
3		Chromium	7440-47-3	685	1.31	1	0.00	1.90E-06	0.00	1.93E-06
3		Cobalt	7440-48-4	17	1.31	1	0.00	4.76E-08	0.00	4.85E-08
3		Copper	7440-50-8	345	1.31	1	0.00	9.56E-07	0.00	9.74E-07
3		Lead	7439-92-1	169	1.31	1	0.00	4.68E-07	0.00	4.77E-07
3		Manganese	7439-96-5	8,600	1.31	1	0.00	2.38E-05	0.00	2.42E-05

Table F-2. Mitigated Entrained Road Dust Toxic Metal Emission Factors - Paved Road
TAMCO Steel Mill
Rancho Cucamonga, California

Route Group		Chemicals	CAS #	TAC Concentration[1] (mg/kg)	Silt Loading[2] (g/m^2)	Vehicle Weight (tons)	Annual PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Annual Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)	Hourly PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Hourly Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)
3	Other Truck Routes	Nickel	7440-02-0	137	1.31	1	0.00	3.79E-07	0.00	3.86E-07
3		Selenium	7782-49-2	1	1.31	1	0.00	1.82E-09	0.00	1.85E-09
3		Silver	7440-22-4	1	1.31	1	0.00	3.11E-09	0.00	3.17E-09
3		Thallium	7440-28-0	0.3	1.31	1	0.00	8.15E-10	0.00	8.30E-10
3		Vanadium	7440-62-2	141	1.31	1	0.00	3.90E-07	0.00	3.98E-07
3		Zinc	7440-66-6	1,439	1.31	1	0.00	3.98E-06	0.00	4.06E-06
3		Chromium VI	18540-29-9	0.4	1.31	1	0.00	1.06E-09	0.00	1.08E-09
3		Mercury	7439-97-6	0.2	1.31	1	0.00	6.43E-10	0.00	6.55E-10

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Notes:
1. See Tables B-5a through B-5d for the derivation of the metal concentrations
2. Silt loading based on the average silt loading for iron and steel production from AP-42 (Table 13.2.1-3).
3. PM_{10} Emission Factor is calculated using the AP42 reentrained dust emission factor calculation equation for paved road E = k (sL)^0.91 x (W)^1.02*(1-P/(4*365))
   Where, k =0.0022 lb/VMT, particle size multiplier for PM_{10}
   sL = silt loading factor, presented in the table based on the dust sampling results in 2013 (see Table F-1)
   W = vehicle weight, presented in the table
   P = number of days in a year with at least 0.254 mm (0.01 in) of preipitation (Assumed 27 days for annual emission rates based on the 2011 precipitation data collected at TAMCO's onsite meteorological station and assumed dry conditions for houly emission rates)
4. Metal Emission Factor is the product of PM_{10} EF and metal fraction in the silt (metal concentration).

Table F-3. Mitigated Entrained Road Dust Toxic Metal Emission Factors - Paved Road
TAMCO Steel Mill
Rancho Cucamonga, California

Route	Group	Chemicals	CAS #	TAC Concentration[1] (mg/kg)	Silt Loading[2] (%)	Vehicle Weight (tons)	Annual PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Annual Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)	Hourly PM_{10} Emission Factor for Unit Vehicle Weight[3] (lb/VMT)	Hourly Metal Emission Factor for Unit Vehicle Weight[4] (lb/VMT)
3	Other Truck Routes	Aluminum	7429-90-5	12,600	4	1	0.35	4.35E-03	0.37	4.70E-03
3		Antimony	7440-36-0	2	4	1	0.35	7.97E-07	0.37	8.61E-07
3		Arsenic	7440-38-2	6	4	1	0.35	1.96E-06	0.37	2.12E-06
3		Barium	7440-39-3	362	4	1	0.35	1.25E-04	0.37	1.35E-04
3		Beryllium	7440-41-7	1	4	1	0.35	2.51E-07	0.37	2.72E-07
3		Cadmium	7440-43-9	4	4	1	0.35	1.54E-06	0.37	1.67E-06
3		Chromium	7440-47-3	685	4	1	0.35	2.37E-04	0.37	2.56E-04
3		Cobalt	7440-48-4	17	4	1	0.35	5.94E-06	0.37	6.41E-06
3		Copper	7440-50-8	345	4	1	0.35	1.19E-04	0.37	1.29E-04
3		Lead	7439-92-1	169	4	1	0.35	5.84E-05	0.37	6.30E-05
3		Manganese	7439-96-5	8,600	4	1	0.35	2.97E-03	0.37	3.21E-03
3		Nickel	7440-02-0	137	4	1	0.35	4.73E-05	0.37	5.10E-05
3		Selenium	7782-49-2	1	4	1	0.35	2.27E-07	0.37	2.45E-07
3		Silver	7440-22-4	1	4	1	0.35	3.88E-07	0.37	4.19E-07
3		Thallium	7440-28-0	0	4	1	0.35	1.02E-07	0.37	1.10E-07
3		Vanadium	7440-62-2	141	4	1	0.35	4.87E-05	0.37	5.26E-05
3		Zinc	7440-66-6	1,439	4	1	0.35	4.97E-04	0.37	5.37E-04
3		Chromium VI	18540-29-9	0	4	1	0.35	1.32E-07	0.37	1.43E-07
3		Mercury	7439-97-6	0	4	1	0.35	8.03E-08	0.37	8.67E-08

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Notes:

1. See Tables B-5a through B-5d for the derivation of the metal concentrations
2. Silt loading based on the average silt loading for iron and steel production from AP-42 (Table 13.2.2-1).

Where, k =1.5 lb/VMT, particle size multiplier for PM_{10}

s = surface material silt content, presented in the table based on the dust sampling results in 2013 (see Table F-1)

W = vehicle weight, presented in the table

P = number of days in a year with at least 0.254 mm (0.01 in) of preipitation (Assumed 27 days for annual emission rates based on the 2011 precipitation data collected at TAMCO's onsite meteorological station and assumed dry conditions for houly emission rates)

4. Metal Emission Factor is the product of PM_{10} EF and metal fraction in the silt (metal concentration).

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
1A	Aluminum	7429-90-5	3	VP_1	244	0.13	1.29E-03	1.32E-03	3.14E-01	1.74E-04
1A	Antimony	7440-36-0	3	VP_1	244	0.13	2.37E-07	2.41E-07	5.76E-05	3.19E-08
1A	Arsenic	7440-38-2	3	VP_1	244	0.13	5.82E-07	5.93E-07	1.42E-04	7.85E-08
1A	Barium	7440-39-3	3	VP_1	244	0.13	3.71E-05	3.78E-05	9.03E-03	5.00E-06
1A	Beryllium	7440-41-7	3	VP_1	244	0.13	7.46E-08	7.60E-08	1.82E-05	1.01E-08
1A	Cadmium	7440-43-9	3	VP_1	244	0.13	4.58E-07	4.67E-07	1.12E-04	6.18E-08
1A	Chromium	7440-47-3	3	VP_1	244	0.13	7.02E-05	7.16E-05	1.71E-02	9.47E-06
1A	Chromium VI	18540-29-9	3	VP_1	244	0.13	3.92E-08	4.00E-08	9.55E-06	5.29E-09
1A	Cobalt	7440-48-4	3	VP_1	244	0.13	1.76E-06	1.80E-06	4.29E-04	2.38E-07
1A	Copper	7440-50-8	3	VP_1	244	0.13	3.54E-05	3.61E-05	8.62E-03	4.77E-06
1A	Lead	7439-92-1	3	VP_1	244	0.13	1.73E-05	1.77E-05	4.22E-03	2.34E-06
1A	Manganese	7439-96-5	3	VP_1	244	0.13	8.81E-04	8.98E-04	2.15E-01	1.19E-04
1A	Mercury	7439-97-6	3	VP_1	244	0.13	2.38E-08	2.43E-08	5.80E-06	3.21E-09
1A	Nickel	7440-02-0	3	VP_1	244	0.13	1.40E-05	1.43E-05	3.42E-03	1.89E-06
1A	Selenium	7782-49-2	3	VP_1	244	0.13	6.74E-08	6.86E-08	1.64E-05	9.08E-09
1A	Silver	7440-22-4	3	VP_1	244	0.13	1.15E-07	1.17E-07	2.81E-05	1.55E-08
1A	Thallium	7440-28-0	3	VP_1	244	0.13	3.02E-08	3.08E-08	7.35E-06	4.07E-09
1A	Vanadium	7440-62-2	3	VP_1	244	0.13	1.44E-05	1.47E-05	3.52E-03	1.95E-06
1A	Zinc	7440-66-6	3	VP_1	244	0.13	1.47E-04	1.50E-04	3.59E-02	1.99E-05
1B	Aluminum	7429-90-5	3	VP_1	236	0.13	1.29E-03	1.32E-03	3.05E-01	1.69E-04
1B	Antimony	7440-36-0	3	VP_1	236	0.13	2.37E-07	2.41E-07	5.58E-05	3.09E-08
1B	Arsenic	7440-38-2	3	VP_1	236	0.13	5.82E-07	5.93E-07	1.37E-04	7.60E-08
1B	Barium	7440-39-3	3	VP_1	236	0.13	3.71E-05	3.78E-05	8.74E-03	4.84E-06
1B	Beryllium	7440-41-7	3	VP_1	236	0.13	7.46E-08	7.60E-08	1.76E-05	9.74E-09
1B	Cadmium	7440-43-9	3	VP_1	236	0.13	4.58E-07	4.67E-07	1.08E-04	5.99E-08
1B	Chromium	7440-47-3	3	VP_1	236	0.13	7.02E-05	7.16E-05	1.66E-02	9.17E-06
1B	Chromium VI	18540-29-9	3	VP_1	236	0.13	3.92E-08	4.00E-08	9.25E-06	5.12E-09
1B	Cobalt	7440-48-4	3	VP_1	236	0.13	1.76E-06	1.80E-06	4.16E-04	2.30E-07
1B	Copper	7440-50-8	3	VP_1	236	0.13	3.54E-05	3.61E-05	8.35E-03	4.62E-06
1B	Lead	7439-92-1	3	VP_1	236	0.13	1.73E-05	1.77E-05	4.09E-03	2.26E-06
1B	Manganese	7439-96-5	3	VP_1	236	0.13	8.81E-04	8.98E-04	2.08E-01	1.15E-04
1B	Mercury	7439-97-6	3	VP_1	236	0.13	2.38E-08	2.43E-08	5.62E-06	3.11E-09
1B	Nickel	7440-02-0	3	VP_1	236	0.13	1.40E-05	1.43E-05	3.31E-03	1.83E-06
1B	Selenium	7782-49-2	3	VP_1	236	0.13	6.74E-08	6.86E-08	1.59E-05	8.80E-09
1B	Silver	7440-22-4	3	VP_1	236	0.13	1.15E-07	1.17E-07	2.72E-05	1.50E-08
1B	Thallium	7440-28-0	3	VP_1	236	0.13	3.02E-08	3.08E-08	7.12E-06	3.94E-09
1B	Vanadium	7440-62-2	3	VP_1	236	0.13	1.44E-05	1.47E-05	3.41E-03	1.89E-06
1B	Zinc	7440-66-6	3	VP_1	236	0.13	1.47E-04	1.50E-04	3.48E-02	1.93E-05
1C	Aluminum	7429-90-5	3	VP_1	236	0.09	1.29E-03	1.32E-03	3.05E-01	1.13E-04
1C	Antimony	7440-36-0	3	VP_1	236	0.09	2.37E-07	2.41E-07	5.58E-05	2.08E-08
1C	Arsenic	7440-38-2	3	VP_1	236	0.09	5.82E-07	5.93E-07	1.37E-04	5.11E-08
1C	Barium	7440-39-3	3	VP_1	236	0.09	3.71E-05	3.78E-05	8.74E-03	3.25E-06
1C	Beryllium	7440-41-7	3	VP_1	236	0.09	7.46E-08	7.60E-08	1.76E-05	6.55E-09
1C	Cadmium	7440-43-9	3	VP_1	236	0.09	4.58E-07	4.67E-07	1.08E-04	4.02E-08
1C	Chromium	7440-47-3	3	VP_1	236	0.09	7.02E-05	7.16E-05	1.66E-02	6.16E-06
1C	Chromium VI	18540-29-9	3	VP_1	236	0.09	3.92E-08	4.00E-08	9.25E-06	3.44E-09
1C	Cobalt	7440-48-4	3	VP_1	236	0.09	1.76E-06	1.80E-06	4.16E-04	1.55E-07
1C	Copper	7440-50-8	3	VP_1	236	0.09	3.54E-05	3.61E-05	8.35E-03	3.11E-06
1C	Lead	7439-92-1	3	VP_1	236	0.09	1.73E-05	1.77E-05	4.09E-03	1.52E-06
1C	Manganese	7439-96-5	3	VP_1	236	0.09	8.81E-04	8.98E-04	2.08E-01	7.73E-05
1C	Mercury	7439-97-6	3	VP_1	236	0.09	2.38E-08	2.43E-08	5.62E-06	2.09E-09
1C	Nickel	7440-02-0	3	VP_1	236	0.09	1.40E-05	1.43E-05	3.31E-03	1.23E-06
1C	Selenium	7782-49-2	3	VP_1	236	0.09	6.74E-08	6.86E-08	1.59E-05	5.91E-09
1C	Silver	7440-22-4	3	VP_1	236	0.09	1.15E-07	1.17E-07	2.72E-05	1.01E-08
1C	Thallium	7440-28-0	3	VP_1	236	0.09	3.02E-08	3.08E-08	7.12E-06	2.65E-09
1C	Vanadium	7440-62-2	3	VP_1	236	0.09	1.44E-05	1.47E-05	3.41E-03	1.27E-06
1C	Zinc	7440-66-6	3	VP_1	236	0.09	1.47E-04	1.50E-04	3.48E-02	1.29E-05
1D	Aluminum	7429-90-5	3	VP_1	244	0.09	1.29E-03	1.32E-03	3.14E-01	1.17E-04
1D	Antimony	7440-36-0	3	VP_1	244	0.09	2.37E-07	2.41E-07	5.76E-05	2.14E-08
1D	Arsenic	7440-38-2	3	VP_1	244	0.09	5.82E-07	5.93E-07	1.42E-04	5.27E-08
1D	Barium	7440-39-3	3	VP_1	244	0.09	3.71E-05	3.78E-05	9.03E-03	3.36E-06
1D	Beryllium	7440-41-7	3	VP_1	244	0.09	7.46E-08	7.60E-08	1.82E-05	6.76E-09
1D	Cadmium	7440-43-9	3	VP_1	244	0.09	4.58E-07	4.67E-07	1.12E-04	4.15E-08
1D	Chromium	7440-47-3	3	VP_1	244	0.09	7.02E-05	7.16E-05	1.71E-02	6.36E-06
1D	Chromium VI	18540-29-9	3	VP_1	244	0.09	3.92E-08	4.00E-08	9.55E-06	3.55E-09
1D	Cobalt	7440-48-4	3	VP_1	244	0.09	1.76E-06	1.80E-06	4.29E-04	1.60E-07
1D	Copper	7440-50-8	3	VP_1	244	0.09	3.54E-05	3.61E-05	8.62E-03	3.21E-06
1D	Lead	7439-92-1	3	VP_1	244	0.09	1.73E-05	1.77E-05	4.22E-03	1.57E-06
1D	Manganese	7439-96-5	3	VP_1	244	0.09	8.81E-04	8.98E-04	2.15E-01	7.98E-05
1D	Mercury	7439-97-6	3	VP_1	244	0.09	2.38E-08	2.43E-08	5.80E-06	2.16E-09
1D	Nickel	7440-02-0	3	VP_1	244	0.09	1.40E-05	1.43E-05	3.42E-03	1.27E-06
1D	Selenium	7782-49-2	3	VP_1	244	0.09	6.74E-08	6.86E-08	1.64E-05	6.10E-09
1D	Silver	7440-22-4	3	VP_1	244	0.09	1.15E-07	1.17E-07	2.81E-05	1.04E-08
1D	Thallium	7440-28-0	3	VP_1	244	0.09	3.02E-08	3.08E-08	7.35E-06	2.73E-09
1D	Vanadium	7440-62-2	3	VP_1	244	0.09	1.44E-05	1.47E-05	3.52E-03	1.31E-06
1D	Zinc	7440-66-6	3	VP_1	244	0.09	1.47E-04	1.50E-04	3.59E-02	1.34E-05

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
7A	Aluminum	7429-90-5	3	VP_7	34	0.02	1.29E-03	1.32E-03	4.45E-02	2.46E-05
7A	Antimony	7440-36-0	3	VP_7	34	0.02	2.37E-07	2.41E-07	8.15E-06	4.51E-09
7A	Arsenic	7440-38-2	3	VP_7	34	0.02	5.82E-07	5.93E-07	2.00E-05	1.11E-08
7A	Barium	7440-39-3	3	VP_7	34	0.02	3.71E-05	3.78E-05	1.28E-03	7.07E-07
7A	Beryllium	7440-41-7	3	VP_7	34	0.02	7.46E-08	7.60E-08	2.57E-06	1.42E-09
7A	Cadmium	7440-43-9	3	VP_7	34	0.02	4.58E-07	4.67E-07	1.58E-05	8.74E-09
7A	Chromium	7440-47-3	3	VP_7	34	0.02	7.02E-05	7.16E-05	2.42E-03	1.34E-06
7A	Chromium VI	18540-29-9	3	VP_7	34	0.02	3.92E-08	4.00E-08	1.35E-06	7.48E-10
7A	Cobalt	7440-48-4	3	VP_7	34	0.02	1.76E-06	1.80E-06	6.07E-05	3.36E-08
7A	Copper	7440-50-8	3	VP_7	34	0.02	3.54E-05	3.61E-05	1.22E-03	6.75E-07
7A	Lead	7439-92-1	3	VP_7	34	0.02	1.73E-05	1.77E-05	5.97E-04	3.30E-07
7A	Manganese	7439-96-5	3	VP_7	34	0.02	8.81E-04	8.98E-04	3.03E-02	1.68E-05
7A	Mercury	7439-97-6	3	VP_7	34	0.02	2.38E-08	2.43E-08	8.20E-07	4.54E-10
7A	Nickel	7440-02-0	3	VP_7	34	0.02	1.40E-05	1.43E-05	4.83E-04	2.68E-07
7A	Selenium	7782-49-2	3	VP_7	34	0.02	6.74E-08	6.86E-08	2.32E-06	1.28E-09
7A	Silver	7440-22-4	3	VP_7	34	0.02	1.15E-07	1.17E-07	3.97E-06	2.20E-09
7A	Thallium	7440-28-0	3	VP_7	34	0.02	3.02E-08	3.08E-08	1.04E-06	5.76E-10
7A	Vanadium	7440-62-2	3	VP_7	34	0.02	1.44E-05	1.47E-05	4.98E-04	2.76E-07
7A	Zinc	7440-66-6	3	VP_7	34	0.02	1.47E-04	1.50E-04	5.08E-03	2.81E-06
7B	Aluminum	7429-90-5	3	VP_7	34	0.01	1.29E-03	1.32E-03	4.45E-02	1.65E-05
7B	Antimony	7440-36-0	3	VP_7	34	0.01	2.37E-07	2.41E-07	8.15E-06	3.03E-09
7B	Arsenic	7440-38-2	3	VP_7	34	0.01	5.82E-07	5.93E-07	2.00E-05	7.46E-09
7B	Barium	7440-39-3	3	VP_7	34	0.01	3.71E-05	3.78E-05	1.28E-03	4.75E-07
7B	Beryllium	7440-41-7	3	VP_7	34	0.01	7.46E-08	7.60E-08	2.57E-06	9.56E-10
7B	Cadmium	7440-43-9	3	VP_7	34	0.01	4.58E-07	4.67E-07	1.58E-05	5.87E-09
7B	Chromium	7440-47-3	3	VP_7	34	0.01	7.02E-05	7.16E-05	2.42E-03	9.00E-07
7B	Chromium VI	18540-29-9	3	VP_7	34	0.01	3.92E-08	4.00E-08	1.35E-06	5.02E-10
7B	Cobalt	7440-48-4	3	VP_7	34	0.01	1.76E-06	1.80E-06	6.07E-05	2.26E-08
7B	Copper	7440-50-8	3	VP_7	34	0.01	3.54E-05	3.61E-05	1.22E-03	4.53E-07
7B	Lead	7439-92-1	3	VP_7	34	0.01	1.73E-05	1.77E-05	5.97E-04	2.22E-07
7B	Manganese	7439-96-5	3	VP_7	34	0.01	8.81E-04	8.98E-04	3.03E-02	1.13E-05
7B	Mercury	7439-97-6	3	VP_7	34	0.01	2.38E-08	2.43E-08	8.20E-07	3.05E-10
7B	Nickel	7440-02-0	3	VP_7	34	0.01	1.40E-05	1.43E-05	4.83E-04	1.80E-07
7B	Selenium	7782-49-2	3	VP_7	34	0.01	6.74E-08	6.86E-08	2.32E-06	8.63E-10
7B	Silver	7440-22-4	3	VP_7	34	0.01	1.15E-07	1.17E-07	3.97E-06	1.48E-09
7B	Thallium	7440-28-0	3	VP_7	34	0.01	3.02E-08	3.08E-08	1.04E-06	3.87E-10
7B	Vanadium	7440-62-2	3	VP_7	34	0.01	1.44E-05	1.47E-05	4.98E-04	1.85E-07
7B	Zinc	7440-66-6	3	VP_7	34	0.01	1.47E-04	1.50E-04	5.08E-03	1.89E-06
30A	Aluminum	7429-90-5	3	VP_30	169	0.06	1.23E-03	1.24E-03	2.07E-01	7.64E-05
30A	Antimony	7440-36-0	3	VP_30	169	0.06	2.25E-07	2.27E-07	3.79E-05	1.40E-08
30A	Arsenic	7440-38-2	3	VP_30	169	0.06	5.53E-07	5.58E-07	9.34E-05	3.44E-08
30A	Barium	7440-39-3	3	VP_30	169	0.06	3.52E-05	3.56E-05	5.95E-03	2.19E-06
30A	Beryllium	7440-41-7	3	VP_30	169	0.06	7.08E-08	7.15E-08	1.20E-05	4.41E-09
30A	Cadmium	7440-43-9	3	VP_30	169	0.06	4.35E-07	4.39E-07	7.35E-05	2.71E-08
30A	Chromium	7440-47-3	3	VP_30	169	0.06	6.67E-05	6.74E-05	1.13E-02	4.15E-06
30A	Chromium VI	18540-29-9	3	VP_30	169	0.06	3.72E-08	3.76E-08	6.29E-06	2.32E-09
30A	Cobalt	7440-48-4	3	VP_30	169	0.06	1.67E-06	1.69E-06	2.83E-04	1.04E-07
30A	Copper	7440-50-8	3	VP_30	169	0.06	3.36E-05	3.39E-05	5.68E-03	2.09E-06
30A	Lead	7439-92-1	3	VP_30	169	0.06	1.64E-05	1.66E-05	2.78E-03	1.02E-06
30A	Manganese	7439-96-5	3	VP_30	169	0.06	8.37E-04	8.45E-04	1.41E-01	5.21E-05
30A	Mercury	7439-97-6	3	VP_30	169	0.06	2.26E-08	2.28E-08	3.82E-06	1.41E-09
30A	Nickel	7440-02-0	3	VP_30	169	0.06	1.33E-05	1.35E-05	2.25E-03	8.30E-07
30A	Selenium	7782-49-2	3	VP_30	169	0.06	6.39E-08	6.46E-08	1.08E-05	3.98E-09
30A	Silver	7440-22-4	3	VP_30	169	0.06	1.09E-07	1.10E-07	1.85E-05	6.81E-09
30A	Thallium	7440-28-0	3	VP_30	169	0.06	2.87E-08	2.89E-08	4.84E-06	1.78E-09
30A	Vanadium	7440-62-2	3	VP_30	169	0.06	1.37E-05	1.39E-05	2.32E-03	8.54E-07
30A	Zinc	7440-66-6	3	VP_30	169	0.06	1.40E-04	1.41E-04	2.36E-02	8.72E-06
30B	Aluminum	7429-90-5	3	VP_30	169	0.09	1.23E-03	1.24E-03	2.07E-01	1.14E-04
30B	Antimony	7440-36-0	3	VP_30	169	0.09	2.25E-07	2.27E-07	3.79E-05	2.08E-08
30B	Arsenic	7440-38-2	3	VP_30	169	0.09	5.53E-07	5.58E-07	9.34E-05	5.13E-08
30B	Barium	7440-39-3	3	VP_30	169	0.09	3.52E-05	3.56E-05	5.95E-03	3.26E-06
30B	Beryllium	7440-41-7	3	VP_30	169	0.09	7.08E-08	7.15E-08	1.20E-05	6.57E-09
30B	Cadmium	7440-43-9	3	VP_30	169	0.09	4.35E-07	4.39E-07	7.35E-05	4.04E-08
30B	Chromium	7440-47-3	3	VP_30	169	0.09	6.67E-05	6.74E-05	1.13E-02	6.18E-06
30B	Chromium VI	18540-29-9	3	VP_30	169	0.09	3.72E-08	3.76E-08	6.29E-06	3.45E-09
30B	Cobalt	7440-48-4	3	VP_30	169	0.09	1.67E-06	1.69E-06	2.83E-04	1.55E-07
30B	Copper	7440-50-8	3	VP_30	169	0.09	3.36E-05	3.39E-05	5.68E-03	3.12E-06
30B	Lead	7439-92-1	3	VP_30	169	0.09	1.64E-05	1.66E-05	2.78E-03	1.53E-06
30B	Manganese	7439-96-5	3	VP_30	169	0.09	8.37E-04	8.45E-04	1.41E-01	7.76E-05
30B	Mercury	7439-97-6	3	VP_30	169	0.09	2.26E-08	2.28E-08	3.82E-06	2.10E-09
30B	Nickel	7440-02-0	3	VP_30	169	0.09	1.33E-05	1.35E-05	2.25E-03	1.24E-06
30B	Selenium	7782-49-2	3	VP_30	169	0.09	6.39E-08	6.46E-08	1.08E-05	5.93E-09
30B	Silver	7440-22-4	3	VP_30	169	0.09	1.09E-07	1.10E-07	1.85E-05	1.01E-08
30B	Thallium	7440-28-0	3	VP_30	169	0.09	2.87E-08	2.89E-08	4.84E-06	2.66E-09
30B	Vanadium	7440-62-2	3	VP_30	169	0.09	1.37E-05	1.39E-05	2.32E-03	1.27E-06
30B	Zinc	7440-66-6	3	VP_30	169	0.09	1.40E-04	1.41E-04	2.36E-02	1.30E-05

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
30C	Aluminum	7429-90-5	3	VP_30	164	0.09	1.23E-03	1.24E-03	2.01E-01	1.10E-04
30C	Antimony	7440-36-0	3	VP_30	164	0.09	2.25E-07	2.27E-07	3.68E-05	2.02E-08
30C	Arsenic	7440-38-2	3	VP_30	164	0.09	5.53E-07	5.58E-07	9.04E-05	4.96E-08
30C	Barium	7440-39-3	3	VP_30	164	0.09	3.52E-05	3.56E-05	5.76E-03	3.16E-06
30C	Beryllium	7440-41-7	3	VP_30	164	0.09	7.08E-08	7.15E-08	1.16E-05	6.36E-09
30C	Cadmium	7440-43-9	3	VP_30	164	0.09	4.35E-07	4.39E-07	7.12E-05	3.91E-08
30C	Chromium	7440-47-3	3	VP_30	164	0.09	6.67E-05	6.74E-05	1.09E-02	5.99E-06
30C	Chromium VI	18540-29-9	3	VP_30	164	0.09	3.72E-08	3.76E-08	6.09E-06	3.34E-09
30C	Cobalt	7440-48-4	3	VP_30	164	0.09	1.67E-06	1.69E-06	2.74E-04	1.50E-07
30C	Copper	7440-50-8	3	VP_30	164	0.09	3.36E-05	3.39E-05	5.50E-03	3.02E-06
30C	Lead	7439-92-1	3	VP_30	164	0.09	1.64E-05	1.66E-05	2.69E-03	1.48E-06
30C	Manganese	7439-96-5	3	VP_30	164	0.09	8.37E-04	8.45E-04	1.37E-01	7.51E-05
30C	Mercury	7439-97-6	3	VP_30	164	0.09	2.26E-08	2.28E-08	3.70E-06	2.03E-09
30C	Nickel	7440-02-0	3	VP_30	164	0.09	1.33E-05	1.35E-05	2.18E-03	1.20E-06
30C	Selenium	7782-49-2	3	VP_30	164	0.09	6.39E-08	6.46E-08	1.05E-05	5.74E-09
30C	Silver	7440-22-4	3	VP_30	164	0.09	1.09E-07	1.10E-07	1.79E-05	9.83E-09
30C	Thallium	7440-28-0	3	VP_30	164	0.09	2.87E-08	2.89E-08	4.69E-06	2.57E-09
30C	Vanadium	7440-62-2	3	VP_30	164	0.09	1.37E-05	1.39E-05	2.24E-03	1.23E-06
30C	Zinc	7440-66-6	3	VP_30	164	0.09	1.40E-04	1.41E-04	2.29E-02	1.26E-05
30D	Aluminum	7429-90-5	3	VP_30	164	0.06	1.23E-03	1.24E-03	2.01E-01	7.39E-05
30D	Antimony	7440-36-0	3	VP_30	164	0.06	2.25E-07	2.27E-07	3.68E-05	1.36E-08
30D	Arsenic	7440-38-2	3	VP_30	164	0.06	5.53E-07	5.58E-07	9.04E-05	3.33E-08
30D	Barium	7440-39-3	3	VP_30	164	0.06	3.52E-05	3.56E-05	5.76E-03	2.12E-06
30D	Beryllium	7440-41-7	3	VP_30	164	0.06	7.08E-08	7.15E-08	1.16E-05	4.27E-09
30D	Cadmium	7440-43-9	3	VP_30	164	0.06	4.35E-07	4.39E-07	7.12E-05	2.62E-08
30D	Chromium	7440-47-3	3	VP_30	164	0.06	6.67E-05	6.74E-05	1.09E-02	4.02E-06
30D	Chromium VI	18540-29-9	3	VP_30	164	0.06	3.72E-08	3.76E-08	6.09E-06	2.25E-09
30D	Cobalt	7440-48-4	3	VP_30	164	0.06	1.67E-06	1.69E-06	2.74E-04	1.01E-07
30D	Copper	7440-50-8	3	VP_30	164	0.06	3.36E-05	3.39E-05	5.50E-03	2.03E-06
30D	Lead	7439-92-1	3	VP_30	164	0.06	1.64E-05	1.66E-05	2.69E-03	9.92E-07
30D	Manganese	7439-96-5	3	VP_30	164	0.06	8.37E-04	8.45E-04	1.37E-01	5.05E-05
30D	Mercury	7439-97-6	3	VP_30	164	0.06	2.26E-08	2.28E-08	3.70E-06	1.36E-09
30D	Nickel	7440-02-0	3	VP_30	164	0.06	1.33E-05	1.35E-05	2.18E-03	8.03E-07
30D	Selenium	7782-49-2	3	VP_30	164	0.06	6.39E-08	6.46E-08	1.05E-05	3.86E-09
30D	Silver	7440-22-4	3	VP_30	164	0.06	1.09E-07	1.10E-07	1.79E-05	6.60E-09
30D	Thallium	7440-28-0	3	VP_30	164	0.06	2.87E-08	2.89E-08	4.69E-06	1.73E-09
30D	Vanadium	7440-62-2	3	VP_30	164	0.06	1.37E-05	1.39E-05	2.24E-03	8.27E-07
30D	Zinc	7440-66-6	3	VP_30	164	0.06	1.40E-04	1.41E-04	2.29E-02	8.45E-06
30E	Aluminum	7429-90-5	3	VP_30	110	0.06	1.23E-03	1.24E-03	1.35E-01	7.42E-05
30E	Antimony	7440-36-0	3	VP_30	110	0.06	2.25E-07	2.27E-07	2.48E-05	1.36E-08
30E	Arsenic	7440-38-2	3	VP_30	110	0.06	5.53E-07	5.58E-07	6.10E-05	3.35E-08
30E	Barium	7440-39-3	3	VP_30	110	0.06	3.52E-05	3.56E-05	3.88E-03	2.13E-06
30E	Beryllium	7440-41-7	3	VP_30	110	0.06	7.08E-08	7.15E-08	7.81E-06	4.29E-09
30E	Cadmium	7440-43-9	3	VP_30	110	0.06	4.35E-07	4.39E-07	4.80E-05	2.63E-08
30E	Chromium	7440-47-3	3	VP_30	110	0.06	6.67E-05	6.74E-05	7.35E-03	4.04E-06
30E	Chromium VI	18540-29-9	3	VP_30	110	0.06	3.72E-08	3.76E-08	4.11E-06	2.25E-09
30E	Cobalt	7440-48-4	3	VP_30	110	0.06	1.67E-06	1.69E-06	1.85E-04	1.01E-07
30E	Copper	7440-50-8	3	VP_30	110	0.06	3.36E-05	3.39E-05	3.71E-03	2.03E-06
30E	Lead	7439-92-1	3	VP_30	110	0.06	1.64E-05	1.66E-05	1.81E-03	9.96E-07
30E	Manganese	7439-96-5	3	VP_30	110	0.06	8.37E-04	8.45E-04	9.23E-02	5.07E-05
30E	Mercury	7439-97-6	3	VP_30	110	0.06	2.26E-08	2.28E-08	2.49E-06	1.37E-09
30E	Nickel	7440-02-0	3	VP_30	110	0.06	1.33E-05	1.35E-05	1.47E-03	8.06E-07
30E	Selenium	7782-49-2	3	VP_30	110	0.06	6.39E-08	6.46E-08	7.05E-06	3.87E-09
30E	Silver	7440-22-4	3	VP_30	110	0.06	1.09E-07	1.10E-07	1.21E-05	6.62E-09
30E	Thallium	7440-28-0	3	VP_30	110	0.06	2.87E-08	2.89E-08	3.16E-06	1.73E-09
30E	Vanadium	7440-62-2	3	VP_30	110	0.06	1.37E-05	1.39E-05	1.51E-03	8.30E-07
30E	Zinc	7440-66-6	3	VP_30	110	0.06	1.40E-04	1.41E-04	1.54E-02	8.48E-06
30F	Aluminum	7429-90-5	3	VP_30	20	0.01	1.23E-03	1.24E-03	2.45E-02	1.35E-05
30F	Antimony	7440-36-0	3	VP_30	20	0.01	2.25E-07	2.27E-07	4.50E-06	2.47E-09
30F	Arsenic	7440-38-2	3	VP_30	20	0.01	5.53E-07	5.58E-07	1.11E-05	6.08E-09
30F	Barium	7440-39-3	3	VP_30	20	0.01	3.52E-05	3.56E-05	7.05E-04	3.87E-07
30F	Beryllium	7440-41-7	3	VP_30	20	0.01	7.08E-08	7.15E-08	1.42E-06	7.79E-10
30F	Cadmium	7440-43-9	3	VP_30	20	0.01	4.35E-07	4.39E-07	8.71E-06	4.78E-09
30F	Chromium	7440-47-3	3	VP_30	20	0.01	6.67E-05	6.74E-05	1.34E-03	7.33E-07
30F	Chromium VI	18540-29-9	3	VP_30	20	0.01	3.72E-08	3.76E-08	7.46E-07	4.09E-10
30F	Cobalt	7440-48-4	3	VP_30	20	0.01	1.67E-06	1.69E-06	3.35E-05	1.84E-08
30F	Copper	7440-50-8	3	VP_30	20	0.01	3.36E-05	3.39E-05	6.73E-04	3.69E-07
30F	Lead	7439-92-1	3	VP_30	20	0.01	1.64E-05	1.66E-05	3.29E-04	1.81E-07
30F	Manganese	7439-96-5	3	VP_30	20	0.01	8.37E-04	8.45E-04	1.68E-02	9.20E-06
30F	Mercury	7439-97-6	3	VP_30	20	0.01	2.26E-08	2.28E-08	4.53E-07	2.49E-10
30F	Nickel	7440-02-0	3	VP_30	20	0.01	1.33E-05	1.35E-05	2.67E-04	1.46E-07
30F	Selenium	7782-49-2	3	VP_30	20	0.01	6.39E-08	6.46E-08	1.28E-06	7.03E-10
30F	Silver	7440-22-4	3	VP_30	20	0.01	1.09E-07	1.10E-07	2.19E-06	1.20E-09
30F	Thallium	7440-28-0	3	VP_30	20	0.01	2.87E-08	2.89E-08	5.74E-07	3.15E-10
30F	Vanadium	7440-62-2	3	VP_30	20	0.01	1.37E-05	1.39E-05	2.75E-04	1.51E-07
30F	Zinc	7440-66-6	3	VP_30	20	0.01	1.40E-04	1.41E-04	2.80E-03	1.54E-06

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
31A	Aluminum	7429-90-5	3	VP_31	336	0.12	1.23E-03	1.25E-03	4.15E-01	1.53E-04
31A	Antimony	7440-36-0	3	VP_31	336	0.12	2.26E-07	2.29E-07	7.60E-05	2.80E-08
31A	Arsenic	7440-38-2	3	VP_31	336	0.12	5.57E-07	5.63E-07	1.87E-04	6.90E-08
31A	Barium	7440-39-3	3	VP_31	336	0.12	3.54E-05	3.58E-05	1.19E-02	4.39E-06
31A	Beryllium	7440-41-7	3	VP_31	336	0.12	7.13E-08	7.21E-08	2.40E-05	8.84E-09
31A	Cadmium	7440-43-9	3	VP_31	336	0.12	4.38E-07	4.43E-07	1.47E-04	5.43E-08
31A	Chromium	7440-47-3	3	VP_31	336	0.12	6.71E-05	6.79E-05	2.26E-02	8.32E-06
31A	Chromium VI	18540-29-9	3	VP_31	336	0.12	3.75E-08	3.79E-08	1.26E-05	4.65E-09
31A	Cobalt	7440-48-4	3	VP_31	336	0.12	1.68E-06	1.70E-06	5.66E-04	2.09E-07
31A	Copper	7440-50-8	3	VP_31	336	0.12	3.38E-05	3.42E-05	1.14E-02	4.20E-06
31A	Lead	7439-92-1	3	VP_31	336	0.12	1.66E-05	1.67E-05	5.56E-03	2.05E-06
31A	Manganese	7439-96-5	3	VP_31	336	0.12	8.42E-04	8.52E-04	2.83E-01	1.04E-04
31A	Mercury	7439-97-6	3	VP_31	336	0.12	2.28E-08	2.30E-08	7.65E-06	2.82E-09
31A	Nickel	7440-02-0	3	VP_31	336	0.12	1.34E-05	1.36E-05	4.50E-03	1.66E-06
31A	Selenium	7782-49-2	3	VP_31	336	0.12	6.44E-08	6.51E-08	2.16E-05	7.98E-09
31A	Silver	7440-22-4	3	VP_31	336	0.12	1.10E-07	1.11E-07	3.70E-05	1.37E-08
31A	Thallium	7440-28-0	3	VP_31	336	0.12	2.89E-08	2.92E-08	9.69E-06	3.58E-09
31A	Vanadium	7440-62-2	3	VP_31	336	0.12	1.38E-05	1.40E-05	4.64E-03	1.71E-06
31A	Zinc	7440-66-6	3	VP_31	336	0.12	1.41E-04	1.43E-04	4.74E-02	1.75E-05
31B	Aluminum	7429-90-5	3	VP_31	336	0.18	1.23E-03	1.25E-03	4.15E-01	2.28E-04
31B	Antimony	7440-36-0	3	VP_31	336	0.18	2.26E-07	2.29E-07	7.60E-05	4.18E-08
31B	Arsenic	7440-38-2	3	VP_31	336	0.18	5.57E-07	5.63E-07	1.87E-04	1.03E-07
31B	Barium	7440-39-3	3	VP_31	336	0.18	3.54E-05	3.58E-05	1.19E-02	6.54E-06
31B	Beryllium	7440-41-7	3	VP_31	336	0.18	7.13E-08	7.21E-08	2.40E-05	1.32E-08
31B	Cadmium	7440-43-9	3	VP_31	336	0.18	4.38E-07	4.43E-07	1.47E-04	8.09E-08
31B	Chromium	7440-47-3	3	VP_31	336	0.18	6.71E-05	6.79E-05	2.26E-02	1.24E-05
31B	Chromium VI	18540-29-9	3	VP_31	336	0.18	3.75E-08	3.79E-08	1.26E-05	6.92E-09
31B	Cobalt	7440-48-4	3	VP_31	336	0.18	1.68E-06	1.70E-06	5.66E-04	3.11E-07
31B	Copper	7440-50-8	3	VP_31	336	0.18	3.38E-05	3.42E-05	1.14E-02	6.25E-06
31B	Lead	7439-92-1	3	VP_31	336	0.18	1.66E-05	1.67E-05	5.56E-03	3.06E-06
31B	Manganese	7439-96-5	3	VP_31	336	0.18	8.42E-04	8.52E-04	2.83E-01	1.55E-04
31B	Mercury	7439-97-6	3	VP_31	336	0.18	2.28E-08	2.30E-08	7.65E-06	4.20E-09
31B	Nickel	7440-02-0	3	VP_31	336	0.18	1.34E-05	1.36E-05	4.50E-03	2.48E-06
31B	Selenium	7782-49-2	3	VP_31	336	0.18	6.44E-08	6.51E-08	2.16E-05	1.19E-08
31B	Silver	7440-22-4	3	VP_31	336	0.18	1.10E-07	1.11E-07	3.70E-05	2.03E-08
31B	Thallium	7440-28-0	3	VP_31	336	0.18	2.89E-08	2.92E-08	9.69E-06	5.33E-09
31B	Vanadium	7440-62-2	3	VP_31	336	0.18	1.38E-05	1.40E-05	4.64E-03	2.55E-06
31B	Zinc	7440-66-6	3	VP_31	336	0.18	1.41E-04	1.43E-04	4.74E-02	2.60E-05
31C	Aluminum	7429-90-5	3	VP_31	325	0.18	1.23E-03	1.25E-03	4.02E-01	2.21E-04
31C	Antimony	7440-36-0	3	VP_31	325	0.18	2.26E-07	2.29E-07	7.36E-05	4.04E-08
31C	Arsenic	7440-38-2	3	VP_31	325	0.18	5.57E-07	5.63E-07	1.81E-04	9.95E-08
31C	Barium	7440-39-3	3	VP_31	325	0.18	3.54E-05	3.58E-05	1.15E-02	6.34E-06
31C	Beryllium	7440-41-7	3	VP_31	325	0.18	7.13E-08	7.21E-08	2.32E-05	1.28E-08
31C	Cadmium	7440-43-9	3	VP_31	325	0.18	4.38E-07	4.43E-07	1.43E-04	7.83E-08
31C	Chromium	7440-47-3	3	VP_31	325	0.18	6.71E-05	6.79E-05	2.18E-02	1.20E-05
31C	Chromium VI	18540-29-9	3	VP_31	325	0.18	3.75E-08	3.79E-08	1.22E-05	6.70E-09
31C	Cobalt	7440-48-4	3	VP_31	325	0.18	1.68E-06	1.70E-06	5.48E-04	3.01E-07
31C	Copper	7440-50-8	3	VP_31	325	0.18	3.38E-05	3.42E-05	1.10E-02	6.05E-06
31C	Lead	7439-92-1	3	VP_31	325	0.18	1.66E-05	1.67E-05	5.39E-03	2.96E-06
31C	Manganese	7439-96-5	3	VP_31	325	0.18	8.42E-04	8.52E-04	2.74E-01	1.51E-04
31C	Mercury	7439-97-6	3	VP_31	325	0.18	2.28E-08	2.30E-08	7.41E-06	4.07E-09
31C	Nickel	7440-02-0	3	VP_31	325	0.18	1.34E-05	1.36E-05	4.36E-03	2.40E-06
31C	Selenium	7782-49-2	3	VP_31	325	0.18	6.44E-08	6.51E-08	2.09E-05	1.15E-08
31C	Silver	7440-22-4	3	VP_31	325	0.18	1.10E-07	1.11E-07	3.58E-05	1.97E-08
31C	Thallium	7440-28-0	3	VP_31	325	0.18	2.89E-08	2.92E-08	9.39E-06	5.16E-09
31C	Vanadium	7440-62-2	3	VP_31	325	0.18	1.38E-05	1.40E-05	4.49E-03	2.47E-06
31C	Zinc	7440-66-6	3	VP_31	325	0.18	1.41E-04	1.43E-04	4.59E-02	2.52E-05
31D	Aluminum	7429-90-5	3	VP_31	325	0.12	1.23E-03	1.25E-03	4.02E-01	1.48E-04
31D	Antimony	7440-36-0	3	VP_31	325	0.12	2.26E-07	2.29E-07	7.36E-05	2.72E-08
31D	Arsenic	7440-38-2	3	VP_31	325	0.12	5.57E-07	5.63E-07	1.81E-04	6.68E-08
31D	Barium	7440-39-3	3	VP_31	325	0.12	3.54E-05	3.58E-05	1.15E-02	4.26E-06
31D	Beryllium	7440-41-7	3	VP_31	325	0.12	7.13E-08	7.21E-08	2.32E-05	8.56E-09
31D	Cadmium	7440-43-9	3	VP_31	325	0.12	4.38E-07	4.43E-07	1.43E-04	5.26E-08
31D	Chromium	7440-47-3	3	VP_31	325	0.12	6.71E-05	6.79E-05	2.18E-02	8.06E-06
31D	Chromium VI	18540-29-9	3	VP_31	325	0.12	3.75E-08	3.79E-08	1.22E-05	4.50E-09
31D	Cobalt	7440-48-4	3	VP_31	325	0.12	1.68E-06	1.70E-06	5.48E-04	2.02E-07
31D	Copper	7440-50-8	3	VP_31	325	0.12	3.38E-05	3.42E-05	1.10E-02	4.06E-06
31D	Lead	7439-92-1	3	VP_31	325	0.12	1.66E-05	1.67E-05	5.39E-03	1.99E-06
31D	Manganese	7439-96-5	3	VP_31	325	0.12	8.42E-04	8.52E-04	2.74E-01	1.01E-04
31D	Mercury	7439-97-6	3	VP_31	325	0.12	2.28E-08	2.30E-08	7.41E-06	2.73E-09
31D	Nickel	7440-02-0	3	VP_31	325	0.12	1.34E-05	1.36E-05	4.36E-03	1.61E-06
31D	Selenium	7782-49-2	3	VP_31	325	0.12	6.44E-08	6.51E-08	2.09E-05	7.73E-09
31D	Silver	7440-22-4	3	VP_31	325	0.12	1.10E-07	1.11E-07	3.58E-05	1.32E-08
31D	Thallium	7440-28-0	3	VP_31	325	0.12	2.89E-08	2.92E-08	9.39E-06	3.46E-09
31D	Vanadium	7440-62-2	3	VP_31	325	0.12	1.38E-05	1.40E-05	4.49E-03	1.66E-06
31D	Zinc	7440-66-6	3	VP_31	325	0.12	1.41E-04	1.43E-04	4.59E-02	1.69E-05

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
31E	Aluminum	7429-90-5	3	VP_31	219	0.12	1.23E-03	1.25E-03	2.71E-01	1.49E-04
31E	Antimony	7440-36-0	3	VP_31	219	0.12	2.26E-07	2.29E-07	4.96E-05	2.73E-08
31E	Arsenic	7440-38-2	3	VP_31	219	0.12	5.57E-07	5.63E-07	1.22E-04	6.71E-08
31E	Barium	7440-39-3	3	VP_31	219	0.12	3.54E-05	3.58E-05	7.77E-03	4.27E-06
31E	Beryllium	7440-41-7	3	VP_31	219	0.12	7.13E-08	7.21E-08	1.56E-05	8.60E-09
31E	Cadmium	7440-43-9	3	VP_31	219	0.12	4.38E-07	4.43E-07	9.61E-05	5.28E-08
31E	Chromium	7440-47-3	3	VP_31	219	0.12	6.71E-05	6.79E-05	1.47E-02	8.09E-06
31E	Chromium VI	18540-29-9	3	VP_31	219	0.12	3.75E-08	3.79E-08	8.22E-06	4.52E-09
31E	Cobalt	7440-48-4	3	VP_31	219	0.12	1.68E-06	1.70E-06	3.69E-04	2.03E-07
31E	Copper	7440-50-8	3	VP_31	219	0.12	3.38E-05	3.42E-05	7.42E-03	4.08E-06
31E	Lead	7439-92-1	3	VP_31	219	0.12	1.66E-05	1.67E-05	3.63E-03	2.00E-06
31E	Manganese	7439-96-5	3	VP_31	219	0.12	8.42E-04	8.52E-04	1.85E-01	1.02E-04
31E	Mercury	7439-97-6	3	VP_31	219	0.12	2.28E-08	2.30E-08	4.99E-06	2.74E-09
31E	Nickel	7440-02-0	3	VP_31	219	0.12	1.34E-05	1.36E-05	2.94E-03	1.62E-06
31E	Selenium	7782-49-2	3	VP_31	219	0.12	6.44E-08	6.51E-08	1.41E-05	7.76E-09
31E	Silver	7440-22-4	3	VP_31	219	0.12	1.10E-07	1.11E-07	2.42E-05	1.33E-08
31E	Thallium	7440-28-0	3	VP_31	219	0.12	2.89E-08	2.92E-08	6.33E-06	3.48E-09
31E	Vanadium	7440-62-2	3	VP_31	219	0.12	1.38E-05	1.40E-05	3.03E-03	1.66E-06
31E	Zinc	7440-66-6	3	VP_31	219	0.12	1.41E-04	1.43E-04	3.09E-02	1.70E-05
33A	Aluminum	7429-90-5	3	VP_33	67	0.02	1.51E-03	1.55E-03	1.00E-01	3.76E-05
33A	Antimony	7440-36-0	3	VP_33	67	0.02	2.77E-07	2.84E-07	1.84E-05	6.90E-09
33A	Arsenic	7440-38-2	3	VP_33	67	0.02	6.80E-07	6.98E-07	4.53E-05	1.70E-08
33A	Barium	7440-39-3	3	VP_33	67	0.02	4.33E-05	4.45E-05	2.88E-03	1.08E-06
33A	Beryllium	7440-41-7	3	VP_33	67	0.02	8.72E-08	8.95E-08	5.80E-06	2.17E-09
33A	Cadmium	7440-43-9	3	VP_33	67	0.02	5.36E-07	5.50E-07	3.57E-05	1.34E-08
33A	Chromium	7440-47-3	3	VP_33	67	0.02	8.21E-05	8.43E-05	5.46E-03	2.05E-06
33A	Chromium VI	18540-29-9	3	VP_33	67	0.02	4.58E-08	4.70E-08	3.05E-06	1.14E-09
33A	Cobalt	7440-48-4	3	VP_33	67	0.02	2.06E-06	2.11E-06	1.37E-04	5.14E-08
33A	Copper	7440-50-8	3	VP_33	67	0.02	4.14E-05	4.25E-05	2.75E-03	1.03E-06
33A	Lead	7439-92-1	3	VP_33	67	0.02	2.02E-05	2.08E-05	1.35E-03	5.05E-07
33A	Manganese	7439-96-5	3	VP_33	67	0.02	1.03E-03	1.06E-03	6.85E-02	2.57E-05
33A	Mercury	7439-97-6	3	VP_33	67	0.02	2.78E-08	2.86E-08	1.85E-06	6.94E-10
33A	Nickel	7440-02-0	3	VP_33	67	0.02	1.64E-05	1.68E-05	1.09E-03	4.09E-07
33A	Selenium	7782-49-2	3	VP_33	67	0.02	7.87E-08	8.08E-08	5.24E-06	1.96E-09
33A	Silver	7440-22-4	3	VP_33	67	0.02	1.35E-07	1.38E-07	8.96E-06	3.36E-09
33A	Thallium	7440-28-0	3	VP_33	67	0.02	3.53E-08	3.62E-08	2.35E-06	8.80E-10
33A	Vanadium	7440-62-2	3	VP_33	67	0.02	1.69E-05	1.73E-05	1.12E-03	4.21E-07
33A	Zinc	7440-66-6	3	VP_33	67	0.02	1.72E-04	1.77E-04	1.15E-02	4.30E-06
33B	Aluminum	7429-90-5	3	VP_33	67	0.04	1.51E-03	1.55E-03	1.00E-01	5.60E-05
33B	Antimony	7440-36-0	3	VP_33	67	0.04	2.77E-07	2.84E-07	1.84E-05	1.03E-08
33B	Arsenic	7440-38-2	3	VP_33	67	0.04	6.80E-07	6.98E-07	4.53E-05	2.53E-08
33B	Barium	7440-39-3	3	VP_33	67	0.04	4.33E-05	4.45E-05	2.88E-03	1.61E-06
33B	Beryllium	7440-41-7	3	VP_33	67	0.04	8.72E-08	8.95E-08	5.80E-06	3.24E-09
33B	Cadmium	7440-43-9	3	VP_33	67	0.04	5.36E-07	5.50E-07	3.57E-05	1.99E-08
33B	Chromium	7440-47-3	3	VP_33	67	0.04	8.21E-05	8.43E-05	5.46E-03	3.05E-06
33B	Chromium VI	18540-29-9	3	VP_33	67	0.04	4.58E-08	4.70E-08	3.05E-06	1.70E-09
33B	Cobalt	7440-48-4	3	VP_33	67	0.04	2.06E-06	2.11E-06	1.37E-04	7.65E-08
33B	Copper	7440-50-8	3	VP_33	67	0.04	4.14E-05	4.25E-05	2.75E-03	1.54E-06
33B	Lead	7439-92-1	3	VP_33	67	0.04	2.02E-05	2.08E-05	1.35E-03	7.52E-07
33B	Manganese	7439-96-5	3	VP_33	67	0.04	1.03E-03	1.06E-03	6.85E-02	3.82E-05
33B	Mercury	7439-97-6	3	VP_33	67	0.04	2.78E-08	2.86E-08	1.85E-06	1.03E-09
33B	Nickel	7440-02-0	3	VP_33	67	0.04	1.64E-05	1.68E-05	1.09E-03	6.09E-07
33B	Selenium	7782-49-2	3	VP_33	67	0.04	7.87E-08	8.08E-08	5.24E-06	2.92E-09
33B	Silver	7440-22-4	3	VP_33	67	0.04	1.35E-07	1.38E-07	8.96E-06	5.00E-09
33B	Thallium	7440-28-0	3	VP_33	67	0.04	3.53E-08	3.62E-08	2.35E-06	1.31E-09
33B	Vanadium	7440-62-2	3	VP_33	67	0.04	1.69E-05	1.73E-05	1.12E-03	6.27E-07
33B	Zinc	7440-66-6	3	VP_33	67	0.04	1.72E-04	1.77E-04	1.15E-02	6.40E-06
33C	Aluminum	7429-90-5	3	VP_33	64	0.04	1.51E-03	1.55E-03	9.73E-02	5.43E-05
33C	Antimony	7440-36-0	3	VP_33	64	0.04	2.77E-07	2.84E-07	1.78E-05	9.94E-09
33C	Arsenic	7440-38-2	3	VP_33	64	0.04	6.80E-07	6.98E-07	4.39E-05	2.45E-08
33C	Barium	7440-39-3	3	VP_33	64	0.04	4.33E-05	4.45E-05	2.79E-03	1.56E-06
33C	Beryllium	7440-41-7	3	VP_33	64	0.04	8.72E-08	8.95E-08	5.62E-06	3.14E-09
33C	Cadmium	7440-43-9	3	VP_33	64	0.04	5.36E-07	5.50E-07	3.45E-05	1.93E-08
33C	Chromium	7440-47-3	3	VP_33	64	0.04	8.21E-05	8.43E-05	5.29E-03	2.95E-06
33C	Chromium VI	18540-29-9	3	VP_33	64	0.04	4.58E-08	4.70E-08	2.95E-06	1.65E-09
33C	Cobalt	7440-48-4	3	VP_33	64	0.04	2.06E-06	2.11E-06	1.33E-04	7.41E-08
33C	Copper	7440-50-8	3	VP_33	64	0.04	4.14E-05	4.25E-05	2.67E-03	1.49E-06
33C	Lead	7439-92-1	3	VP_33	64	0.04	2.02E-05	2.08E-05	1.31E-03	7.28E-07
33C	Manganese	7439-96-5	3	VP_33	64	0.04	1.03E-03	1.06E-03	6.64E-02	3.70E-05
33C	Mercury	7439-97-6	3	VP_33	64	0.04	2.78E-08	2.86E-08	1.79E-06	1.00E-09
33C	Nickel	7440-02-0	3	VP_33	64	0.04	1.64E-05	1.68E-05	1.06E-03	5.90E-07
33C	Selenium	7782-49-2	3	VP_33	64	0.04	7.87E-08	8.08E-08	5.07E-06	2.83E-09
33C	Silver	7440-22-4	3	VP_33	64	0.04	1.35E-07	1.38E-07	8.68E-06	4.84E-09
33C	Thallium	7440-28-0	3	VP_33	64	0.04	3.53E-08	3.62E-08	2.27E-06	1.27E-09
33C	Vanadium	7440-62-2	3	VP_33	64	0.04	1.69E-05	1.73E-05	1.09E-03	6.07E-07
33C	Zinc	7440-66-6	3	VP_33	64	0.04	1.72E-04	1.77E-04	1.11E-02	6.20E-06

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
33D	Aluminum	7429-90-5	3	VP_33	64	0.02	1.51E-03	1.55E-03	9.73E-02	3.64E-05
33D	Antimony	7440-36-0	3	VP_33	64	0.02	2.77E-07	2.84E-07	1.78E-05	6.68E-09
33D	Arsenic	7440-38-2	3	VP_33	64	0.02	6.80E-07	6.98E-07	4.39E-05	1.64E-08
33D	Barium	7440-39-3	3	VP_33	64	0.02	4.33E-05	4.45E-05	2.79E-03	1.05E-06
33D	Beryllium	7440-41-7	3	VP_33	64	0.02	8.72E-08	8.95E-08	5.62E-06	2.11E-09
33D	Cadmium	7440-43-9	3	VP_33	64	0.02	5.36E-07	5.50E-07	3.45E-05	1.29E-08
33D	Chromium	7440-47-3	3	VP_33	64	0.02	8.21E-05	8.43E-05	5.29E-03	1.98E-06
33D	Chromium VI	18540-29-9	3	VP_33	64	0.02	4.58E-08	4.70E-08	2.95E-06	1.11E-09
33D	Cobalt	7440-48-4	3	VP_33	64	0.02	2.06E-06	2.11E-06	1.33E-04	4.98E-08
33D	Copper	7440-50-8	3	VP_33	64	0.02	4.14E-05	4.25E-05	2.67E-03	9.99E-07
33D	Lead	7439-92-1	3	VP_33	64	0.02	2.02E-05	2.08E-05	1.31E-03	4.89E-07
33D	Manganese	7439-96-5	3	VP_33	64	0.02	1.03E-03	1.06E-03	6.64E-02	2.49E-05
33D	Mercury	7439-97-6	3	VP_33	64	0.02	2.78E-08	2.86E-08	1.79E-06	6.72E-10
33D	Nickel	7440-02-0	3	VP_33	64	0.02	1.64E-05	1.68E-05	1.06E-03	3.96E-07
33D	Selenium	7782-49-2	3	VP_33	64	0.02	7.87E-08	8.08E-08	5.07E-06	1.90E-09
33D	Silver	7440-22-4	3	VP_33	64	0.02	1.35E-07	1.38E-07	8.68E-06	3.25E-09
33D	Thallium	7440-28-0	3	VP_33	64	0.02	3.53E-08	3.62E-08	2.27E-06	8.52E-10
33D	Vanadium	7440-62-2	3	VP_33	64	0.02	1.69E-05	1.73E-05	1.09E-03	4.08E-07
33D	Zinc	7440-66-6	3	VP_33	64	0.02	1.72E-04	1.77E-04	1.11E-02	4.16E-06
33E	Aluminum	7429-90-5	3	VP_33	43	0.02	1.51E-03	1.55E-03	6.56E-02	3.66E-05
33E	Antimony	7440-36-0	3	VP_33	43	0.02	2.77E-07	2.84E-07	1.20E-05	6.70E-09
33E	Arsenic	7440-38-2	3	VP_33	43	0.02	6.80E-07	6.98E-07	2.96E-05	1.65E-08
33E	Barium	7440-39-3	3	VP_33	43	0.02	4.33E-05	4.45E-05	1.88E-03	1.05E-06
33E	Beryllium	7440-41-7	3	VP_33	43	0.02	8.72E-08	8.95E-08	3.79E-06	2.11E-09
33E	Cadmium	7440-43-9	3	VP_33	43	0.02	5.36E-07	5.50E-07	2.33E-05	1.30E-08
33E	Chromium	7440-47-3	3	VP_33	43	0.02	8.21E-05	8.43E-05	3.57E-03	1.99E-06
33E	Chromium VI	18540-29-9	3	VP_33	43	0.02	4.58E-08	4.70E-08	1.99E-06	1.11E-09
33E	Cobalt	7440-48-4	3	VP_33	43	0.02	2.06E-06	2.11E-06	8.95E-05	4.99E-08
33E	Copper	7440-50-8	3	VP_33	43	0.02	4.14E-05	4.25E-05	1.80E-03	1.00E-06
33E	Lead	7439-92-1	3	VP_33	43	0.02	2.02E-05	2.08E-05	8.80E-04	4.91E-07
33E	Manganese	7439-96-5	3	VP_33	43	0.02	1.03E-03	1.06E-03	4.47E-02	2.50E-05
33E	Mercury	7439-97-6	3	VP_33	43	0.02	2.78E-08	2.86E-08	1.21E-06	6.75E-10
33E	Nickel	7440-02-0	3	VP_33	43	0.02	1.64E-05	1.68E-05	7.12E-04	3.97E-07
33E	Selenium	7782-49-2	3	VP_33	43	0.02	7.87E-08	8.08E-08	3.42E-06	1.91E-09
33E	Silver	7440-22-4	3	VP_33	43	0.02	1.35E-07	1.38E-07	5.85E-06	3.26E-09
33E	Thallium	7440-28-0	3	VP_33	43	0.02	3.53E-08	3.62E-08	1.53E-06	8.55E-10
33E	Vanadium	7440-62-2	3	VP_33	43	0.02	1.69E-05	1.73E-05	7.34E-04	4.09E-07
33E	Zinc	7440-66-6	3	VP_33	43	0.02	1.72E-04	1.77E-04	7.49E-03	4.18E-06
33F	Aluminum	7429-90-5	3	VP_33	127	0.06	1.51E-03	1.55E-03	1.91E-01	1.00E-04
33F	Antimony	7440-36-0	3	VP_33	127	0.06	2.77E-07	2.84E-07	3.51E-05	1.84E-08
33F	Arsenic	7440-38-2	3	VP_33	127	0.06	6.80E-07	6.98E-07	8.63E-05	4.52E-08
33F	Barium	7440-39-3	3	VP_33	127	0.06	4.33E-05	4.45E-05	5.49E-03	2.88E-06
33F	Beryllium	7440-41-7	3	VP_33	127	0.06	8.72E-08	8.95E-08	1.11E-05	5.80E-09
33F	Cadmium	7440-43-9	3	VP_33	127	0.06	5.36E-07	5.50E-07	6.79E-05	3.56E-08
33F	Chromium	7440-47-3	3	VP_33	127	0.06	8.21E-05	8.43E-05	1.04E-02	5.46E-06
33F	Chromium VI	18540-29-9	3	VP_33	127	0.06	4.58E-08	4.70E-08	5.81E-06	3.05E-09
33F	Cobalt	7440-48-4	3	VP_33	127	0.06	2.06E-06	2.11E-06	2.61E-04	1.37E-07
33F	Copper	7440-50-8	3	VP_33	127	0.06	4.14E-05	4.25E-05	5.25E-03	2.75E-06
33F	Lead	7439-92-1	3	VP_33	127	0.06	2.02E-05	2.08E-05	2.57E-03	1.35E-06
33F	Manganese	7439-96-5	3	VP_33	127	0.06	1.03E-03	1.06E-03	1.31E-01	6.85E-05
33F	Mercury	7439-97-6	3	VP_33	127	0.06	2.78E-08	2.86E-08	3.53E-06	1.85E-09
33F	Nickel	7440-02-0	3	VP_33	127	0.06	1.64E-05	1.68E-05	2.08E-03	1.09E-06
33F	Selenium	7782-49-2	3	VP_33	127	0.06	7.87E-08	8.08E-08	9.98E-06	5.23E-09
33F	Silver	7440-22-4	3	VP_33	127	0.06	1.35E-07	1.38E-07	1.71E-05	8.96E-09
33F	Thallium	7440-28-0	3	VP_33	127	0.06	3.53E-08	3.62E-08	4.47E-06	2.35E-09
33F	Vanadium	7440-62-2	3	VP_33	127	0.06	1.69E-05	1.73E-05	2.14E-03	1.12E-06
33F	Zinc	7440-66-6	3	VP_33	127	0.06	1.72E-04	1.77E-04	2.19E-02	1.15E-05
34A	Aluminum	7429-90-5	3	VP_34	193	0.07	1.18E-03	1.19E-03	2.27E-01	8.34E-05
34A	Antimony	7440-36-0	3	VP_34	193	0.07	2.16E-07	2.17E-07	4.16E-05	1.53E-08
34A	Arsenic	7440-38-2	3	VP_34	193	0.07	5.32E-07	5.35E-07	1.02E-04	3.76E-08
34A	Barium	7440-39-3	3	VP_34	193	0.07	3.39E-05	3.41E-05	6.53E-03	2.40E-06
34A	Beryllium	7440-41-7	3	VP_34	193	0.07	6.82E-08	6.86E-08	1.31E-05	4.82E-09
34A	Cadmium	7440-43-9	3	VP_34	193	0.07	4.19E-07	4.21E-07	8.07E-05	2.96E-08
34A	Chromium	7440-47-3	3	VP_34	193	0.07	6.42E-05	6.46E-05	1.24E-02	4.54E-06
34A	Chromium VI	18540-29-9	3	VP_34	193	0.07	3.58E-08	3.60E-08	6.90E-06	2.53E-09
34A	Cobalt	7440-48-4	3	VP_34	193	0.07	1.61E-06	1.62E-06	3.10E-04	1.14E-07
34A	Copper	7440-50-8	3	VP_34	193	0.07	3.23E-05	3.25E-05	6.23E-03	2.29E-06
34A	Lead	7439-92-1	3	VP_34	193	0.07	1.58E-05	1.59E-05	3.05E-03	1.12E-06
34A	Manganese	7439-96-5	3	VP_34	193	0.07	8.05E-04	8.10E-04	1.55E-01	5.70E-05
34A	Mercury	7439-97-6	3	VP_34	193	0.07	2.18E-08	2.19E-08	4.19E-06	1.54E-09
34A	Nickel	7440-02-0	3	VP_34	193	0.07	1.28E-05	1.29E-05	2.47E-03	9.07E-07
34A	Selenium	7782-49-2	3	VP_34	193	0.07	6.15E-08	6.19E-08	1.19E-05	4.35E-09
34A	Silver	7440-22-4	3	VP_34	193	0.07	1.05E-07	1.06E-07	2.03E-05	7.45E-09
34A	Thallium	7440-28-0	3	VP_34	193	0.07	2.76E-08	2.77E-08	5.31E-06	1.95E-09
34A	Vanadium	7440-62-2	3	VP_34	193	0.07	1.32E-05	1.33E-05	2.54E-03	9.34E-07
34A	Zinc	7440-66-6	3	VP_34	193	0.07	1.35E-04	1.36E-04	2.60E-02	9.53E-06

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
34B	Aluminum	7429-90-5	3	VP_34	192	0.10	1.18E-03	1.19E-03	2.27E-01	1.24E-04
34B	Antimony	7440-36-0	3	VP_34	192	0.10	2.16E-07	2.17E-07	4.16E-05	2.28E-08
34B	Arsenic	7440-38-2	3	VP_34	192	0.10	5.32E-07	5.35E-07	1.02E-04	5.60E-08
34B	Barium	7440-39-3	3	VP_34	192	0.10	3.39E-05	3.41E-05	6.52E-03	3.57E-06
34B	Beryllium	7440-41-7	3	VP_34	192	0.10	6.82E-08	6.86E-08	1.31E-05	7.17E-09
34B	Cadmium	7440-43-9	3	VP_34	192	0.10	4.19E-07	4.21E-07	8.06E-05	4.41E-08
34B	Chromium	7440-47-3	3	VP_34	192	0.10	6.42E-05	6.46E-05	1.24E-02	6.75E-06
34B	Chromium VI	18540-29-9	3	VP_34	192	0.10	3.58E-08	3.60E-08	6.90E-06	3.77E-09
34B	Cobalt	7440-48-4	3	VP_34	192	0.10	1.61E-06	1.62E-06	3.10E-04	1.69E-07
34B	Copper	7440-50-8	3	VP_34	192	0.10	3.23E-05	3.25E-05	6.23E-03	3.40E-06
34B	Lead	7439-92-1	3	VP_34	192	0.10	1.58E-05	1.59E-05	3.05E-03	1.67E-06
34B	Manganese	7439-96-5	3	VP_34	192	0.10	8.05E-04	8.10E-04	1.55E-01	8.47E-05
34B	Mercury	7439-97-6	3	VP_34	192	0.10	2.18E-08	2.19E-08	4.19E-06	2.29E-09
34B	Nickel	7440-02-0	3	VP_34	192	0.10	1.28E-05	1.29E-05	2.47E-03	1.35E-06
34B	Selenium	7782-49-2	3	VP_34	192	0.10	6.15E-08	6.19E-08	1.18E-05	6.48E-09
34B	Silver	7440-22-4	3	VP_34	192	0.10	1.05E-07	1.06E-07	2.03E-05	1.11E-08
34B	Thallium	7440-28-0	3	VP_34	192	0.10	2.76E-08	2.77E-08	5.31E-06	2.90E-09
34B	Vanadium	7440-62-2	3	VP_34	192	0.10	1.32E-05	1.33E-05	2.54E-03	1.39E-06
34B	Zinc	7440-66-6	3	VP_34	192	0.10	1.35E-04	1.36E-04	2.59E-02	1.42E-05
34C	Aluminum	7429-90-5	3	VP_34	126	0.07	1.18E-03	1.19E-03	1.48E-01	8.11E-05
34C	Antimony	7440-36-0	3	VP_34	126	0.07	2.16E-07	2.17E-07	2.72E-05	1.49E-08
34C	Arsenic	7440-38-2	3	VP_34	126	0.07	5.32E-07	5.35E-07	6.69E-05	3.66E-08
34C	Barium	7440-39-3	3	VP_34	126	0.07	3.39E-05	3.41E-05	4.26E-03	2.33E-06
34C	Beryllium	7440-41-7	3	VP_34	126	0.07	6.82E-08	6.86E-08	8.57E-06	4.69E-09
34C	Cadmium	7440-43-9	3	VP_34	126	0.07	4.19E-07	4.21E-07	5.27E-05	2.88E-08
34C	Chromium	7440-47-3	3	VP_34	126	0.07	6.42E-05	6.46E-05	8.07E-03	4.41E-06
34C	Chromium VI	18540-29-9	3	VP_34	126	0.07	3.58E-08	3.60E-08	4.51E-06	2.46E-09
34C	Cobalt	7440-48-4	3	VP_34	126	0.07	1.61E-06	1.62E-06	2.03E-04	1.11E-07
34C	Copper	7440-50-8	3	VP_34	126	0.07	3.23E-05	3.25E-05	4.07E-03	2.22E-06
34C	Lead	7439-92-1	3	VP_34	126	0.07	1.58E-05	1.59E-05	1.99E-03	1.09E-06
34C	Manganese	7439-96-5	3	VP_34	126	0.07	8.05E-04	8.10E-04	1.01E-01	5.54E-05
34C	Mercury	7439-97-6	3	VP_34	126	0.07	2.18E-08	2.19E-08	2.74E-06	1.50E-09
34C	Nickel	7440-02-0	3	VP_34	126	0.07	1.28E-05	1.29E-05	1.61E-03	8.81E-07
34C	Selenium	7782-49-2	3	VP_34	126	0.07	6.15E-08	6.19E-08	7.74E-06	4.23E-09
34C	Silver	7440-22-4	3	VP_34	126	0.07	1.05E-07	1.06E-07	1.32E-05	7.24E-09
34C	Thallium	7440-28-0	3	VP_34	126	0.07	2.76E-08	2.77E-08	3.47E-06	1.90E-09
34C	Vanadium	7440-62-2	3	VP_34	126	0.07	1.32E-05	1.33E-05	1.66E-03	9.08E-07
34C	Zinc	7440-66-6	3	VP_34	126	0.07	1.35E-04	1.36E-04	1.69E-02	9.26E-06
34D	Aluminum	7429-90-5	3	VP_34	23	0.01	1.18E-03	1.19E-03	2.69E-02	1.47E-05
34D	Antimony	7440-36-0	3	VP_34	23	0.01	2.16E-07	2.17E-07	4.93E-06	2.70E-09
34D	Arsenic	7440-38-2	3	VP_34	23	0.01	5.32E-07	5.35E-07	1.21E-05	6.64E-09
34D	Barium	7440-39-3	3	VP_34	23	0.01	3.39E-05	3.41E-05	7.73E-04	4.23E-07
34D	Beryllium	7440-41-7	3	VP_34	23	0.01	6.82E-08	6.86E-08	1.56E-06	8.51E-10
34D	Cadmium	7440-43-9	3	VP_34	23	0.01	4.19E-07	4.21E-07	9.56E-06	5.22E-09
34D	Chromium	7440-47-3	3	VP_34	23	0.01	6.42E-05	6.46E-05	1.46E-03	8.01E-07
34D	Chromium VI	18540-29-9	3	VP_34	23	0.01	3.58E-08	3.60E-08	8.18E-07	4.47E-10
34D	Cobalt	7440-48-4	3	VP_34	23	0.01	1.61E-06	1.62E-06	3.68E-05	2.01E-08
34D	Copper	7440-50-8	3	VP_34	23	0.01	3.23E-05	3.25E-05	7.38E-04	4.04E-07
34D	Lead	7439-92-1	3	VP_34	23	0.01	1.58E-05	1.59E-05	3.61E-04	1.98E-07
34D	Manganese	7439-96-5	3	VP_34	23	0.01	8.05E-04	8.10E-04	1.84E-02	1.00E-05
34D	Mercury	7439-97-6	3	VP_34	23	0.01	2.18E-08	2.19E-08	4.97E-07	2.72E-10
34D	Nickel	7440-02-0	3	VP_34	23	0.01	1.28E-05	1.29E-05	2.93E-04	1.60E-07
34D	Selenium	7782-49-2	3	VP_34	23	0.01	6.15E-08	6.19E-08	1.40E-06	7.68E-10
34D	Silver	7440-22-4	3	VP_34	23	0.01	1.05E-07	1.06E-07	2.40E-06	1.31E-09
34D	Thallium	7440-28-0	3	VP_34	23	0.01	2.76E-08	2.77E-08	6.29E-07	3.44E-10
34D	Vanadium	7440-62-2	3	VP_34	23	0.01	1.32E-05	1.33E-05	3.01E-04	1.65E-07
34D	Zinc	7440-66-6	3	VP_34	23	0.01	1.35E-04	1.36E-04	3.07E-03	1.68E-06
35A	Aluminum	7429-90-5	3	VP_35	97	0.04	1.58E-03	1.63E-03	1.53E-01	5.76E-05
35A	Antimony	7440-36-0	3	VP_35	97	0.04	2.89E-07	2.99E-07	2.80E-05	1.05E-08
35A	Arsenic	7440-38-2	3	VP_35	97	0.04	7.12E-07	7.36E-07	6.88E-05	2.60E-08
35A	Barium	7440-39-3	3	VP_35	97	0.04	4.53E-05	4.69E-05	4.38E-03	1.65E-06
35A	Beryllium	7440-41-7	3	VP_35	97	0.04	9.12E-08	9.43E-08	8.81E-06	3.33E-09
35A	Cadmium	7440-43-9	3	VP_35	97	0.04	5.60E-07	5.79E-07	5.41E-05	2.04E-08
35A	Chromium	7440-47-3	3	VP_35	97	0.04	8.59E-05	8.88E-05	8.30E-03	3.13E-06
35A	Chromium VI	18540-29-9	3	VP_35	97	0.04	4.79E-08	4.96E-08	4.63E-06	1.75E-09
35A	Cobalt	7440-48-4	3	VP_35	97	0.04	2.15E-06	2.23E-06	2.08E-04	7.86E-08
35A	Copper	7440-50-8	3	VP_35	97	0.04	4.33E-05	4.47E-05	4.18E-03	1.58E-06
35A	Lead	7439-92-1	3	VP_35	97	0.04	2.12E-05	2.19E-05	2.05E-03	7.72E-07
35A	Manganese	7439-96-5	3	VP_35	97	0.04	1.08E-03	1.11E-03	1.04E-01	3.93E-05
35A	Mercury	7439-97-6	3	VP_35	97	0.04	2.91E-08	3.01E-08	2.81E-06	1.06E-09
35A	Nickel	7440-02-0	3	VP_35	97	0.04	1.71E-05	1.77E-05	1.66E-03	6.25E-07
35A	Selenium	7782-49-2	3	VP_35	97	0.04	8.23E-08	8.51E-08	7.96E-06	3.00E-09
35A	Silver	7440-22-4	3	VP_35	97	0.04	1.41E-07	1.46E-07	1.36E-05	5.14E-09
35A	Thallium	7440-28-0	3	VP_35	97	0.04	3.69E-08	3.81E-08	3.57E-06	1.35E-09
35A	Vanadium	7440-62-2	3	VP_35	97	0.04	1.77E-05	1.83E-05	1.71E-03	6.44E-07
35A	Zinc	7440-66-6	3	VP_35	97	0.04	1.80E-04	1.86E-04	1.74E-02	6.57E-06

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
35B	Aluminum	7429-90-5	3	VP_35	97	0.05	1.58E-03	1.63E-03	1.53E-01	8.57E-05
35B	Antimony	7440-36-0	3	VP_35	97	0.05	2.89E-07	2.99E-07	2.80E-05	1.57E-08
35B	Arsenic	7440-38-2	3	VP_35	97	0.05	7.12E-07	7.36E-07	6.88E-05	3.86E-08
35B	Barium	7440-39-3	3	VP_35	97	0.05	4.53E-05	4.69E-05	4.38E-03	2.46E-06
35B	Beryllium	7440-41-7	3	VP_35	97	0.05	9.12E-08	9.43E-08	8.81E-06	4.95E-09
35B	Cadmium	7440-43-9	3	VP_35	97	0.05	5.60E-07	5.79E-07	5.41E-05	3.04E-08
35B	Chromium	7440-47-3	3	VP_35	97	0.05	8.59E-05	8.88E-05	8.30E-03	4.66E-06
35B	Chromium VI	18540-29-9	3	VP_35	97	0.05	4.79E-08	4.96E-08	4.63E-06	2.60E-09
35B	Cobalt	7440-48-4	3	VP_35	97	0.05	2.15E-06	2.23E-06	2.08E-04	1.17E-07
35B	Copper	7440-50-8	3	VP_35	97	0.05	4.33E-05	4.47E-05	4.18E-03	2.35E-06
35B	Lead	7439-92-1	3	VP_35	97	0.05	2.12E-05	2.19E-05	2.05E-03	1.15E-06
35B	Manganese	7439-96-5	3	VP_35	97	0.05	1.08E-03	1.11E-03	1.04E-01	5.85E-05
35B	Mercury	7439-97-6	3	VP_35	97	0.05	2.91E-08	3.01E-08	2.81E-06	1.58E-09
35B	Nickel	7440-02-0	3	VP_35	97	0.05	1.71E-05	1.77E-05	1.66E-03	9.31E-07
35B	Selenium	7782-49-2	3	VP_35	97	0.05	8.23E-08	8.51E-08	7.96E-06	4.47E-09
35B	Silver	7440-22-4	3	VP_35	97	0.05	1.41E-07	1.46E-07	1.36E-05	7.65E-09
35B	Thallium	7440-28-0	3	VP_35	97	0.05	3.69E-08	3.81E-08	3.57E-06	2.00E-09
35B	Vanadium	7440-62-2	3	VP_35	97	0.05	1.77E-05	1.83E-05	1.71E-03	9.59E-07
35B	Zinc	7440-66-6	3	VP_35	97	0.05	1.80E-04	1.86E-04	1.74E-02	9.79E-06
35C	Aluminum	7429-90-5	3	VP_35	94	0.05	1.58E-03	1.63E-03	1.48E-01	8.30E-05
35C	Antimony	7440-36-0	3	VP_35	94	0.05	2.89E-07	2.99E-07	2.71E-05	1.52E-08
35C	Arsenic	7440-38-2	3	VP_35	94	0.05	7.12E-07	7.36E-07	6.66E-05	3.74E-08
35C	Barium	7440-39-3	3	VP_35	94	0.05	4.53E-05	4.69E-05	4.24E-03	2.38E-06
35C	Beryllium	7440-41-7	3	VP_35	94	0.05	9.12E-08	9.43E-08	8.54E-06	4.80E-09
35C	Cadmium	7440-43-9	3	VP_35	94	0.05	5.60E-07	5.79E-07	5.24E-05	2.95E-08
35C	Chromium	7440-47-3	3	VP_35	94	0.05	8.59E-05	8.88E-05	8.04E-03	4.51E-06
35C	Chromium VI	18540-29-9	3	VP_35	94	0.05	4.79E-08	4.96E-08	4.49E-06	2.52E-09
35C	Cobalt	7440-48-4	3	VP_35	94	0.05	2.15E-06	2.23E-06	2.02E-04	1.13E-07
35C	Copper	7440-50-8	3	VP_35	94	0.05	4.33E-05	4.47E-05	4.05E-03	2.28E-06
35C	Lead	7439-92-1	3	VP_35	94	0.05	2.12E-05	2.19E-05	1.98E-03	1.11E-06
35C	Manganese	7439-96-5	3	VP_35	94	0.05	1.08E-03	1.11E-03	1.01E-01	5.66E-05
35C	Mercury	7439-97-6	3	VP_35	94	0.05	2.91E-08	3.01E-08	2.72E-06	1.53E-09
35C	Nickel	7440-02-0	3	VP_35	94	0.05	1.71E-05	1.77E-05	1.60E-03	9.02E-07
35C	Selenium	7782-49-2	3	VP_35	94	0.05	8.23E-08	8.51E-08	7.70E-06	4.33E-09
35C	Silver	7440-22-4	3	VP_35	94	0.05	1.41E-07	1.46E-07	1.32E-05	7.41E-09
35C	Thallium	7440-28-0	3	VP_35	94	0.05	3.69E-08	3.81E-08	3.45E-06	1.94E-09
35C	Vanadium	7440-62-2	3	VP_35	94	0.05	1.77E-05	1.83E-05	1.65E-03	9.29E-07
35C	Zinc	7440-66-6	3	VP_35	94	0.05	1.80E-04	1.86E-04	1.69E-02	9.48E-06
35D	Aluminum	7429-90-5	3	VP_35	94	0.03	1.58E-03	1.63E-03	1.48E-01	5.57E-05
35D	Antimony	7440-36-0	3	VP_35	94	0.03	2.89E-07	2.99E-07	2.71E-05	1.02E-08
35D	Arsenic	7440-38-2	3	VP_35	94	0.03	7.12E-07	7.36E-07	6.66E-05	2.51E-08
35D	Barium	7440-39-3	3	VP_35	94	0.03	4.53E-05	4.69E-05	4.24E-03	1.60E-06
35D	Beryllium	7440-41-7	3	VP_35	94	0.03	9.12E-08	9.43E-08	8.54E-06	3.22E-09
35D	Cadmium	7440-43-9	3	VP_35	94	0.03	5.60E-07	5.79E-07	5.24E-05	1.98E-08
35D	Chromium	7440-47-3	3	VP_35	94	0.03	8.59E-05	8.88E-05	8.04E-03	3.03E-06
35D	Chromium VI	18540-29-9	3	VP_35	94	0.03	4.79E-08	4.96E-08	4.49E-06	1.69E-09
35D	Cobalt	7440-48-4	3	VP_35	94	0.03	2.15E-06	2.23E-06	2.02E-04	7.61E-08
35D	Copper	7440-50-8	3	VP_35	94	0.03	4.33E-05	4.47E-05	4.05E-03	1.53E-06
35D	Lead	7439-92-1	3	VP_35	94	0.03	2.12E-05	2.19E-05	1.98E-03	7.48E-07
35D	Manganese	7439-96-5	3	VP_35	94	0.03	1.08E-03	1.11E-03	1.01E-01	3.80E-05
35D	Mercury	7439-97-6	3	VP_35	94	0.03	2.91E-08	3.01E-08	2.72E-06	1.03E-09
35D	Nickel	7440-02-0	3	VP_35	94	0.03	1.71E-05	1.77E-05	1.60E-03	6.06E-07
35D	Selenium	7782-49-2	3	VP_35	94	0.03	8.23E-08	8.51E-08	7.70E-06	2.91E-09
35D	Silver	7440-22-4	3	VP_35	94	0.03	1.41E-07	1.46E-07	1.32E-05	4.97E-09
35D	Thallium	7440-28-0	3	VP_35	94	0.03	3.69E-08	3.81E-08	3.45E-06	1.30E-09
35D	Vanadium	7440-62-2	3	VP_35	94	0.03	1.77E-05	1.83E-05	1.65E-03	6.24E-07
35D	Zinc	7440-66-6	3	VP_35	94	0.03	1.80E-04	1.86E-04	1.69E-02	6.37E-06
35E	Aluminum	7429-90-5	3	VP_35	184	0.09	1.58E-03	1.63E-03	2.91E-01	1.53E-04
35E	Antimony	7440-36-0	3	VP_35	184	0.09	2.89E-07	2.99E-07	5.32E-05	2.81E-08
35E	Arsenic	7440-38-2	3	VP_35	184	0.09	7.12E-07	7.36E-07	1.31E-04	6.92E-08
35E	Barium	7440-39-3	3	VP_35	184	0.09	4.53E-05	4.69E-05	8.34E-03	4.41E-06
35E	Beryllium	7440-41-7	3	VP_35	184	0.09	9.12E-08	9.43E-08	1.68E-05	8.87E-09
35E	Cadmium	7440-43-9	3	VP_35	184	0.09	5.60E-07	5.79E-07	1.03E-04	5.45E-08
35E	Chromium	7440-47-3	3	VP_35	184	0.09	8.59E-05	8.88E-05	1.58E-02	8.35E-06
35E	Chromium VI	18540-29-9	3	VP_35	184	0.09	4.79E-08	4.96E-08	8.82E-06	4.66E-09
35E	Cobalt	7440-48-4	3	VP_35	184	0.09	2.15E-06	2.23E-06	3.97E-04	2.09E-07
35E	Copper	7440-50-8	3	VP_35	184	0.09	4.33E-05	4.47E-05	7.97E-03	4.21E-06
35E	Lead	7439-92-1	3	VP_35	184	0.09	2.12E-05	2.19E-05	3.90E-03	2.06E-06
35E	Manganese	7439-96-5	3	VP_35	184	0.09	1.08E-03	1.11E-03	1.98E-01	1.05E-04
35E	Mercury	7439-97-6	3	VP_35	184	0.09	2.91E-08	3.01E-08	5.36E-06	2.83E-09
35E	Nickel	7440-02-0	3	VP_35	184	0.09	1.71E-05	1.77E-05	3.16E-03	1.67E-06
35E	Selenium	7782-49-2	3	VP_35	184	0.09	8.23E-08	8.51E-08	1.52E-05	8.01E-09
35E	Silver	7440-22-4	3	VP_35	184	0.09	1.41E-07	1.46E-07	2.59E-05	1.37E-08
35E	Thallium	7440-28-0	3	VP_35	184	0.09	3.69E-08	3.81E-08	6.79E-06	3.59E-09
35E	Vanadium	7440-62-2	3	VP_35	184	0.09	1.77E-05	1.83E-05	3.25E-03	1.72E-06
35E	Zinc	7440-66-6	3	VP_35	184	0.09	1.80E-04	1.86E-04	3.32E-02	1.75E-05

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
13A	Aluminum	7429-90-5	3	VP_13	421	0.15	1.29E-03	1.32E-03	5.44E-01	2.02E-04
13A	Antimony	7440-36-0	3	VP_13	421	0.15	2.37E-07	2.41E-07	9.97E-05	3.71E-08
13A	Arsenic	7440-38-2	3	VP_13	421	0.15	5.82E-07	5.93E-07	2.45E-04	9.12E-08
13A	Barium	7440-39-3	3	VP_13	421	0.15	3.71E-05	3.78E-05	1.56E-02	5.81E-06
13A	Beryllium	7440-41-7	3	VP_13	421	0.15	7.46E-08	7.60E-08	3.14E-05	1.17E-08
13A	Cadmium	7440-43-9	3	VP_13	421	0.15	4.58E-07	4.67E-07	1.93E-04	7.18E-08
13A	Chromium	7440-47-3	3	VP_13	421	0.15	7.02E-05	7.16E-05	2.96E-02	1.10E-05
13A	Chromium VI	18540-29-9	3	VP_13	421	0.15	3.92E-08	4.00E-08	1.65E-05	6.14E-09
13A	Cobalt	7440-48-4	3	VP_13	421	0.15	1.76E-06	1.80E-06	7.42E-04	2.76E-07
13A	Copper	7440-50-8	3	VP_13	421	0.15	3.54E-05	3.61E-05	1.49E-02	5.54E-06
13A	Lead	7439-92-1	3	VP_13	421	0.15	1.73E-05	1.77E-05	7.30E-03	2.71E-06
13A	Manganese	7439-96-5	3	VP_13	421	0.15	8.81E-04	8.98E-04	3.71E-01	1.38E-04
13A	Mercury	7439-97-6	3	VP_13	421	0.15	2.38E-08	2.43E-08	1.00E-05	3.73E-09
13A	Nickel	7440-02-0	3	VP_13	421	0.15	1.40E-05	1.43E-05	5.91E-03	2.20E-06
13A	Selenium	7782-49-2	3	VP_13	421	0.15	6.74E-08	6.86E-08	2.84E-05	1.05E-08
13A	Silver	7440-22-4	3	VP_13	421	0.15	1.15E-07	1.17E-07	4.85E-05	1.80E-08
13A	Thallium	7440-28-0	3	VP_13	421	0.15	3.02E-08	3.08E-08	1.27E-05	4.73E-09
13A	Vanadium	7440-62-2	3	VP_13	421	0.15	1.44E-05	1.47E-05	6.09E-03	2.26E-06
13A	Zinc	7440-66-6	3	VP_13	421	0.15	1.47E-04	1.50E-04	6.21E-02	2.31E-05
13B	Aluminum	7429-90-5	3	VP_13	435	0.16	1.29E-03	1.32E-03	5.61E-01	2.09E-04
13B	Antimony	7440-36-0	3	VP_13	435	0.16	2.37E-07	2.41E-07	1.03E-04	3.83E-08
13B	Arsenic	7440-38-2	3	VP_13	435	0.16	5.82E-07	5.93E-07	2.53E-04	9.42E-08
13B	Barium	7440-39-3	3	VP_13	435	0.16	3.71E-05	3.78E-05	1.61E-02	6.00E-06
13B	Beryllium	7440-41-7	3	VP_13	435	0.16	7.46E-08	7.60E-08	3.24E-05	1.21E-08
13B	Cadmium	7440-43-9	3	VP_13	435	0.16	4.58E-07	4.67E-07	1.99E-04	7.41E-08
13B	Chromium	7440-47-3	3	VP_13	435	0.16	7.02E-05	7.16E-05	3.05E-02	1.14E-05
13B	Chromium VI	18540-29-9	3	VP_13	435	0.16	3.92E-08	4.00E-08	1.71E-05	6.34E-09
13B	Cobalt	7440-48-4	3	VP_13	435	0.16	1.76E-06	1.80E-06	7.66E-04	2.85E-07
13B	Copper	7440-50-8	3	VP_13	435	0.16	3.54E-05	3.61E-05	1.54E-02	5.73E-06
13B	Lead	7439-92-1	3	VP_13	435	0.16	1.73E-05	1.77E-05	7.54E-03	2.80E-06
13B	Manganese	7439-96-5	3	VP_13	435	0.16	8.81E-04	8.98E-04	3.83E-01	1.43E-04
13B	Mercury	7439-97-6	3	VP_13	435	0.16	2.38E-08	2.43E-08	1.04E-05	3.85E-09
13B	Nickel	7440-02-0	3	VP_13	435	0.16	1.40E-05	1.43E-05	6.10E-03	2.27E-06
13B	Selenium	7782-49-2	3	VP_13	435	0.16	6.74E-08	6.86E-08	2.93E-05	1.09E-08
13B	Silver	7440-22-4	3	VP_13	435	0.16	1.15E-07	1.17E-07	5.01E-05	1.86E-08
13B	Thallium	7440-28-0	3	VP_13	435	0.16	3.02E-08	3.08E-08	1.31E-05	4.88E-09
13B	Vanadium	7440-62-2	3	VP_13	435	0.16	1.44E-05	1.47E-05	6.28E-03	2.34E-06
13B	Zinc	7440-66-6	3	VP_13	435	0.16	1.47E-04	1.50E-04	6.41E-02	2.38E-05
13C	Aluminum	7429-90-5	3	VP_13	1380	0.50	1.29E-03	1.32E-03	1.78E+00	6.63E-04
13C	Antimony	7440-36-0	3	VP_13	1380	0.50	2.37E-07	2.41E-07	3.27E-04	1.21E-07
13C	Arsenic	7440-38-2	3	VP_13	1380	0.50	5.82E-07	5.93E-07	8.04E-04	2.99E-07
13C	Barium	7440-39-3	3	VP_13	1380	0.50	3.71E-05	3.78E-05	5.12E-02	1.90E-05
13C	Beryllium	7440-41-7	3	VP_13	1380	0.50	7.46E-08	7.60E-08	1.03E-04	3.83E-08
13C	Cadmium	7440-43-9	3	VP_13	1380	0.50	4.58E-07	4.67E-07	6.33E-04	2.35E-07
13C	Chromium	7440-47-3	3	VP_13	1380	0.50	7.02E-05	7.16E-05	9.69E-02	3.61E-05
13C	Chromium VI	18540-29-9	3	VP_13	1380	0.50	3.92E-08	4.00E-08	5.41E-05	2.01E-08
13C	Cobalt	7440-48-4	3	VP_13	1380	0.50	1.76E-06	1.80E-06	2.43E-03	9.05E-07
13C	Copper	7440-50-8	3	VP_13	1380	0.50	3.54E-05	3.61E-05	4.89E-02	1.82E-05
13C	Lead	7439-92-1	3	VP_13	1380	0.50	1.73E-05	1.77E-05	2.39E-02	8.89E-06
13C	Manganese	7439-96-5	3	VP_13	1380	0.50	8.81E-04	8.98E-04	1.22E+00	4.52E-04
13C	Mercury	7439-97-6	3	VP_13	1380	0.50	2.38E-08	2.43E-08	3.29E-05	1.22E-08
13C	Nickel	7440-02-0	3	VP_13	1380	0.50	1.40E-05	1.43E-05	1.94E-02	7.20E-06
13C	Selenium	7782-49-2	3	VP_13	1380	0.50	6.74E-08	6.86E-08	9.30E-05	3.46E-08
13C	Silver	7440-22-4	3	VP_13	1380	0.50	1.15E-07	1.17E-07	1.59E-04	5.92E-08
13C	Thallium	7440-28-0	3	VP_13	1380	0.50	3.02E-08	3.08E-08	4.17E-05	1.55E-08
13C	Vanadium	7440-62-2	3	VP_13	1380	0.50	1.44E-05	1.47E-05	1.99E-02	7.42E-06
13C	Zinc	7440-66-6	3	VP_13	1380	0.50	1.47E-04	1.50E-04	2.04E-01	7.57E-05
20	Aluminum	7429-90-5	3	VP_20	1426	0.52	1.29E-03	1.32E-03	1.84E+00	6.85E-04
20	Antimony	7440-36-0	3	VP_20	1426	0.52	2.37E-07	2.41E-07	3.37E-04	1.25E-07
20	Arsenic	7440-38-2	3	VP_20	1426	0.52	5.82E-07	5.93E-07	8.30E-04	3.09E-07
20	Barium	7440-39-3	3	VP_20	1426	0.52	3.71E-05	3.78E-05	5.29E-02	1.97E-05
20	Beryllium	7440-41-7	3	VP_20	1426	0.52	7.46E-08	7.60E-08	1.06E-04	3.96E-08
20	Cadmium	7440-43-9	3	VP_20	1426	0.52	4.58E-07	4.67E-07	6.54E-04	2.43E-07
20	Chromium	7440-47-3	3	VP_20	1426	0.52	7.02E-05	7.16E-05	1.00E-01	3.73E-05
20	Chromium VI	18540-29-9	3	VP_20	1426	0.52	3.92E-08	4.00E-08	5.59E-05	2.08E-08
20	Cobalt	7440-48-4	3	VP_20	1426	0.52	1.76E-06	1.80E-06	2.51E-03	9.35E-07
20	Copper	7440-50-8	3	VP_20	1426	0.52	3.54E-05	3.61E-05	5.05E-02	1.88E-05
20	Lead	7439-92-1	3	VP_20	1426	0.52	1.73E-05	1.77E-05	2.47E-02	9.19E-06
20	Manganese	7439-96-5	3	VP_20	1426	0.52	8.81E-04	8.98E-04	1.26E+00	4.67E-04
20	Mercury	7439-97-6	3	VP_20	1426	0.52	2.38E-08	2.43E-08	3.40E-05	1.26E-08
20	Nickel	7440-02-0	3	VP_20	1426	0.52	1.40E-05	1.43E-05	2.00E-02	7.44E-06
20	Selenium	7782-49-2	3	VP_20	1426	0.52	6.74E-08	6.86E-08	9.61E-05	3.57E-08
20	Silver	7440-22-4	3	VP_20	1426	0.52	1.15E-07	1.17E-07	1.64E-04	6.11E-08
20	Thallium	7440-28-0	3	VP_20	1426	0.52	3.02E-08	3.08E-08	4.30E-05	1.60E-08
20	Vanadium	7440-62-2	3	VP_20	1426	0.52	1.44E-05	1.47E-05	2.06E-02	7.66E-06
20	Zinc	7440-66-6	3	VP_20	1426	0.52	1.47E-04	1.50E-04	2.10E-01	7.82E-05

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
2A	Aluminum	7429-90-5	2	VP_2	101	0.05	9.64E-03	9.83E-03	9.73E-01	5.39E-04
2A	Antimony	7440-36-0	2	VP_2	101	0.05	7.55E-06	7.69E-06	7.61E-04	4.21E-07
2A	Arsenic	7440-38-2	2	VP_2	101	0.05	1.05E-05	1.07E-05	1.06E-03	5.88E-07
2A	Barium	7440-39-3	2	VP_2	101	0.05	5.04E-04	5.14E-04	5.08E-02	2.82E-05
2A	Beryllium	7440-41-7	2	VP_2	101	0.05	4.50E-07	4.59E-07	4.54E-05	2.51E-08
2A	Cadmium	7440-43-9	2	VP_2	101	0.05	1.29E-05	1.32E-05	1.30E-03	7.22E-07
2A	Chromium	7440-47-3	2	VP_2	101	0.05	5.08E-04	5.17E-04	5.12E-02	2.83E-05
2A	Chromium VI	18540-29-9	2	VP_2	101	0.05	3.91E-07	3.98E-07	3.94E-05	2.18E-08
2A	Cobalt	7440-48-4	2	VP_2	101	0.05	6.46E-05	6.59E-05	6.52E-03	3.61E-06
2A	Copper	7440-50-8	2	VP_2	101	0.05	5.31E-04	5.41E-04	5.36E-02	2.97E-05
2A	Lead	7439-92-1	2	VP_2	101	0.05	5.18E-04	5.28E-04	5.22E-02	2.89E-05
2A	Manganese	7439-96-5	2	VP_2	101	0.05	3.65E-03	3.72E-03	3.69E-01	2.04E-04
2A	Mercury	7439-97-6	2	VP_2	101	0.05	2.67E-06	2.72E-06	2.70E-04	1.49E-07
2A	Nickel	7440-02-0	2	VP_2	101	0.05	4.33E-04	4.41E-04	4.36E-02	2.42E-05
2A	Selenium	7782-49-2	2	VP_2	101	0.05	5.25E-07	5.34E-07	5.29E-05	2.93E-08
2A	Silver	7440-22-4	2	VP_2	101	0.05	2.47E-06	2.52E-06	2.49E-04	1.38E-07
2A	Thallium	7440-28-0	2	VP_2	101	0.05	1.79E-07	1.83E-07	1.81E-05	1.00E-08
2A	Vanadium	7440-62-2	2	VP_2	101	0.05	8.09E-05	8.24E-05	8.16E-03	4.52E-06
2A	Zinc	7440-66-6	2	VP_2	101	0.05	3.49E-03	3.55E-03	3.51E-01	1.95E-04
2B	Aluminum	7429-90-5	2	VP_2	320	0.17	9.64E-03	9.83E-03	3.09E+00	1.71E-03
2B	Antimony	7440-36-0	2	VP_2	320	0.17	7.55E-06	7.69E-06	2.42E-03	1.34E-06
2B	Arsenic	7440-38-2	2	VP_2	320	0.17	1.05E-05	1.07E-05	3.37E-03	1.87E-06
2B	Barium	7440-39-3	2	VP_2	320	0.17	5.04E-04	5.14E-04	1.61E-01	8.94E-05
2B	Beryllium	7440-41-7	2	VP_2	320	0.17	4.50E-07	4.59E-07	1.44E-04	7.98E-08
2B	Cadmium	7440-43-9	2	VP_2	320	0.17	1.29E-05	1.32E-05	4.14E-03	2.29E-06
2B	Chromium	7440-47-3	2	VP_2	320	0.17	5.08E-04	5.17E-04	1.62E-01	9.00E-05
2B	Chromium VI	18540-29-9	2	VP_2	320	0.17	3.91E-07	3.98E-07	1.25E-04	6.93E-08
2B	Cobalt	7440-48-4	2	VP_2	320	0.17	6.46E-05	6.59E-05	2.07E-02	1.15E-05
2B	Copper	7440-50-8	2	VP_2	320	0.17	5.31E-04	5.41E-04	1.70E-01	9.42E-05
2B	Lead	7439-92-1	2	VP_2	320	0.17	5.18E-04	5.28E-04	1.66E-01	9.18E-05
2B	Manganese	7439-96-5	2	VP_2	320	0.17	3.65E-03	3.72E-03	1.17E+00	6.48E-04
2B	Mercury	7439-97-6	2	VP_2	320	0.17	2.67E-06	2.72E-06	8.56E-04	4.74E-07
2B	Nickel	7440-02-0	2	VP_2	320	0.17	4.33E-04	4.41E-04	1.39E-01	7.67E-05
2B	Selenium	7782-49-2	2	VP_2	320	0.17	5.25E-07	5.34E-07	1.68E-04	9.30E-08
2B	Silver	7440-22-4	2	VP_2	320	0.17	2.47E-06	2.52E-06	7.91E-04	4.38E-07
2B	Thallium	7440-28-0	2	VP_2	320	0.17	1.79E-07	1.83E-07	5.74E-05	3.18E-08
2B	Vanadium	7440-62-2	2	VP_2	320	0.17	8.09E-05	8.24E-05	2.59E-02	1.43E-05
2B	Zinc	7440-66-6	2	VP_2	320	0.17	3.49E-03	3.55E-03	1.12E+00	6.18E-04
2C	Aluminum	7429-90-5	2	VP_2	98	0.05	9.64E-03	9.83E-03	9.42E-01	5.22E-04
2C	Antimony	7440-36-0	2	VP_2	98	0.05	7.55E-06	7.69E-06	7.37E-04	4.08E-07
2C	Arsenic	7440-38-2	2	VP_2	98	0.05	1.05E-05	1.07E-05	1.03E-03	5.69E-07
2C	Barium	7440-39-3	2	VP_2	98	0.05	5.04E-04	5.14E-04	4.92E-02	2.73E-05
2C	Beryllium	7440-41-7	2	VP_2	98	0.05	4.50E-07	4.59E-07	4.40E-05	2.43E-08
2C	Cadmium	7440-43-9	2	VP_2	98	0.05	1.29E-05	1.32E-05	1.26E-03	6.99E-07
2C	Chromium	7440-47-3	2	VP_2	98	0.05	5.08E-04	5.17E-04	4.96E-02	2.74E-05
2C	Chromium VI	18540-29-9	2	VP_2	98	0.05	3.91E-07	3.98E-07	3.82E-05	2.11E-08
2C	Cobalt	7440-48-4	2	VP_2	98	0.05	6.46E-05	6.59E-05	6.31E-03	3.50E-06
2C	Copper	7440-50-8	2	VP_2	98	0.05	5.31E-04	5.41E-04	5.19E-02	2.87E-05
2C	Lead	7439-92-1	2	VP_2	98	0.05	5.18E-04	5.28E-04	5.06E-02	2.80E-05
2C	Manganese	7439-96-5	2	VP_2	98	0.05	3.65E-03	3.72E-03	3.57E-01	1.98E-04
2C	Mercury	7439-97-6	2	VP_2	98	0.05	2.67E-06	2.72E-06	2.61E-04	1.45E-07
2C	Nickel	7440-02-0	2	VP_2	98	0.05	4.33E-04	4.41E-04	4.23E-02	2.34E-05
2C	Selenium	7782-49-2	2	VP_2	98	0.05	5.25E-07	5.34E-07	5.12E-05	2.84E-08
2C	Silver	7440-22-4	2	VP_2	98	0.05	2.47E-06	2.52E-06	2.41E-04	1.34E-07
2C	Thallium	7440-28-0	2	VP_2	98	0.05	1.79E-07	1.83E-07	1.75E-05	9.70E-09
2C	Vanadium	7440-62-2	2	VP_2	98	0.05	8.09E-05	8.24E-05	7.90E-03	4.37E-06
2C	Zinc	7440-66-6	2	VP_2	98	0.05	3.49E-03	3.55E-03	3.40E-01	1.88E-04
16	Aluminum	7429-90-5	2	VP_16	173	0.09	6.66E-03	6.79E-03	1.15E+00	6.38E-04
16	Antimony	7440-36-0	2	VP_16	173	0.09	5.21E-06	5.31E-06	9.01E-04	4.99E-07
16	Arsenic	7440-38-2	2	VP_16	173	0.09	7.27E-06	7.41E-06	1.26E-03	6.96E-07
16	Barium	7440-39-3	2	VP_16	173	0.09	3.48E-04	3.55E-04	6.02E-02	3.33E-05
16	Beryllium	7440-41-7	2	VP_16	173	0.09	3.11E-07	3.17E-07	5.37E-05	2.98E-08
16	Cadmium	7440-43-9	2	VP_16	173	0.09	8.93E-06	9.10E-06	1.54E-03	8.55E-07
16	Chromium	7440-47-3	2	VP_16	173	0.09	3.51E-04	3.57E-04	6.06E-02	3.36E-05
16	Chromium VI	18540-29-9	2	VP_16	173	0.09	2.70E-07	2.75E-07	4.67E-05	2.58E-08
16	Cobalt	7440-48-4	2	VP_16	173	0.09	4.46E-05	4.55E-05	7.72E-03	4.27E-06
16	Copper	7440-50-8	2	VP_16	173	0.09	3.67E-04	3.74E-04	6.34E-02	3.51E-05
16	Lead	7439-92-1	2	VP_16	173	0.09	3.58E-04	3.64E-04	6.18E-02	3.42E-05
16	Manganese	7439-96-5	2	VP_16	173	0.09	2.52E-03	2.57E-03	4.36E-01	2.42E-04
16	Mercury	7439-97-6	2	VP_16	173	0.09	1.85E-06	1.88E-06	3.19E-04	1.77E-07
16	Nickel	7440-02-0	2	VP_16	173	0.09	2.99E-04	3.05E-04	5.17E-02	2.86E-05
16	Selenium	7782-49-2	2	VP_16	173	0.09	3.62E-07	3.69E-07	6.26E-05	3.47E-08
16	Silver	7440-22-4	2	VP_16	173	0.09	1.71E-06	1.74E-06	2.95E-04	1.63E-07
16	Thallium	7440-28-0	2	VP_16	173	0.09	1.24E-07	1.26E-07	2.14E-05	1.19E-08
16	Vanadium	7440-62-2	2	VP_16	173	0.09	5.59E-05	5.69E-05	9.66E-03	5.35E-06
16	Zinc	7440-66-6	2	VP_16	173	0.09	2.41E-03	2.45E-03	4.16E-01	2.30E-04

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
28	Aluminum	7429-90-5	2	VP_28	521	0.27	1.62E-02	1.65E-02	8.46E+00	4.40E-03
28	Antimony	7440-36-0	2	VP_28	521	0.27	1.27E-05	1.29E-05	6.62E-03	3.45E-06
28	Arsenic	7440-38-2	2	VP_28	521	0.27	1.77E-05	1.81E-05	9.23E-03	4.80E-06
28	Barium	7440-39-3	2	VP_28	521	0.27	8.49E-04	8.65E-04	4.42E-01	2.30E-04
28	Beryllium	7440-41-7	2	VP_28	521	0.27	7.58E-07	7.72E-07	3.95E-04	2.05E-07
28	Cadmium	7440-43-9	2	VP_28	521	0.27	2.18E-05	2.22E-05	1.13E-02	5.90E-06
28	Chromium	7440-47-3	2	VP_28	521	0.27	8.55E-04	8.71E-04	4.45E-01	2.32E-04
28	Chromium VI	18540-29-9	2	VP_28	521	0.27	6.58E-07	6.71E-07	3.43E-04	1.78E-07
28	Cobalt	7440-48-4	2	VP_28	521	0.27	1.09E-04	1.11E-04	5.67E-02	2.95E-05
28	Copper	7440-50-8	2	VP_28	521	0.27	8.95E-04	9.11E-04	4.66E-01	2.43E-04
28	Lead	7439-92-1	2	VP_28	521	0.27	8.72E-04	8.88E-04	4.54E-01	2.36E-04
28	Manganese	7439-96-5	2	VP_28	521	0.27	6.15E-03	6.27E-03	3.21E+00	1.67E-03
28	Mercury	7439-97-6	2	VP_28	521	0.27	4.50E-06	4.59E-06	2.34E-03	1.22E-06
28	Nickel	7440-02-0	2	VP_28	521	0.27	7.29E-04	7.43E-04	3.80E-01	1.98E-04
28	Selenium	7782-49-2	2	VP_28	521	0.27	8.83E-07	9.00E-07	4.60E-04	2.39E-07
28	Silver	7440-22-4	2	VP_28	521	0.27	4.16E-06	4.24E-06	2.17E-03	1.13E-06
28	Thallium	7440-28-0	2	VP_28	521	0.27	3.02E-07	3.08E-07	1.57E-04	8.19E-08
28	Vanadium	7440-62-2	2	VP_28	521	0.27	1.36E-04	1.39E-04	7.09E-02	3.69E-05
28	Zinc	7440-66-6	2	VP_28	521	0.27	5.87E-03	5.98E-03	3.06E+00	1.59E-03
24	Aluminum	7429-90-5	1	VP_24	2817	2.31	4.99E-03	5.08E-03	1.40E+01	1.18E-02
24	Antimony	7440-36-0	1	VP_24	2817	2.31	3.44E-06	3.51E-06	9.70E-03	8.11E-06
24	Arsenic	7440-38-2	1	VP_24	2817	2.31	5.62E-06	5.72E-06	1.58E-02	1.32E-05
24	Barium	7440-39-3	1	VP_24	2817	2.31	2.31E-04	2.35E-04	6.50E-01	5.44E-04
24	Beryllium	7440-41-7	1	VP_24	2817	2.31	2.86E-07	2.91E-07	8.05E-04	6.73E-07
24	Cadmium	7440-43-9	1	VP_24	2817	2.31	6.80E-06	6.92E-06	1.91E-02	1.60E-05
24	Chromium	7440-47-3	1	VP_24	2817	2.31	3.40E-04	3.47E-04	9.59E-01	8.02E-04
24	Chromium VI	18540-29-9	1	VP_24	2817	2.31	1.57E-07	1.60E-07	4.43E-04	3.70E-07
24	Cobalt	7440-48-4	1	VP_24	2817	2.31	3.56E-05	3.63E-05	1.00E-01	8.39E-05
24	Copper	7440-50-8	1	VP_24	2817	2.31	3.01E-04	3.07E-04	8.48E-01	7.10E-04
24	Lead	7439-92-1	1	VP_24	2817	2.31	2.45E-04	2.50E-04	6.91E-01	5.78E-04
24	Manganese	7439-96-5	1	VP_24	2817	2.31	1.80E-03	1.83E-03	5.06E+00	4.24E-03
24	Mercury	7439-97-6	1	VP_24	2817	2.31	7.37E-07	7.51E-07	2.08E-03	1.74E-06
24	Nickel	7440-02-0	1	VP_24	2817	2.31	2.69E-04	2.74E-04	7.58E-01	6.34E-04
24	Selenium	7782-49-2	1	VP_24	2817	2.31	2.49E-07	2.53E-07	7.01E-04	5.86E-07
24	Silver	7440-22-4	1	VP_24	2817	2.31	1.21E-06	1.24E-06	3.42E-03	2.86E-06
24	Thallium	7440-28-0	1	VP_24	2817	2.31	1.01E-07	1.03E-07	2.85E-04	2.38E-07
24	Vanadium	7440-62-2	1	VP_24	2817	2.31	3.52E-05	3.59E-05	9.92E-02	8.30E-05
24	Zinc	7440-66-6	1	VP_24	2817	2.31	1.95E-03	1.99E-03	5.50E+00	4.60E-03
27	Aluminum	7429-90-5	2	VP_27	393	0.20	1.62E-02	1.65E-02	6.38E+00	3.32E-03
27	Antimony	7440-36-0	2	VP_27	393	0.20	1.27E-05	1.29E-05	4.99E-03	2.60E-06
27	Arsenic	7440-38-2	2	VP_27	393	0.20	1.77E-05	1.81E-05	6.97E-03	3.63E-06
27	Barium	7440-39-3	2	VP_27	393	0.20	8.49E-04	8.65E-04	3.34E-01	1.74E-04
27	Beryllium	7440-41-7	2	VP_27	393	0.20	7.58E-07	7.72E-07	2.98E-04	1.55E-07
27	Cadmium	7440-43-9	2	VP_27	393	0.20	2.18E-05	2.22E-05	8.56E-03	4.45E-06
27	Chromium	7440-47-3	2	VP_27	393	0.20	8.55E-04	8.71E-04	3.36E-01	1.75E-04
27	Chromium VI	18540-29-9	2	VP_27	393	0.20	6.58E-07	6.71E-07	2.59E-04	1.35E-07
27	Cobalt	7440-48-4	2	VP_27	393	0.20	1.09E-04	1.11E-04	4.28E-02	2.23E-05
27	Copper	7440-50-8	2	VP_27	393	0.20	8.95E-04	9.11E-04	3.52E-01	1.83E-04
27	Lead	7439-92-1	2	VP_27	393	0.20	8.72E-04	8.88E-04	3.43E-01	1.78E-04
27	Manganese	7439-96-5	2	VP_27	393	0.20	6.15E-03	6.27E-03	2.42E+00	1.26E-03
27	Mercury	7439-97-6	2	VP_27	393	0.20	4.50E-06	4.59E-06	1.77E-03	9.21E-07
27	Nickel	7440-02-0	2	VP_27	393	0.20	7.29E-04	7.43E-04	2.86E-01	1.49E-04
27	Selenium	7782-49-2	2	VP_27	393	0.20	8.83E-07	9.00E-07	3.47E-04	1.81E-07
27	Silver	7440-22-4	2	VP_27	393	0.20	4.16E-06	4.24E-06	1.64E-03	8.51E-07
27	Thallium	7440-28-0	2	VP_27	393	0.20	3.02E-07	3.08E-07	1.19E-04	6.18E-08
27	Vanadium	7440-62-2	2	VP_27	393	0.20	1.36E-04	1.39E-04	5.35E-02	2.79E-05
27	Zinc	7440-66-6	2	VP_27	393	0.20	5.87E-03	5.98E-03	2.31E+00	1.20E-03
17	Aluminum	7429-90-5	3	VP_17	113	0.06	8.92E-04	9.09E-04	1.01E-01	5.58E-05
17	Antimony	7440-36-0	3	VP_17	113	0.06	1.63E-07	1.67E-07	1.85E-05	1.02E-08
17	Arsenic	7440-38-2	3	VP_17	113	0.06	4.02E-07	4.10E-07	4.55E-05	2.52E-08
17	Barium	7440-39-3	3	VP_17	113	0.06	2.56E-05	2.61E-05	2.90E-03	1.60E-06
17	Beryllium	7440-41-7	3	VP_17	113	0.06	5.15E-08	5.25E-08	5.83E-06	3.23E-09
17	Cadmium	7440-43-9	3	VP_17	113	0.06	3.17E-07	3.23E-07	3.58E-05	1.98E-08
17	Chromium	7440-47-3	3	VP_17	113	0.06	4.85E-05	4.94E-05	5.49E-03	3.04E-06
17	Chromium VI	18540-29-9	3	VP_17	113	0.06	2.71E-08	2.76E-08	3.06E-06	1.70E-09
17	Cobalt	7440-48-4	3	VP_17	113	0.06	1.22E-06	1.24E-06	1.38E-04	7.62E-08
17	Copper	7440-50-8	3	VP_17	113	0.06	2.44E-05	2.49E-05	2.77E-03	1.53E-06
17	Lead	7439-92-1	3	VP_17	113	0.06	1.20E-05	1.22E-05	1.35E-03	7.49E-07
17	Manganese	7439-96-5	3	VP_17	113	0.06	6.09E-04	6.20E-04	6.88E-02	3.81E-05
17	Mercury	7439-97-6	3	VP_17	113	0.06	1.65E-08	1.68E-08	1.86E-06	1.03E-09
17	Nickel	7440-02-0	3	VP_17	113	0.06	9.69E-06	9.87E-06	1.10E-03	6.07E-07
17	Selenium	7782-49-2	3	VP_17	113	0.06	4.65E-08	4.74E-08	5.26E-06	2.91E-09
17	Silver	7440-22-4	3	VP_17	113	0.06	7.96E-08	8.11E-08	9.00E-06	4.98E-09
17	Thallium	7440-28-0	3	VP_17	113	0.06	2.08E-08	2.12E-08	2.36E-06	1.31E-09
17	Vanadium	7440-62-2	3	VP_17	113	0.06	9.98E-06	1.02E-05	1.13E-03	6.25E-07
17	Zinc	7440-66-6	3	VP_17	113	0.06	1.02E-04	1.04E-04	1.15E-02	6.38E-06

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
37A	Aluminum	7429-90-5	1	VP_37	1185	0.44	4.99E-03	5.08E-03	5.91E+00	2.24E-03
37A	Antimony	7440-36-0	1	VP_37	1185	0.44	3.44E-06	3.51E-06	4.08E-03	1.55E-06
37A	Arsenic	7440-38-2	1	VP_37	1185	0.44	5.62E-06	5.72E-06	6.66E-03	2.52E-06
37A	Barium	7440-39-3	1	VP_37	1185	0.44	2.31E-04	2.35E-04	2.74E-01	1.04E-04
37A	Beryllium	7440-41-7	1	VP_37	1185	0.44	2.86E-07	2.91E-07	3.38E-04	1.28E-07
37A	Cadmium	7440-43-9	1	VP_37	1185	0.44	6.80E-06	6.92E-06	8.05E-03	3.05E-06
37A	Chromium	7440-47-3	1	VP_37	1185	0.44	3.40E-04	3.47E-04	4.03E-01	1.53E-04
37A	Chromium VI	18540-29-9	1	VP_37	1185	0.44	1.57E-07	1.60E-07	1.86E-04	7.05E-08
37A	Cobalt	7440-48-4	1	VP_37	1185	0.44	3.56E-05	3.63E-05	4.22E-02	1.60E-05
37A	Copper	7440-50-8	1	VP_37	1185	0.44	3.01E-04	3.07E-04	3.57E-01	1.35E-04
37A	Lead	7439-92-1	1	VP_37	1185	0.44	2.45E-04	2.50E-04	2.90E-01	1.10E-04
37A	Manganese	7439-96-5	1	VP_37	1185	0.44	1.80E-03	1.83E-03	2.13E+00	8.07E-04
37A	Mercury	7439-97-6	1	VP_37	1185	0.44	7.37E-07	7.51E-07	8.73E-04	3.31E-07
37A	Nickel	7440-02-0	1	VP_37	1185	0.44	2.69E-04	2.74E-04	3.19E-01	1.21E-04
37A	Selenium	7782-49-2	1	VP_37	1185	0.44	2.49E-07	2.53E-07	2.95E-04	1.12E-07
37A	Silver	7440-22-4	1	VP_37	1185	0.44	1.21E-06	1.24E-06	1.44E-03	5.45E-07
37A	Thallium	7440-28-0	1	VP_37	1185	0.44	1.01E-07	1.03E-07	1.20E-04	4.54E-08
37A	Vanadium	7440-62-2	1	VP_37	1185	0.44	3.52E-05	3.59E-05	4.17E-02	1.58E-05
37A	Zinc	7440-66-6	1	VP_37	1185	0.44	1.95E-03	1.99E-03	2.31E+00	8.76E-04
37B	Aluminum	7429-90-5	1	VP_37	1347	1.11	4.99E-03	5.08E-03	6.72E+00	5.62E-03
37B	Antimony	7440-36-0	1	VP_37	1347	1.11	3.44E-06	3.51E-06	4.64E-03	3.88E-06
37B	Arsenic	7440-38-2	1	VP_37	1347	1.11	5.62E-06	5.72E-06	7.57E-03	6.33E-06
37B	Barium	7440-39-3	1	VP_37	1347	1.11	2.31E-04	2.35E-04	3.11E-01	2.60E-04
37B	Beryllium	7440-41-7	1	VP_37	1347	1.11	2.86E-07	2.91E-07	3.85E-04	3.22E-07
37B	Cadmium	7440-43-9	1	VP_37	1347	1.11	6.80E-06	6.92E-06	9.15E-03	7.66E-06
37B	Chromium	7440-47-3	1	VP_37	1347	1.11	3.40E-04	3.47E-04	4.58E-01	3.84E-04
37B	Chromium VI	18540-29-9	1	VP_37	1347	1.11	1.57E-07	1.60E-07	2.12E-04	1.77E-07
37B	Cobalt	7440-48-4	1	VP_37	1347	1.11	3.56E-05	3.63E-05	4.79E-02	4.01E-05
37B	Copper	7440-50-8	1	VP_37	1347	1.11	3.01E-04	3.07E-04	4.06E-01	3.39E-04
37B	Lead	7439-92-1	1	VP_37	1347	1.11	2.45E-04	2.50E-04	3.30E-01	2.76E-04
37B	Manganese	7439-96-5	1	VP_37	1347	1.11	1.80E-03	1.83E-03	2.42E+00	2.03E-03
37B	Mercury	7439-97-6	1	VP_37	1347	1.11	7.37E-07	7.51E-07	9.92E-04	8.30E-07
37B	Nickel	7440-02-0	1	VP_37	1347	1.11	2.69E-04	2.74E-04	3.62E-01	3.03E-04
37B	Selenium	7782-49-2	1	VP_37	1347	1.11	2.49E-07	2.53E-07	3.35E-04	2.80E-07
37B	Silver	7440-22-4	1	VP_37	1347	1.11	1.21E-06	1.24E-06	1.63E-03	1.37E-06
37B	Thallium	7440-28-0	1	VP_37	1347	1.11	1.01E-07	1.03E-07	1.36E-04	1.14E-07
37B	Vanadium	7440-62-2	1	VP_37	1347	1.11	3.52E-05	3.59E-05	4.74E-02	3.97E-05
37B	Zinc	7440-66-6	1	VP_37	1347	1.11	1.95E-03	1.99E-03	2.63E+00	2.20E-03
23	Aluminum	7429-90-5	1	VP_23	1306	1.07	4.99E-03	5.08E-03	6.51E+00	5.45E-03
23	Antimony	7440-36-0	1	VP_23	1306	1.07	3.44E-06	3.51E-06	4.50E-03	3.76E-06
23	Arsenic	7440-38-2	1	VP_23	1306	1.07	5.62E-06	5.72E-06	7.34E-03	6.14E-06
23	Barium	7440-39-3	1	VP_23	1306	1.07	2.31E-04	2.35E-04	3.02E-01	2.52E-04
23	Beryllium	7440-41-7	1	VP_23	1306	1.07	2.86E-07	2.91E-07	3.73E-04	3.12E-07
23	Cadmium	7440-43-9	1	VP_23	1306	1.07	6.80E-06	6.92E-06	8.87E-03	7.42E-06
23	Chromium	7440-47-3	1	VP_23	1306	1.07	3.40E-04	3.47E-04	4.45E-01	3.72E-04
23	Chromium VI	18540-29-9	1	VP_23	1306	1.07	1.57E-07	1.60E-07	2.05E-04	1.72E-07
23	Cobalt	7440-48-4	1	VP_23	1306	1.07	3.56E-05	3.63E-05	4.65E-02	3.89E-05
23	Copper	7440-50-8	1	VP_23	1306	1.07	3.01E-04	3.07E-04	3.93E-01	3.29E-04
23	Lead	7439-92-1	1	VP_23	1306	1.07	2.45E-04	2.50E-04	3.20E-01	2.68E-04
23	Manganese	7439-96-5	1	VP_23	1306	1.07	1.80E-03	1.83E-03	2.35E+00	1.96E-03
23	Mercury	7439-97-6	1	VP_23	1306	1.07	7.37E-07	7.51E-07	9.62E-04	8.05E-07
23	Nickel	7440-02-0	1	VP_23	1306	1.07	2.69E-04	2.74E-04	3.51E-01	2.94E-04
23	Selenium	7782-49-2	1	VP_23	1306	1.07	2.49E-07	2.53E-07	3.25E-04	2.72E-07
23	Silver	7440-22-4	1	VP_23	1306	1.07	1.21E-06	1.24E-06	1.59E-03	1.33E-06
23	Thallium	7440-28-0	1	VP_23	1306	1.07	1.01E-07	1.03E-07	1.32E-04	1.11E-07
23	Vanadium	7440-62-2	1	VP_23	1306	1.07	3.52E-05	3.59E-05	4.60E-02	3.85E-05
23	Zinc	7440-66-6	1	VP_23	1306	1.07	1.95E-03	1.99E-03	2.55E+00	2.13E-03
5A	Aluminum	7429-90-5	3	VP_5	515	0.28	1.29E-03	1.32E-03	6.65E-01	3.68E-04
5A	Antimony	7440-36-0	3	VP_5	515	0.28	2.37E-07	2.41E-07	1.22E-04	6.75E-08
5A	Arsenic	7440-38-2	3	VP_5	515	0.28	5.82E-07	5.93E-07	3.00E-04	1.66E-07
5A	Barium	7440-39-3	3	VP_5	515	0.28	3.71E-05	3.78E-05	1.91E-02	1.06E-05
5A	Beryllium	7440-41-7	3	VP_5	515	0.28	7.46E-08	7.60E-08	3.84E-05	2.13E-08
5A	Cadmium	7440-43-9	3	VP_5	515	0.28	4.58E-07	4.67E-07	2.36E-04	1.31E-07
5A	Chromium	7440-47-3	3	VP_5	515	0.28	7.02E-05	7.16E-05	3.62E-02	2.00E-05
5A	Chromium VI	18540-29-9	3	VP_5	515	0.28	3.92E-08	4.00E-08	2.02E-05	1.12E-08
5A	Cobalt	7440-48-4	3	VP_5	515	0.28	1.76E-06	1.80E-06	9.08E-04	5.03E-07
5A	Copper	7440-50-8	3	VP_5	515	0.28	3.54E-05	3.61E-05	1.82E-02	1.01E-05
5A	Lead	7439-92-1	3	VP_5	515	0.28	1.73E-05	1.77E-05	8.93E-03	4.94E-06
5A	Manganese	7439-96-5	3	VP_5	515	0.28	8.81E-04	8.98E-04	4.54E-01	2.51E-04
5A	Mercury	7439-97-6	3	VP_5	515	0.28	2.38E-08	2.43E-08	1.23E-05	6.79E-09
5A	Nickel	7440-02-0	3	VP_5	515	0.28	1.40E-05	1.43E-05	7.23E-03	4.00E-06
5A	Selenium	7782-49-2	3	VP_5	515	0.28	6.74E-08	6.86E-08	3.47E-05	1.92E-08
5A	Silver	7440-22-4	3	VP_5	515	0.28	1.15E-07	1.17E-07	5.94E-05	3.29E-08
5A	Thallium	7440-28-0	3	VP_5	515	0.28	3.02E-08	3.08E-08	1.55E-05	8.61E-09
5A	Vanadium	7440-62-2	3	VP_5	515	0.28	1.44E-05	1.47E-05	7.44E-03	4.12E-06
5A	Zinc	7440-66-6	3	VP_5	515	0.28	1.47E-04	1.50E-04	7.60E-02	4.21E-05

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
5B	Aluminum	7429-90-5	3	VP_5	515	0.19	1.29E-03	1.32E-03	6.65E-01	2.47E-04
5B	Antimony	7440-36-0	3	VP_5	515	0.19	2.37E-07	2.41E-07	1.22E-04	4.53E-08
5B	Arsenic	7440-38-2	3	VP_5	515	0.19	5.82E-07	5.93E-07	3.00E-04	1.12E-07
5B	Barium	7440-39-3	3	VP_5	515	0.19	3.71E-05	3.78E-05	1.91E-02	7.10E-06
5B	Beryllium	7440-41-7	3	VP_5	515	0.19	7.46E-08	7.60E-08	3.84E-05	1.43E-08
5B	Cadmium	7440-43-9	3	VP_5	515	0.19	4.58E-07	4.67E-07	2.36E-04	8.78E-08
5B	Chromium	7440-47-3	3	VP_5	515	0.19	7.02E-05	7.16E-05	3.62E-02	1.35E-05
5B	Chromium VI	18540-29-9	3	VP_5	515	0.19	3.92E-08	4.00E-08	2.02E-05	7.51E-09
5B	Cobalt	7440-48-4	3	VP_5	515	0.19	1.76E-06	1.80E-06	9.08E-04	3.38E-07
5B	Copper	7440-50-8	3	VP_5	515	0.19	3.54E-05	3.61E-05	1.82E-02	6.78E-06
5B	Lead	7439-92-1	3	VP_5	515	0.19	1.73E-05	1.77E-05	8.93E-03	3.32E-06
5B	Manganese	7439-96-5	3	VP_5	515	0.19	8.81E-04	8.98E-04	4.54E-01	1.69E-04
5B	Mercury	7439-97-6	3	VP_5	515	0.19	2.38E-08	2.43E-08	1.23E-05	4.56E-09
5B	Nickel	7440-02-0	3	VP_5	515	0.19	1.40E-05	1.43E-05	7.23E-03	2.69E-06
5B	Selenium	7782-49-2	3	VP_5	515	0.19	6.74E-08	6.86E-08	3.47E-05	1.29E-08
5B	Silver	7440-22-4	3	VP_5	515	0.19	1.15E-07	1.17E-07	5.94E-05	2.21E-08
5B	Thallium	7440-28-0	3	VP_5	515	0.19	3.02E-08	3.08E-08	1.55E-05	5.78E-09
5B	Vanadium	7440-62-2	3	VP_5	515	0.19	1.44E-05	1.47E-05	7.44E-03	2.77E-06
5B	Zinc	7440-66-6	3	VP_5	515	0.19	1.47E-04	1.50E-04	7.60E-02	2.83E-05
22	Aluminum	7429-90-5	3	VP_22	1637	0.61	1.07E-03	1.09E-03	1.76E+00	6.65E-04
22	Antimony	7440-36-0	3	VP_22	1637	0.61	1.96E-07	2.00E-07	3.22E-04	1.22E-07
22	Arsenic	7440-38-2	3	VP_22	1637	0.61	4.83E-07	4.93E-07	7.92E-04	3.00E-07
22	Barium	7440-39-3	3	VP_22	1637	0.61	3.08E-05	3.14E-05	5.04E-02	1.91E-05
22	Beryllium	7440-41-7	3	VP_22	1637	0.61	6.20E-08	6.31E-08	1.01E-04	3.84E-08
22	Cadmium	7440-43-9	3	VP_22	1637	0.61	3.81E-07	3.88E-07	6.23E-04	2.36E-07
22	Chromium	7440-47-3	3	VP_22	1637	0.61	5.83E-05	5.94E-05	9.55E-02	3.62E-05
22	Chromium VI	18540-29-9	3	VP_22	1637	0.61	3.26E-08	3.32E-08	5.33E-05	2.02E-08
22	Cobalt	7440-48-4	3	VP_22	1637	0.61	1.46E-06	1.49E-06	2.40E-03	9.08E-07
22	Copper	7440-50-8	3	VP_22	1637	0.61	2.94E-05	2.99E-05	4.81E-02	1.82E-05
22	Lead	7439-92-1	3	VP_22	1637	0.61	1.44E-05	1.47E-05	2.36E-02	8.93E-06
22	Manganese	7439-96-5	3	VP_22	1637	0.61	7.32E-04	7.46E-04	1.20E+00	4.54E-04
22	Mercury	7439-97-6	3	VP_22	1637	0.61	1.98E-08	2.02E-08	3.24E-05	1.23E-08
22	Nickel	7440-02-0	3	VP_22	1637	0.61	1.16E-05	1.19E-05	1.91E-02	7.23E-06
22	Selenium	7782-49-2	3	VP_22	1637	0.61	5.59E-08	5.70E-08	9.16E-05	3.47E-08
22	Silver	7440-22-4	3	VP_22	1637	0.61	9.57E-08	9.75E-08	1.57E-04	5.94E-08
22	Thallium	7440-28-0	3	VP_22	1637	0.61	2.51E-08	2.55E-08	4.10E-05	1.55E-08
22	Vanadium	7440-62-2	3	VP_22	1637	0.61	1.20E-05	1.22E-05	1.96E-02	7.44E-06
22	Zinc	7440-66-6	3	VP_22	1637	0.61	1.22E-04	1.25E-04	2.00E-01	7.60E-05
25	Aluminum	7429-90-5	1	VP_25	2903	2.38	4.99E-03	5.08E-03	1.45E+01	1.21E-02
25	Antimony	7440-36-0	1	VP_25	2903	2.38	3.44E-06	3.51E-06	9.99E-03	8.36E-06
25	Arsenic	7440-38-2	1	VP_25	2903	2.38	5.62E-06	5.72E-06	1.63E-02	1.36E-05
25	Barium	7440-39-3	1	VP_25	2903	2.38	2.31E-04	2.35E-04	6.70E-01	5.61E-04
25	Beryllium	7440-41-7	1	VP_25	2903	2.38	2.86E-07	2.91E-07	8.29E-04	6.94E-07
25	Cadmium	7440-43-9	1	VP_25	2903	2.38	6.80E-06	6.92E-06	1.97E-02	1.65E-05
25	Chromium	7440-47-3	1	VP_25	2903	2.38	3.40E-04	3.47E-04	9.88E-01	8.27E-04
25	Chromium VI	18540-29-9	1	VP_25	2903	2.38	1.57E-07	1.60E-07	4.56E-04	3.82E-07
25	Cobalt	7440-48-4	1	VP_25	2903	2.38	3.56E-05	3.63E-05	1.03E-01	8.64E-05
25	Copper	7440-50-8	1	VP_25	2903	2.38	3.01E-04	3.07E-04	8.74E-01	7.31E-04
25	Lead	7439-92-1	1	VP_25	2903	2.38	2.45E-04	2.50E-04	7.12E-01	5.95E-04
25	Manganese	7439-96-5	1	VP_25	2903	2.38	1.80E-03	1.83E-03	5.22E+00	4.36E-03
25	Mercury	7439-97-6	1	VP_25	2903	2.38	7.37E-07	7.51E-07	2.14E-03	1.79E-06
25	Nickel	7440-02-0	1	VP_25	2903	2.38	2.69E-04	2.74E-04	7.81E-01	6.53E-04
25	Selenium	7782-49-2	1	VP_25	2903	2.38	2.49E-07	2.53E-07	7.22E-04	6.04E-07
25	Silver	7440-22-4	1	VP_25	2903	2.38	1.21E-06	1.24E-06	3.52E-03	2.95E-06
25	Thallium	7440-28-0	1	VP_25	2903	2.38	1.01E-07	1.03E-07	2.94E-04	2.46E-07
25	Vanadium	7440-62-2	1	VP_25	2903	2.38	3.52E-05	3.59E-05	1.02E-01	8.56E-05
25	Zinc	7440-66-6	1	VP_25	2903	2.38	1.95E-03	1.99E-03	5.67E+00	4.74E-03
26	Aluminum	7429-90-5	1	VP_26	2155	1.77	4.99E-03	5.08E-03	1.07E+01	8.99E-03
26	Antimony	7440-36-0	1	VP_26	2155	1.77	3.44E-06	3.51E-06	7.42E-03	6.21E-06
26	Arsenic	7440-38-2	1	VP_26	2155	1.77	5.62E-06	5.72E-06	1.21E-02	1.01E-05
26	Barium	7440-39-3	1	VP_26	2155	1.77	2.31E-04	2.35E-04	4.98E-01	4.16E-04
26	Beryllium	7440-41-7	1	VP_26	2155	1.77	2.86E-07	2.91E-07	6.16E-04	5.15E-07
26	Cadmium	7440-43-9	1	VP_26	2155	1.77	6.80E-06	6.92E-06	1.46E-02	1.23E-05
26	Chromium	7440-47-3	1	VP_26	2155	1.77	3.40E-04	3.47E-04	7.34E-01	6.14E-04
26	Chromium VI	18540-29-9	1	VP_26	2155	1.77	1.57E-07	1.60E-07	3.39E-04	2.83E-07
26	Cobalt	7440-48-4	1	VP_26	2155	1.77	3.56E-05	3.63E-05	7.67E-02	6.42E-05
26	Copper	7440-50-8	1	VP_26	2155	1.77	3.01E-04	3.07E-04	6.49E-01	5.43E-04
26	Lead	7439-92-1	1	VP_26	2155	1.77	2.45E-04	2.50E-04	5.28E-01	4.42E-04
26	Manganese	7439-96-5	1	VP_26	2155	1.77	1.80E-03	1.83E-03	3.87E+00	3.24E-03
26	Mercury	7439-97-6	1	VP_26	2155	1.77	7.37E-07	7.51E-07	1.59E-03	1.33E-06
26	Nickel	7440-02-0	1	VP_26	2155	1.77	2.69E-04	2.74E-04	5.80E-01	4.85E-04
26	Selenium	7782-49-2	1	VP_26	2155	1.77	2.49E-07	2.53E-07	5.36E-04	4.48E-07
26	Silver	7440-22-4	1	VP_26	2155	1.77	1.21E-06	1.24E-06	2.62E-03	2.19E-06
26	Thallium	7440-28-0	1	VP_26	2155	1.77	1.01E-07	1.03E-07	2.18E-04	1.82E-07
26	Vanadium	7440-62-2	1	VP_26	2155	1.77	3.52E-05	3.59E-05	7.59E-02	6.35E-05
26	Zinc	7440-66-6	1	VP_26	2155	1.77	1.95E-03	1.99E-03	4.21E+00	3.52E-03

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
29	Aluminum	7429-90-5	2	VP_29	749	0.38	1.62E-02	1.65E-02	1.22E+01	6.34E-03
29	Antimony	7440-36-0	2	VP_29	749	0.38	1.27E-05	1.29E-05	9.52E-03	4.96E-06
29	Arsenic	7440-38-2	2	VP_29	749	0.38	1.77E-05	1.81E-05	1.33E-02	6.91E-06
29	Barium	7440-39-3	2	VP_29	749	0.38	8.49E-04	8.65E-04	6.36E-01	3.31E-04
29	Beryllium	7440-41-7	2	VP_29	749	0.38	7.58E-07	7.72E-07	5.68E-04	2.96E-07
29	Cadmium	7440-43-9	2	VP_29	749	0.38	2.18E-05	2.22E-05	1.63E-02	8.49E-06
29	Chromium	7440-47-3	2	VP_29	749	0.38	8.55E-04	8.71E-04	6.41E-01	3.33E-04
29	Chromium VI	18540-29-9	2	VP_29	749	0.38	6.58E-07	6.71E-07	4.93E-04	2.57E-07
29	Cobalt	7440-48-4	2	VP_29	749	0.38	1.09E-04	1.11E-04	8.16E-02	4.25E-05
29	Copper	7440-50-8	2	VP_29	749	0.38	8.95E-04	9.11E-04	6.70E-01	3.49E-04
29	Lead	7439-92-1	2	VP_29	749	0.38	8.72E-04	8.88E-04	6.53E-01	3.40E-04
29	Manganese	7439-96-5	2	VP_29	749	0.38	6.15E-03	6.27E-03	4.61E+00	2.40E-03
29	Mercury	7439-97-6	2	VP_29	749	0.38	4.50E-06	4.59E-06	3.37E-03	1.76E-06
29	Nickel	7440-02-0	2	VP_29	749	0.38	7.29E-04	7.43E-04	5.46E-01	2.84E-04
29	Selenium	7782-49-2	2	VP_29	749	0.38	8.83E-07	9.00E-07	6.62E-04	3.45E-07
29	Silver	7440-22-4	2	VP_29	749	0.38	4.16E-06	4.24E-06	3.12E-03	1.62E-06
29	Thallium	7440-28-0	2	VP_29	749	0.38	3.02E-07	3.08E-07	2.26E-04	1.18E-07
29	Vanadium	7440-62-2	2	VP_29	749	0.38	1.36E-04	1.39E-04	1.02E-01	5.31E-05
29	Zinc	7440-66-6	2	VP_29	749	0.38	5.87E-03	5.98E-03	4.40E+00	2.29E-03
15A	Aluminum	7429-90-5	3	VU_15	462	0.25	1.82E-02	1.96E-02	8.40E+00	4.93E-03
15A	Antimony	7440-36-0	3	VU_15	462	0.25	3.33E-06	3.60E-06	1.54E-03	9.04E-07
15A	Arsenic	7440-38-2	3	VU_15	462	0.25	8.20E-06	8.85E-06	3.79E-03	2.22E-06
15A	Barium	7440-39-3	3	VU_15	462	0.25	5.22E-04	5.64E-04	2.41E-01	1.42E-04
15A	Beryllium	7440-41-7	3	VU_15	462	0.25	1.05E-06	1.13E-06	4.86E-04	2.85E-07
15A	Cadmium	7440-43-9	3	VU_15	462	0.25	6.45E-06	6.97E-06	2.98E-03	1.75E-06
15A	Chromium	7440-47-3	3	VU_15	462	0.25	9.89E-04	1.07E-03	4.57E-01	2.68E-04
15A	Chromium VI	18540-29-9	3	VU_15	462	0.25	5.52E-07	5.96E-07	2.55E-04	1.50E-07
15A	Cobalt	7440-48-4	3	VU_15	462	0.25	2.48E-05	2.68E-05	1.15E-02	6.73E-06
15A	Copper	7440-50-8	3	VU_15	462	0.25	4.98E-04	5.38E-04	2.30E-01	1.35E-04
15A	Lead	7439-92-1	3	VU_15	462	0.25	2.44E-04	2.63E-04	1.13E-01	6.62E-05
15A	Manganese	7439-96-5	3	VU_15	462	0.25	1.24E-02	1.34E-02	5.74E+00	3.37E-03
15A	Mercury	7439-97-6	3	VU_15	462	0.25	3.35E-07	3.62E-07	1.55E-04	9.10E-08
15A	Nickel	7440-02-0	3	VU_15	462	0.25	1.98E-04	2.13E-04	9.13E-02	5.36E-05
15A	Selenium	7782-49-2	3	VU_15	462	0.25	9.48E-07	1.02E-06	4.38E-04	2.57E-07
15A	Silver	7440-22-4	3	VU_15	462	0.25	1.62E-06	1.75E-06	7.50E-04	4.40E-07
15A	Thallium	7440-28-0	3	VU_15	462	0.25	4.25E-07	4.59E-07	1.96E-04	1.15E-07
15A	Vanadium	7440-62-2	3	VU_15	462	0.25	2.03E-04	2.20E-04	9.40E-02	5.52E-05
15A	Zinc	7440-66-6	3	VU_15	462	0.25	2.08E-03	2.24E-03	9.60E-01	5.63E-04
15B	Aluminum	7429-90-5	3	VU_15	84	0.05	1.82E-02	1.96E-02	1.53E+00	8.96E-04
15B	Antimony	7440-36-0	3	VU_15	84	0.05	3.33E-06	3.60E-06	2.80E-04	1.64E-07
15B	Arsenic	7440-38-2	3	VU_15	84	0.05	8.20E-06	8.85E-06	6.88E-04	4.04E-07
15B	Barium	7440-39-3	3	VU_15	84	0.05	5.22E-04	5.64E-04	4.38E-02	2.57E-05
15B	Beryllium	7440-41-7	3	VU_15	84	0.05	1.05E-06	1.13E-06	8.82E-05	5.18E-08
15B	Cadmium	7440-43-9	3	VU_15	84	0.05	6.45E-06	6.97E-06	5.42E-04	3.18E-07
15B	Chromium	7440-47-3	3	VU_15	84	0.05	9.89E-04	1.07E-03	8.30E-02	4.87E-05
15B	Chromium VI	18540-29-9	3	VU_15	84	0.05	5.52E-07	5.96E-07	4.64E-05	2.72E-08
15B	Cobalt	7440-48-4	3	VU_15	84	0.05	2.48E-05	2.68E-05	2.08E-03	1.22E-06
15B	Copper	7440-50-8	3	VU_15	84	0.05	4.98E-04	5.38E-04	4.18E-02	2.46E-05
15B	Lead	7439-92-1	3	VU_15	84	0.05	2.44E-04	2.63E-04	2.05E-02	1.20E-05
15B	Manganese	7439-96-5	3	VU_15	84	0.05	1.24E-02	1.34E-02	1.04E+00	6.11E-04
15B	Mercury	7439-97-6	3	VU_15	84	0.05	3.35E-07	3.62E-07	2.82E-05	1.65E-08
15B	Nickel	7440-02-0	3	VU_15	84	0.05	1.98E-04	2.13E-04	1.66E-02	9.73E-06
15B	Selenium	7782-49-2	3	VU_15	84	0.05	9.48E-07	1.02E-06	7.96E-05	4.67E-08
15B	Silver	7440-22-4	3	VU_15	84	0.05	1.62E-06	1.75E-06	1.36E-04	7.99E-08
15B	Thallium	7440-28-0	3	VU_15	84	0.05	4.25E-07	4.59E-07	3.57E-05	2.09E-08
15B	Vanadium	7440-62-2	3	VU_15	84	0.05	2.03E-04	2.20E-04	1.71E-02	1.00E-05
15B	Zinc	7440-66-6	3	VU_15	84	0.05	2.08E-03	2.24E-03	1.74E-01	1.02E-04
3A	Aluminum	7429-90-5	3	VU_3	360	0.20	2.14E-02	2.31E-02	7.70E+00	4.52E-03
3A	Antimony	7440-36-0	3	VU_3	360	0.20	3.92E-06	4.24E-06	1.41E-03	8.29E-07
3A	Arsenic	7440-38-2	3	VU_3	360	0.20	9.65E-06	1.04E-05	3.47E-03	2.04E-06
3A	Barium	7440-39-3	3	VU_3	360	0.20	6.15E-04	6.64E-04	2.21E-01	1.30E-04
3A	Beryllium	7440-41-7	3	VU_3	360	0.20	1.24E-06	1.34E-06	4.45E-04	2.61E-07
3A	Cadmium	7440-43-9	3	VU_3	360	0.20	7.60E-06	8.21E-06	2.74E-03	1.61E-06
3A	Chromium	7440-47-3	3	VU_3	360	0.20	1.16E-03	1.26E-03	4.19E-01	2.46E-04
3A	Chromium VI	18540-29-9	3	VU_3	360	0.20	6.50E-07	7.02E-07	2.34E-04	1.37E-07
3A	Cobalt	7440-48-4	3	VU_3	360	0.20	2.92E-05	3.16E-05	1.05E-02	6.17E-06
3A	Copper	7440-50-8	3	VU_3	360	0.20	5.87E-04	6.34E-04	2.11E-01	1.24E-04
3A	Lead	7439-92-1	3	VU_3	360	0.20	2.87E-04	3.10E-04	1.03E-01	6.07E-05
3A	Manganese	7439-96-5	3	VU_3	360	0.20	1.46E-02	1.58E-02	5.26E+00	3.09E-03
3A	Mercury	7439-97-6	3	VU_3	360	0.20	3.95E-07	4.26E-07	1.42E-04	8.34E-08
3A	Nickel	7440-02-0	3	VU_3	360	0.20	2.33E-04	2.51E-04	8.37E-02	4.91E-05
3A	Selenium	7782-49-2	3	VU_3	360	0.20	1.12E-06	1.21E-06	4.02E-04	2.36E-07
3A	Silver	7440-22-4	3	VU_3	360	0.20	1.91E-06	2.06E-06	6.88E-04	4.04E-07
3A	Thallium	7440-28-0	3	VU_3	360	0.20	5.00E-07	5.40E-07	1.80E-04	1.06E-07
3A	Vanadium	7440-62-2	3	VU_3	360	0.20	2.40E-04	2.59E-04	8.62E-02	5.06E-05
3A	Zinc	7440-66-6	3	VU_3	360	0.20	2.44E-03	2.64E-03	8.80E-01	5.16E-04

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
3B	Aluminum	7429-90-5	3	VU_3	360	0.13	2.14E-02	2.31E-02	7.70E+00	3.04E-03
3B	Antimony	7440-36-0	3	VU_3	360	0.13	3.92E-06	4.24E-06	1.41E-03	5.57E-07
3B	Arsenic	7440-38-2	3	VU_3	360	0.13	9.65E-06	1.04E-05	3.47E-03	1.37E-06
3B	Barium	7440-39-3	3	VU_3	360	0.13	6.15E-04	6.64E-04	2.21E-01	8.72E-05
3B	Beryllium	7440-41-7	3	VU_3	360	0.13	1.24E-06	1.34E-06	4.45E-04	1.76E-07
3B	Cadmium	7440-43-9	3	VU_3	360	0.13	7.60E-06	8.21E-06	2.74E-03	1.08E-06
3B	Chromium	7440-47-3	3	VU_3	360	0.13	1.16E-03	1.26E-03	4.19E-01	1.65E-04
3B	Chromium VI	18540-29-9	3	VU_3	360	0.13	6.50E-07	7.02E-07	2.34E-04	9.23E-08
3B	Cobalt	7440-48-4	3	VU_3	360	0.13	2.92E-05	3.16E-05	1.05E-02	4.15E-06
3B	Copper	7440-50-8	3	VU_3	360	0.13	5.87E-04	6.34E-04	2.11E-01	8.33E-05
3B	Lead	7439-92-1	3	VU_3	360	0.13	2.87E-04	3.10E-04	1.03E-01	4.08E-05
3B	Manganese	7439-96-5	3	VU_3	360	0.13	1.46E-02	1.58E-02	5.26E+00	2.07E-03
3B	Mercury	7439-97-6	3	VU_3	360	0.13	3.95E-07	4.26E-07	1.42E-04	5.60E-08
3B	Nickel	7440-02-0	3	VU_3	360	0.13	2.33E-04	2.51E-04	8.37E-02	3.30E-05
3B	Selenium	7782-49-2	3	VU_3	360	0.13	1.12E-06	1.21E-06	4.02E-04	1.58E-07
3B	Silver	7440-22-4	3	VU_3	360	0.13	1.91E-06	2.06E-06	6.88E-04	2.71E-07
3B	Thallium	7440-28-0	3	VU_3	360	0.13	5.00E-07	5.40E-07	1.80E-04	7.10E-08
3B	Vanadium	7440-62-2	3	VU_3	360	0.13	2.40E-04	2.59E-04	8.62E-02	3.40E-05
3B	Zinc	7440-66-6	3	VU_3	360	0.13	2.44E-03	2.64E-03	8.80E-01	3.47E-04
10A	Aluminum	7429-90-5	3	VU_10	203	0.11	2.14E-02	2.31E-02	4.34E+00	2.55E-03
10A	Antimony	7440-36-0	3	VU_10	203	0.11	3.92E-06	4.24E-06	7.95E-04	4.67E-07
10A	Arsenic	7440-38-2	3	VU_10	203	0.11	9.65E-06	1.04E-05	1.96E-03	1.15E-06
10A	Barium	7440-39-3	3	VU_10	203	0.11	6.15E-04	6.64E-04	1.25E-01	7.31E-05
10A	Beryllium	7440-41-7	3	VU_10	203	0.11	1.24E-06	1.34E-06	2.51E-04	1.47E-07
10A	Cadmium	7440-43-9	3	VU_10	203	0.11	7.60E-06	8.21E-06	1.54E-03	9.04E-07
10A	Chromium	7440-47-3	3	VU_10	203	0.11	1.16E-03	1.26E-03	2.36E-01	1.39E-04
10A	Chromium VI	18540-29-9	3	VU_10	203	0.11	6.50E-07	7.02E-07	1.32E-04	7.74E-08
10A	Cobalt	7440-48-4	3	VU_10	203	0.11	2.92E-05	3.16E-05	5.92E-03	3.48E-06
10A	Copper	7440-50-8	3	VU_10	203	0.11	5.87E-04	6.34E-04	1.19E-01	6.98E-05
10A	Lead	7439-92-1	3	VU_10	203	0.11	2.87E-04	3.10E-04	5.82E-02	3.42E-05
10A	Manganese	7439-96-5	3	VU_10	203	0.11	1.46E-02	1.58E-02	2.96E+00	1.74E-03
10A	Mercury	7439-97-6	3	VU_10	203	0.11	3.95E-07	4.26E-07	8.01E-05	4.70E-08
10A	Nickel	7440-02-0	3	VU_10	203	0.11	2.33E-04	2.51E-04	4.71E-02	2.77E-05
10A	Selenium	7782-49-2	3	VU_10	203	0.11	1.12E-06	1.21E-06	2.26E-04	1.33E-07
10A	Silver	7440-22-4	3	VU_10	203	0.11	1.91E-06	2.06E-06	3.87E-04	2.27E-07
10A	Thallium	7440-28-0	3	VU_10	203	0.11	5.00E-07	5.40E-07	1.01E-04	5.95E-08
10A	Vanadium	7440-62-2	3	VU_10	203	0.11	2.40E-04	2.59E-04	4.86E-02	2.85E-05
10A	Zinc	7440-66-6	3	VU_10	203	0.11	2.44E-03	2.64E-03	4.96E-01	2.91E-04
10B	Aluminum	7429-90-5	3	VU_10	203	0.07	2.14E-02	2.31E-02	4.34E+00	1.71E-03
10B	Antimony	7440-36-0	3	VU_10	203	0.07	3.92E-06	4.24E-06	7.95E-04	3.13E-07
10B	Arsenic	7440-38-2	3	VU_10	203	0.07	9.65E-06	1.04E-05	1.96E-03	7.71E-07
10B	Barium	7440-39-3	3	VU_10	203	0.07	6.15E-04	6.64E-04	1.25E-01	4.91E-05
10B	Beryllium	7440-41-7	3	VU_10	203	0.07	1.24E-06	1.34E-06	2.51E-04	9.89E-08
10B	Cadmium	7440-43-9	3	VU_10	203	0.07	7.60E-06	8.21E-06	1.54E-03	6.07E-07
10B	Chromium	7440-47-3	3	VU_10	203	0.07	1.16E-03	1.26E-03	2.36E-01	9.31E-05
10B	Chromium VI	18540-29-9	3	VU_10	203	0.07	6.50E-07	7.02E-07	1.32E-04	5.20E-08
10B	Cobalt	7440-48-4	3	VU_10	203	0.07	2.92E-05	3.16E-05	5.92E-03	2.33E-06
10B	Copper	7440-50-8	3	VU_10	203	0.07	5.87E-04	6.34E-04	1.19E-01	4.69E-05
10B	Lead	7439-92-1	3	VU_10	203	0.07	2.87E-04	3.10E-04	5.82E-02	2.30E-05
10B	Manganese	7439-96-5	3	VU_10	203	0.07	1.46E-02	1.58E-02	2.96E+00	1.17E-03
10B	Mercury	7439-97-6	3	VU_10	203	0.07	3.95E-07	4.26E-07	8.01E-05	3.16E-08
10B	Nickel	7440-02-0	3	VU_10	203	0.07	2.33E-04	2.51E-04	4.71E-02	1.86E-05
10B	Selenium	7782-49-2	3	VU_10	203	0.07	1.12E-06	1.21E-06	2.26E-04	8.92E-08
10B	Silver	7440-22-4	3	VU_10	203	0.07	1.91E-06	2.06E-06	3.87E-04	1.53E-07
10B	Thallium	7440-28-0	3	VU_10	203	0.07	5.00E-07	5.40E-07	1.01E-04	4.00E-08
10B	Vanadium	7440-62-2	3	VU_10	203	0.07	2.40E-04	2.59E-04	4.86E-02	1.91E-05
10B	Zinc	7440-66-6	3	VU_10	203	0.07	2.44E-03	2.64E-03	4.96E-01	1.95E-04
6A	Aluminum	7429-90-5	3	VU_6	446	0.24	2.14E-02	2.31E-02	9.55E+00	5.61E-03
6A	Antimony	7440-36-0	3	VU_6	446	0.24	3.92E-06	4.24E-06	1.75E-03	1.03E-06
6A	Arsenic	7440-38-2	3	VU_6	446	0.24	9.65E-06	1.04E-05	4.31E-03	2.53E-06
6A	Barium	7440-39-3	3	VU_6	446	0.24	6.15E-04	6.64E-04	2.74E-01	1.61E-04
6A	Beryllium	7440-41-7	3	VU_6	446	0.24	1.24E-06	1.34E-06	5.52E-04	3.24E-07
6A	Cadmium	7440-43-9	3	VU_6	446	0.24	7.60E-06	8.21E-06	3.39E-03	1.99E-06
6A	Chromium	7440-47-3	3	VU_6	446	0.24	1.16E-03	1.26E-03	5.20E-01	3.05E-04
6A	Chromium VI	18540-29-9	3	VU_6	446	0.24	6.50E-07	7.02E-07	2.90E-04	1.70E-07
6A	Cobalt	7440-48-4	3	VU_6	446	0.24	2.92E-05	3.16E-05	1.30E-02	7.65E-06
6A	Copper	7440-50-8	3	VU_6	446	0.24	5.87E-04	6.34E-04	2.62E-01	1.54E-04
6A	Lead	7439-92-1	3	VU_6	446	0.24	2.87E-04	3.10E-04	1.28E-01	7.52E-05
6A	Manganese	7439-96-5	3	VU_6	446	0.24	1.46E-02	1.58E-02	6.52E+00	3.83E-03
6A	Mercury	7439-97-6	3	VU_6	446	0.24	3.95E-07	4.26E-07	1.76E-04	1.03E-07
6A	Nickel	7440-02-0	3	VU_6	446	0.24	2.33E-04	2.51E-04	1.04E-01	6.09E-05
6A	Selenium	7782-49-2	3	VU_6	446	0.24	1.12E-06	1.21E-06	4.98E-04	2.92E-07
6A	Silver	7440-22-4	3	VU_6	446	0.24	1.91E-06	2.06E-06	8.53E-04	5.00E-07
6A	Thallium	7440-28-0	3	VU_6	446	0.24	5.00E-07	5.40E-07	2.23E-04	1.31E-07
6A	Vanadium	7440-62-2	3	VU_6	446	0.24	2.40E-04	2.59E-04	1.07E-01	6.27E-05
6A	Zinc	7440-66-6	3	VU_6	446	0.24	2.44E-03	2.64E-03	1.09E+00	6.40E-04

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
6B	Aluminum	7429-90-5	3	VU_6	446	0.16	2.14E-02	2.31E-02	9.55E+00	3.77E-03
6B	Antimony	7440-36-0	3	VU_6	446	0.16	3.92E-06	4.24E-06	1.75E-03	6.90E-07
6B	Arsenic	7440-38-2	3	VU_6	446	0.16	9.65E-06	1.04E-05	4.31E-03	1.70E-06
6B	Barium	7440-39-3	3	VU_6	446	0.16	6.15E-04	6.64E-04	2.74E-01	1.08E-04
6B	Beryllium	7440-41-7	3	VU_6	446	0.16	1.24E-06	1.34E-06	5.52E-04	2.18E-07
6B	Cadmium	7440-43-9	3	VU_6	446	0.16	7.60E-06	8.21E-06	3.39E-03	1.34E-06
6B	Chromium	7440-47-3	3	VU_6	446	0.16	1.16E-03	1.26E-03	5.20E-01	2.05E-04
6B	Chromium VI	18540-29-9	3	VU_6	446	0.16	6.50E-07	7.02E-07	2.90E-04	1.14E-07
6B	Cobalt	7440-48-4	3	VU_6	446	0.16	2.92E-05	3.16E-05	1.30E-02	5.14E-06
6B	Copper	7440-50-8	3	VU_6	446	0.16	5.87E-04	6.34E-04	2.62E-01	1.03E-04
6B	Lead	7439-92-1	3	VU_6	446	0.16	2.87E-04	3.10E-04	1.28E-01	5.05E-05
6B	Manganese	7439-96-5	3	VU_6	446	0.16	1.46E-02	1.58E-02	6.52E+00	2.57E-03
6B	Mercury	7439-97-6	3	VU_6	446	0.16	3.95E-07	4.26E-07	1.76E-04	6.95E-08
6B	Nickel	7440-02-0	3	VU_6	446	0.16	2.33E-04	2.51E-04	1.04E-01	4.09E-05
6B	Selenium	7782-49-2	3	VU_6	446	0.16	1.12E-06	1.21E-06	4.98E-04	1.96E-07
6B	Silver	7440-22-4	3	VU_6	446	0.16	1.91E-06	2.06E-06	8.53E-04	3.36E-07
6B	Thallium	7440-28-0	3	VU_6	446	0.16	5.00E-07	5.40E-07	2.23E-04	8.80E-08
6B	Vanadium	7440-62-2	3	VU_6	446	0.16	2.40E-04	2.59E-04	1.07E-01	4.21E-05
6B	Zinc	7440-66-6	3	VU_6	446	0.16	2.44E-03	2.64E-03	1.09E+00	4.30E-04
18A	Aluminum	7429-90-5	3	VU_18	2827	1.03	2.11E-02	2.28E-02	5.97E+01	2.35E-02
18A	Antimony	7440-36-0	3	VU_18	2827	1.03	3.87E-06	4.18E-06	1.09E-02	4.31E-06
18A	Arsenic	7440-38-2	3	VU_18	2827	1.03	9.52E-06	1.03E-05	2.69E-02	1.06E-05
18A	Barium	7440-39-3	3	VU_18	2827	1.03	6.06E-04	6.55E-04	1.71E+00	6.76E-04
18A	Beryllium	7440-41-7	3	VU_18	2827	1.03	1.22E-06	1.32E-06	3.45E-03	1.36E-06
18A	Cadmium	7440-43-9	3	VU_18	2827	1.03	7.50E-06	8.09E-06	2.12E-02	8.35E-06
18A	Chromium	7440-47-3	3	VU_18	2827	1.03	1.15E-03	1.24E-03	3.25E+00	1.28E-03
18A	Chromium VI	18540-29-9	3	VU_18	2827	1.03	6.41E-07	6.93E-07	1.81E-03	7.15E-07
18A	Cobalt	7440-48-4	3	VU_18	2827	1.03	2.88E-05	3.11E-05	8.15E-02	3.21E-05
18A	Copper	7440-50-8	3	VU_18	2827	1.03	5.79E-04	6.25E-04	1.64E+00	6.45E-04
18A	Lead	7439-92-1	3	VU_18	2827	1.03	2.83E-04	3.06E-04	8.01E-01	3.16E-04
18A	Manganese	7439-96-5	3	VU_18	2827	1.03	1.44E-02	1.56E-02	4.07E+01	1.61E-02
18A	Mercury	7439-97-6	3	VU_18	2827	1.03	3.90E-07	4.21E-07	1.10E-03	4.34E-07
18A	Nickel	7440-02-0	3	VU_18	2827	1.03	2.29E-04	2.48E-04	6.49E-01	2.56E-04
18A	Selenium	7782-49-2	3	VU_18	2827	1.03	1.10E-06	1.19E-06	3.11E-03	1.23E-06
18A	Silver	7440-22-4	3	VU_18	2827	1.03	1.88E-06	2.03E-06	5.33E-03	2.10E-06
18A	Thallium	7440-28-0	3	VU_18	2827	1.03	4.94E-07	5.33E-07	1.40E-03	5.50E-07
18A	Vanadium	7440-62-2	3	VU_18	2827	1.03	2.36E-04	2.55E-04	6.68E-01	2.63E-04
18A	Zinc	7440-66-6	3	VU_18	2827	1.03	2.41E-03	2.60E-03	6.82E+00	2.69E-03
18B	Aluminum	7429-90-5	3	VU_18	617	0.23	2.11E-02	2.28E-02	1.30E+01	5.23E-03
18B	Antimony	7440-36-0	3	VU_18	617	0.23	3.87E-06	4.18E-06	2.39E-03	9.58E-07
18B	Arsenic	7440-38-2	3	VU_18	617	0.23	9.52E-06	1.03E-05	5.87E-03	2.36E-06
18B	Barium	7440-39-3	3	VU_18	617	0.23	6.06E-04	6.55E-04	3.74E-01	1.50E-04
18B	Beryllium	7440-41-7	3	VU_18	617	0.23	1.22E-06	1.32E-06	7.52E-04	3.02E-07
18B	Cadmium	7440-43-9	3	VU_18	617	0.23	7.50E-06	8.09E-06	4.62E-03	1.86E-06
18B	Chromium	7440-47-3	3	VU_18	617	0.23	1.15E-03	1.24E-03	7.08E-01	2.84E-04
18B	Chromium VI	18540-29-9	3	VU_18	617	0.23	6.41E-07	6.93E-07	3.95E-04	1.59E-07
18B	Cobalt	7440-48-4	3	VU_18	617	0.23	2.88E-05	3.11E-05	1.78E-02	7.14E-06
18B	Copper	7440-50-8	3	VU_18	617	0.23	5.79E-04	6.25E-04	3.57E-01	1.43E-04
18B	Lead	7439-92-1	3	VU_18	617	0.23	2.83E-04	3.06E-04	1.75E-01	7.02E-05
18B	Manganese	7439-96-5	3	VU_18	617	0.23	1.44E-02	1.56E-02	8.89E+00	3.57E-03
18B	Mercury	7439-97-6	3	VU_18	617	0.23	3.90E-07	4.21E-07	2.40E-04	9.64E-08
18B	Nickel	7440-02-0	3	VU_18	617	0.23	2.29E-04	2.48E-04	1.41E-01	5.68E-05
18B	Selenium	7782-49-2	3	VU_18	617	0.23	1.10E-06	1.19E-06	6.79E-04	2.73E-07
18B	Silver	7440-22-4	3	VU_18	617	0.23	1.88E-06	2.03E-06	1.16E-03	4.67E-07
18B	Thallium	7440-28-0	3	VU_18	617	0.23	4.94E-07	5.33E-07	3.04E-04	1.22E-07
18B	Vanadium	7440-62-2	3	VU_18	617	0.23	2.36E-04	2.55E-04	1.46E-01	5.85E-05
18B	Zinc	7440-66-6	3	VU_18	617	0.23	2.41E-03	2.60E-03	1.49E+00	5.97E-04
19	Aluminum	7429-90-5	3	VU_19	494	0.18	1.97E-02	2.13E-02	9.75E+00	3.91E-03
19	Antimony	7440-36-0	3	VU_19	494	0.18	3.61E-06	3.90E-06	1.79E-03	7.17E-07
19	Arsenic	7440-38-2	3	VU_19	494	0.18	8.89E-06	9.60E-06	4.39E-03	1.77E-06
19	Barium	7440-39-3	3	VU_19	494	0.18	5.66E-04	6.12E-04	2.80E-01	1.12E-04
19	Beryllium	7440-41-7	3	VU_19	494	0.18	1.14E-06	1.23E-06	5.63E-04	2.26E-07
19	Cadmium	7440-43-9	3	VU_19	494	0.18	7.00E-06	7.56E-06	3.46E-03	1.39E-06
19	Chromium	7440-47-3	3	VU_19	494	0.18	1.07E-03	1.16E-03	5.30E-01	2.13E-04
19	Chromium VI	18540-29-9	3	VU_19	494	0.18	5.99E-07	6.47E-07	2.96E-04	1.19E-07
19	Cobalt	7440-48-4	3	VU_19	494	0.18	2.69E-05	2.91E-05	1.33E-02	5.34E-06
19	Copper	7440-50-8	3	VU_19	494	0.18	5.41E-04	5.84E-04	2.67E-01	1.07E-04
19	Lead	7439-92-1	3	VU_19	494	0.18	2.65E-04	2.86E-04	1.31E-01	5.25E-05
19	Manganese	7439-96-5	3	VU_19	494	0.18	1.35E-02	1.45E-02	6.65E+00	2.67E-03
19	Mercury	7439-97-6	3	VU_19	494	0.18	3.64E-07	3.93E-07	1.80E-04	7.22E-08
19	Nickel	7440-02-0	3	VU_19	494	0.18	2.14E-04	2.31E-04	1.06E-01	4.25E-05
19	Selenium	7782-49-2	3	VU_19	494	0.18	1.03E-06	1.11E-06	5.08E-04	2.04E-07
19	Silver	7440-22-4	3	VU_19	494	0.18	1.76E-06	1.90E-06	8.70E-04	3.49E-07
19	Thallium	7440-28-0	3	VU_19	494	0.18	4.61E-07	4.98E-07	2.28E-04	9.15E-08
19	Vanadium	7440-62-2	3	VU_19	494	0.18	2.21E-04	2.38E-04	1.09E-01	4.38E-05
19	Zinc	7440-66-6	3	VU_19	494	0.18	2.25E-03	2.43E-03	1.11E+00	4.47E-04

Table F-4. Mitigated Entrained Road Dust Toxic Metal Emission Rates by Route Segments
TAMCO Steel Mill
Rancho Cucamonga, California

Route Segment	TAC	CAS	Route Group	Source Group	Annual VMT[1] (miles)	Max. Hourly VMT[2] (miles)	Annual Emission Factor[3] (lb/VMT)	Max. Hourly Emission Factor[4] (lb/VMT)	Annual Emission[5] (lb/yr)	Peak Emission[6] (lb/hr)
21	Aluminum	7429-90-5	3	VU_21	1964	0.73	1.97E-02	2.13E-02	3.87E+01	1.56E-02
21	Antimony	7440-36-0	3	VU_21	1964	0.73	3.61E-06	3.90E-06	7.10E-03	2.85E-06
21	Arsenic	7440-38-2	3	VU_21	1964	0.73	8.89E-06	9.60E-06	1.75E-02	7.01E-06
21	Barium	7440-39-3	3	VU_21	1964	0.73	5.66E-04	6.12E-04	1.11E+00	4.47E-04
21	Beryllium	7440-41-7	3	VU_21	1964	0.73	1.14E-06	1.23E-06	2.24E-03	8.99E-07
21	Cadmium	7440-43-9	3	VU_21	1964	0.73	7.00E-06	7.56E-06	1.37E-02	5.52E-06
21	Chromium	7440-47-3	3	VU_21	1964	0.73	1.07E-03	1.16E-03	2.11E+00	8.46E-04
21	Chromium VI	18540-29-9	3	VU_21	1964	0.73	5.99E-07	6.47E-07	1.18E-03	4.72E-07
21	Cobalt	7440-48-4	3	VU_21	1964	0.73	2.69E-05	2.91E-05	5.29E-02	2.12E-05
21	Copper	7440-50-8	3	VU_21	1964	0.73	5.41E-04	5.84E-04	1.06E+00	4.26E-04
21	Lead	7439-92-1	3	VU_21	1964	0.73	2.65E-04	2.86E-04	5.20E-01	2.09E-04
21	Manganese	7439-96-5	3	VU_21	1964	0.73	1.35E-02	1.45E-02	2.64E+01	1.06E-02
21	Mercury	7439-97-6	3	VU_21	1964	0.73	3.64E-07	3.93E-07	7.15E-04	2.87E-07
21	Nickel	7440-02-0	3	VU_21	1964	0.73	2.14E-04	2.31E-04	4.21E-01	1.69E-04
21	Selenium	7782-49-2	3	VU_21	1964	0.73	1.03E-06	1.11E-06	2.02E-03	8.11E-07
21	Silver	7440-22-4	3	VU_21	1964	0.73	1.76E-06	1.90E-06	3.46E-03	1.39E-06
21	Thallium	7440-28-0	3	VU_21	1964	0.73	4.61E-07	4.98E-07	9.05E-04	3.64E-07
21	Vanadium	7440-62-2	3	VU_21	1964	0.73	2.21E-04	2.38E-04	4.33E-01	1.74E-04
21	Zinc	7440-66-6	3	VU_21	1964	0.73	2.25E-03	2.43E-03	4.42E+00	1.78E-03

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Notes:

1. Annual Vehicle Miles Traveled (VMT) were estimated based on the annual number of round trips multiplied by the distance of each segment.
2. Hourly VMT were estimated based on the maximum hourly number of round trips multiplied by the distance of each segment.
3. Applied annual average truck weight to the TAC emission factor for unit vehicle weight derived in Tables B-6a and B-6b.
4. Applied maximum hourly average truck weight to the TAC emission factor for unit vehicle weight derived in Tables B-6a and B-6b.
5. Estimated based on annual emission factor multiplied by the annual VMT.
6. Estimated based on max. hourly emission factor multiplied by the max. hourly VMT.

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_1	Aluminum	7429-90-5	1.24E+00	5.73E-04
VP_1	Antimony	7440-36-0	2.27E-04	1.05E-07
VP_1	Arsenic	7440-38-2	5.58E-04	2.58E-07
VP_1	Barium	7440-39-3	3.55E-02	1.65E-05
VP_1	Beryllium	7440-41-7	7.15E-05	3.31E-08
VP_1	Cadmium	7440-43-9	4.39E-04	2.03E-07
VP_1	Chromium	7440-47-3	6.73E-02	3.12E-05
VP_1	Chromium VI	18540-29-9	3.76E-05	1.74E-08
VP_1	Cobalt	7440-48-4	1.69E-03	7.82E-07
VP_1	Copper	7440-50-8	3.39E-02	1.57E-05
VP_1	Lead	7439-92-1	1.66E-02	7.69E-06
VP_1	Manganese	7439-96-5	8.45E-01	3.91E-04
VP_1	Mercury	7439-97-6	2.28E-05	1.06E-08
VP_1	Nickel	7440-02-0	1.35E-02	6.23E-06
VP_1	Selenium	7782-49-2	6.46E-05	2.99E-08
VP_1	Silver	7440-22-4	1.10E-04	5.11E-08
VP_1	Thallium	7440-28-0	2.89E-05	1.34E-08
VP_1	Vanadium	7440-62-2	1.39E-02	6.41E-06
VP_1	Zinc	7440-66-6	1.41E-01	6.54E-05
VP_13	Aluminum	7429-90-5	2.89E+00	1.07E-03
VP_13	Antimony	7440-36-0	5.29E-04	1.97E-07
VP_13	Arsenic	7440-38-2	1.30E-03	4.84E-07
VP_13	Barium	7440-39-3	8.29E-02	3.08E-05
VP_13	Beryllium	7440-41-7	1.67E-04	6.21E-08
VP_13	Cadmium	7440-43-9	1.02E-03	3.81E-07
VP_13	Chromium	7440-47-3	1.57E-01	5.84E-05
VP_13	Chromium VI	18540-29-9	8.77E-05	3.26E-08
VP_13	Cobalt	7440-48-4	3.94E-03	1.47E-06
VP_13	Copper	7440-50-8	7.92E-02	2.94E-05
VP_13	Lead	7439-92-1	3.87E-02	1.44E-05
VP_13	Manganese	7439-96-5	1.97E+00	7.33E-04
VP_13	Mercury	7439-97-6	5.33E-05	1.98E-08
VP_13	Nickel	7440-02-0	3.14E-02	1.17E-05
VP_13	Selenium	7782-49-2	1.51E-04	5.60E-08
VP_13	Silver	7440-22-4	2.58E-04	9.58E-08
VP_13	Thallium	7440-28-0	6.75E-05	2.51E-08
VP_13	Vanadium	7440-62-2	3.23E-02	1.20E-05
VP_13	Zinc	7440-66-6	3.30E-01	1.23E-04
VP_16	Aluminum	7429-90-5	1.15E+00	6.38E-04
VP_16	Antimony	7440-36-0	9.01E-04	4.99E-07
VP_16	Arsenic	7440-38-2	1.26E-03	6.96E-07
VP_16	Barium	7440-39-3	6.02E-02	3.33E-05
VP_16	Beryllium	7440-41-7	5.37E-05	2.98E-08
VP_16	Cadmium	7440-43-9	1.54E-03	8.55E-07
VP_16	Chromium	7440-47-3	6.06E-02	3.36E-05
VP_16	Chromium VI	18540-29-9	4.67E-05	2.58E-08
VP_16	Cobalt	7440-48-4	7.72E-03	4.27E-06
VP_16	Copper	7440-50-8	6.34E-02	3.51E-05
VP_16	Lead	7439-92-1	6.18E-02	3.42E-05
VP_16	Manganese	7439-96-5	4.36E-01	2.42E-04
VP_16	Mercury	7439-97-6	3.19E-04	1.77E-07
VP_16	Nickel	7440-02-0	5.17E-02	2.86E-05
VP_16	Selenium	7782-49-2	6.26E-05	3.47E-08
VP_16	Silver	7440-22-4	2.95E-04	1.63E-07
VP_16	Thallium	7440-28-0	2.14E-05	1.19E-08
VP_16	Vanadium	7440-62-2	9.66E-03	5.35E-06
VP_16	Zinc	7440-66-6	4.16E-01	2.30E-04
VP_17	Aluminum	7429-90-5	1.01E-01	5.58E-05
VP_17	Antimony	7440-36-0	1.85E-05	1.02E-08
VP_17	Arsenic	7440-38-2	4.55E-05	2.52E-08
VP_17	Barium	7440-39-3	2.90E-03	1.60E-06
VP_17	Beryllium	7440-41-7	5.83E-06	3.23E-09
VP_17	Cadmium	7440-43-9	3.58E-05	1.98E-08
VP_17	Chromium	7440-47-3	5.49E-03	3.04E-06
VP_17	Chromium VI	18540-29-9	3.06E-06	1.70E-09
VP_17	Cobalt	7440-48-4	1.38E-04	7.62E-08
VP_17	Copper	7440-50-8	2.77E-03	1.53E-06
VP_17	Lead	7439-92-1	1.35E-03	7.49E-07
VP_17	Manganese	7439-96-5	6.88E-02	3.81E-05
VP_17	Mercury	7439-97-6	1.86E-06	1.03E-09
VP_17	Nickel	7440-02-0	1.10E-03	6.07E-07
VP_17	Selenium	7782-49-2	5.26E-06	2.91E-09

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_17	Silver	7440-22-4	9.00E-06	4.98E-09
VP_17	Thallium	7440-28-0	2.36E-06	1.31E-09
VP_17	Vanadium	7440-62-2	1.13E-03	6.25E-07
VP_17	Zinc	7440-66-6	1.15E-02	6.38E-06
VP_2	Aluminum	7429-90-5	5.00E+00	2.77E-03
VP_2	Antimony	7440-36-0	3.91E-03	2.17E-06
VP_2	Arsenic	7440-38-2	5.46E-03	3.02E-06
VP_2	Barium	7440-39-3	2.61E-01	1.45E-04
VP_2	Beryllium	7440-41-7	2.33E-04	1.29E-07
VP_2	Cadmium	7440-43-9	6.70E-03	3.71E-06
VP_2	Chromium	7440-47-3	2.63E-01	1.46E-04
VP_2	Chromium VI	18540-29-9	2.03E-04	1.12E-07
VP_2	Cobalt	7440-48-4	3.35E-02	1.86E-05
VP_2	Copper	7440-50-8	2.76E-01	1.53E-04
VP_2	Lead	7439-92-1	2.68E-01	1.49E-04
VP_2	Manganese	7439-96-5	1.90E+00	1.05E-03
VP_2	Mercury	7439-97-6	1.39E-03	7.68E-07
VP_2	Nickel	7440-02-0	2.24E-01	1.24E-04
VP_2	Selenium	7782-49-2	2.72E-04	1.51E-07
VP_2	Silver	7440-22-4	1.28E-03	7.09E-07
VP_2	Thallium	7440-28-0	9.30E-05	5.15E-08
VP_2	Vanadium	7440-62-2	4.19E-02	2.32E-05
VP_2	Zinc	7440-66-6	1.81E+00	1.00E-03
VP_20	Aluminum	7429-90-5	1.84E+00	6.85E-04
VP_20	Antimony	7440-36-0	3.37E-04	1.25E-07
VP_20	Arsenic	7440-38-2	8.30E-04	3.09E-07
VP_20	Barium	7440-39-3	5.29E-02	1.97E-05
VP_20	Beryllium	7440-41-7	1.06E-04	3.96E-08
VP_20	Cadmium	7440-43-9	6.54E-04	2.43E-07
VP_20	Chromium	7440-47-3	1.00E-01	3.73E-05
VP_20	Chromium VI	18540-29-9	5.59E-05	2.08E-08
VP_20	Cobalt	7440-48-4	2.51E-03	9.35E-07
VP_20	Copper	7440-50-8	5.05E-02	1.88E-05
VP_20	Lead	7439-92-1	2.47E-02	9.19E-06
VP_20	Manganese	7439-96-5	1.26E+00	4.67E-04
VP_20	Mercury	7439-97-6	3.40E-05	1.26E-08
VP_20	Nickel	7440-02-0	2.00E-02	7.44E-06
VP_20	Selenium	7782-49-2	9.61E-05	3.57E-08
VP_20	Silver	7440-22-4	1.64E-04	6.11E-08
VP_20	Thallium	7440-28-0	4.30E-05	1.60E-08
VP_20	Vanadium	7440-62-2	2.06E-02	7.66E-06
VP_20	Zinc	7440-66-6	2.10E-01	7.82E-05
VP_22	Aluminum	7429-90-5	1.76E+00	6.65E-04
VP_22	Antimony	7440-36-0	3.22E-04	1.22E-07
VP_22	Arsenic	7440-38-2	7.92E-04	3.00E-07
VP_22	Barium	7440-39-3	5.04E-02	1.91E-05
VP_22	Beryllium	7440-41-7	1.01E-04	3.84E-08
VP_22	Cadmium	7440-43-9	6.23E-04	2.36E-07
VP_22	Chromium	7440-47-3	9.55E-02	3.62E-05
VP_22	Chromium VI	18540-29-9	5.33E-05	2.02E-08
VP_22	Cobalt	7440-48-4	2.40E-03	9.08E-07
VP_22	Copper	7440-50-8	4.81E-02	1.82E-05
VP_22	Lead	7439-92-1	2.36E-02	8.93E-06
VP_22	Manganese	7439-96-5	1.20E+00	4.54E-04
VP_22	Mercury	7439-97-6	3.24E-05	1.23E-08
VP_22	Nickel	7440-02-0	1.91E-02	7.23E-06
VP_22	Selenium	7782-49-2	9.16E-05	3.47E-08
VP_22	Silver	7440-22-4	1.57E-04	5.94E-08
VP_22	Thallium	7440-28-0	4.10E-05	1.55E-08
VP_22	Vanadium	7440-62-2	1.96E-02	7.44E-06
VP_22	Zinc	7440-66-6	2.00E-01	7.60E-05
VP_23	Aluminum	7429-90-5	6.51E+00	5.45E-03
VP_23	Antimony	7440-36-0	4.50E-03	3.76E-06
VP_23	Arsenic	7440-38-2	7.34E-03	6.14E-06
VP_23	Barium	7440-39-3	3.02E-01	2.52E-04
VP_23	Beryllium	7440-41-7	3.73E-04	3.12E-07
VP_23	Cadmium	7440-43-9	8.87E-03	7.42E-06
VP_23	Chromium	7440-47-3	4.45E-01	3.72E-04
VP_23	Chromium VI	18540-29-9	2.05E-04	1.72E-07
VP_23	Cobalt	7440-48-4	4.65E-02	3.89E-05
VP_23	Copper	7440-50-8	3.93E-01	3.29E-04
VP_23	Lead	7439-92-1	3.20E-01	2.68E-04

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_23	Manganese	7439-96-5	2.35E+00	1.96E-03
VP_23	Mercury	7439-97-6	9.62E-04	8.05E-07
VP_23	Nickel	7440-02-0	3.51E-01	2.94E-04
VP_23	Selenium	7782-49-2	3.25E-04	2.72E-07
VP_23	Silver	7440-22-4	1.59E-03	1.33E-06
VP_23	Thallium	7440-28-0	1.32E-04	1.11E-07
VP_23	Vanadium	7440-62-2	4.60E-02	3.85E-05
VP_23	Zinc	7440-66-6	2.55E+00	2.13E-03
VP_24	Aluminum	7429-90-5	1.40E+01	1.18E-02
VP_24	Antimony	7440-36-0	9.70E-03	8.11E-06
VP_24	Arsenic	7440-38-2	1.58E-02	1.32E-05
VP_24	Barium	7440-39-3	6.50E-01	5.44E-04
VP_24	Beryllium	7440-41-7	8.05E-04	6.73E-07
VP_24	Cadmium	7440-43-9	1.91E-02	1.60E-05
VP_24	Chromium	7440-47-3	9.59E-01	8.02E-04
VP_24	Chromium VI	18540-29-9	4.43E-04	3.70E-07
VP_24	Cobalt	7440-48-4	1.00E-01	8.39E-05
VP_24	Copper	7440-50-8	8.48E-01	7.10E-04
VP_24	Lead	7439-92-1	6.91E-01	5.78E-04
VP_24	Manganese	7439-96-5	5.06E+00	4.24E-03
VP_24	Mercury	7439-97-6	2.08E-03	1.74E-06
VP_24	Nickel	7440-02-0	7.58E-01	6.34E-04
VP_24	Selenium	7782-49-2	7.01E-04	5.86E-07
VP_24	Silver	7440-22-4	3.42E-03	2.86E-06
VP_24	Thallium	7440-28-0	2.85E-04	2.38E-07
VP_24	Vanadium	7440-62-2	9.92E-02	8.30E-05
VP_24	Zinc	7440-66-6	5.50E+00	4.60E-03
VP_25	Aluminum	7429-90-5	1.45E+01	1.21E-02
VP_25	Antimony	7440-36-0	9.99E-03	8.36E-06
VP_25	Arsenic	7440-38-2	1.63E-02	1.36E-05
VP_25	Barium	7440-39-3	6.70E-01	5.61E-04
VP_25	Beryllium	7440-41-7	8.29E-04	6.94E-07
VP_25	Cadmium	7440-43-9	1.97E-02	1.65E-05
VP_25	Chromium	7440-47-3	9.88E-01	8.27E-04
VP_25	Chromium VI	18540-29-9	4.56E-04	3.82E-07
VP_25	Cobalt	7440-48-4	1.03E-01	8.64E-05
VP_25	Copper	7440-50-8	8.74E-01	7.31E-04
VP_25	Lead	7439-92-1	7.12E-01	5.95E-04
VP_25	Manganese	7439-96-5	5.22E+00	4.36E-03
VP_25	Mercury	7439-97-6	2.14E-03	1.79E-06
VP_25	Nickel	7440-02-0	7.81E-01	6.53E-04
VP_25	Selenium	7782-49-2	7.22E-04	6.04E-07
VP_25	Silver	7440-22-4	3.52E-03	2.95E-06
VP_25	Thallium	7440-28-0	2.94E-04	2.46E-07
VP_25	Vanadium	7440-62-2	1.02E-01	8.56E-05
VP_25	Zinc	7440-66-6	5.67E+00	4.74E-03
VP_26	Aluminum	7429-90-5	1.07E+01	8.99E-03
VP_26	Antimony	7440-36-0	7.42E-03	6.21E-06
VP_26	Arsenic	7440-38-2	1.21E-02	1.01E-05
VP_26	Barium	7440-39-3	4.98E-01	4.16E-04
VP_26	Beryllium	7440-41-7	6.16E-04	5.15E-07
VP_26	Cadmium	7440-43-9	1.46E-02	1.23E-05
VP_26	Chromium	7440-47-3	7.34E-01	6.14E-04
VP_26	Chromium VI	18540-29-9	3.39E-04	2.83E-07
VP_26	Cobalt	7440-48-4	7.67E-02	6.42E-05
VP_26	Copper	7440-50-8	6.49E-01	5.43E-04
VP_26	Lead	7439-92-1	5.28E-01	4.42E-04
VP_26	Manganese	7439-96-5	3.87E+00	3.24E-03
VP_26	Mercury	7439-97-6	1.59E-03	1.33E-06
VP_26	Nickel	7440-02-0	5.80E-01	4.85E-04
VP_26	Selenium	7782-49-2	5.36E-04	4.48E-07
VP_26	Silver	7440-22-4	2.62E-03	2.19E-06
VP_26	Thallium	7440-28-0	2.18E-04	1.82E-07
VP_26	Vanadium	7440-62-2	7.59E-02	6.35E-05
VP_26	Zinc	7440-66-6	4.21E+00	3.52E-03
VP_27	Aluminum	7429-90-5	6.38E+00	3.32E-03
VP_27	Antimony	7440-36-0	4.99E-03	2.60E-06
VP_27	Arsenic	7440-38-2	6.97E-03	3.63E-06
VP_27	Barium	7440-39-3	3.34E-01	1.74E-04
VP_27	Beryllium	7440-41-7	2.98E-04	1.55E-07
VP_27	Cadmium	7440-43-9	8.56E-03	4.45E-06
VP_27	Chromium	7440-47-3	3.36E-01	1.75E-04

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_27	Chromium VI	18540-29-9	2.59E-04	1.35E-07
VP_27	Cobalt	7440-48-4	4.28E-02	2.23E-05
VP_27	Copper	7440-50-8	3.52E-01	1.83E-04
VP_27	Lead	7439-92-1	3.43E-01	1.78E-04
VP_27	Manganese	7439-96-5	2.42E+00	1.26E-03
VP_27	Mercury	7439-97-6	1.77E-03	9.21E-07
VP_27	Nickel	7440-02-0	2.86E-01	1.49E-04
VP_27	Selenium	7782-49-2	3.47E-04	1.81E-07
VP_27	Silver	7440-22-4	1.64E-03	8.51E-07
VP_27	Thallium	7440-28-0	1.19E-04	6.18E-08
VP_27	Vanadium	7440-62-2	5.35E-02	2.79E-05
VP_27	Zinc	7440-66-6	2.31E+00	1.20E-03
VP_28	Aluminum	7429-90-5	8.46E+00	4.40E-03
VP_28	Antimony	7440-36-0	6.62E-03	3.45E-06
VP_28	Arsenic	7440-38-2	9.23E-03	4.80E-06
VP_28	Barium	7440-39-3	4.42E-01	2.30E-04
VP_28	Beryllium	7440-41-7	3.95E-04	2.05E-07
VP_28	Cadmium	7440-43-9	1.13E-02	5.90E-06
VP_28	Chromium	7440-47-3	4.45E-01	2.32E-04
VP_28	Chromium VI	18540-29-9	3.43E-04	1.78E-07
VP_28	Cobalt	7440-48-4	5.67E-02	2.95E-05
VP_28	Copper	7440-50-8	4.66E-01	2.43E-04
VP_28	Lead	7439-92-1	4.54E-01	2.36E-04
VP_28	Manganese	7439-96-5	3.21E+00	1.67E-03
VP_28	Mercury	7439-97-6	2.34E-03	1.22E-06
VP_28	Nickel	7440-02-0	3.80E-01	1.98E-04
VP_28	Selenium	7782-49-2	4.60E-04	2.39E-07
VP_28	Silver	7440-22-4	2.17E-03	1.13E-06
VP_28	Thallium	7440-28-0	1.57E-04	8.19E-08
VP_28	Vanadium	7440-62-2	7.09E-02	3.69E-05
VP_28	Zinc	7440-66-6	3.06E+00	1.59E-03
VP_29	Aluminum	7429-90-5	1.22E+01	6.34E-03
VP_29	Antimony	7440-36-0	9.52E-03	4.96E-06
VP_29	Arsenic	7440-38-2	1.33E-02	6.91E-06
VP_29	Barium	7440-39-3	6.36E-01	3.31E-04
VP_29	Beryllium	7440-41-7	5.68E-04	2.96E-07
VP_29	Cadmium	7440-43-9	1.63E-02	8.49E-06
VP_29	Chromium	7440-47-3	6.41E-01	3.33E-04
VP_29	Chromium VI	18540-29-9	4.93E-04	2.57E-07
VP_29	Cobalt	7440-48-4	8.16E-02	4.25E-05
VP_29	Copper	7440-50-8	6.70E-01	3.49E-04
VP_29	Lead	7439-92-1	6.53E-01	3.40E-04
VP_29	Manganese	7439-96-5	4.61E+00	2.40E-03
VP_29	Mercury	7439-97-6	3.37E-03	1.76E-06
VP_29	Nickel	7440-02-0	5.46E-01	2.84E-04
VP_29	Selenium	7782-49-2	6.62E-04	3.45E-07
VP_29	Silver	7440-22-4	3.12E-03	1.62E-06
VP_29	Thallium	7440-28-0	2.26E-04	1.18E-07
VP_29	Vanadium	7440-62-2	1.02E-01	5.31E-05
VP_29	Zinc	7440-66-6	4.40E+00	2.29E-03
VP_30	Aluminum	7429-90-5	9.75E-01	4.62E-04
VP_30	Antimony	7440-36-0	1.79E-04	8.46E-08
VP_30	Arsenic	7440-38-2	4.40E-04	2.08E-07
VP_30	Barium	7440-39-3	2.80E-02	1.33E-05
VP_30	Beryllium	7440-41-7	5.63E-05	2.67E-08
VP_30	Cadmium	7440-43-9	3.46E-04	1.64E-07
VP_30	Chromium	7440-47-3	5.30E-02	2.51E-05
VP_30	Chromium VI	18540-29-9	2.96E-05	1.40E-08
VP_30	Cobalt	7440-48-4	1.33E-03	6.30E-07
VP_30	Copper	7440-50-8	2.67E-02	1.27E-05
VP_30	Lead	7439-92-1	1.31E-02	6.20E-06
VP_30	Manganese	7439-96-5	6.65E-01	3.15E-04
VP_30	Mercury	7439-97-6	1.80E-05	8.52E-09
VP_30	Nickel	7440-02-0	1.06E-02	5.02E-06
VP_30	Selenium	7782-49-2	5.09E-05	2.41E-08
VP_30	Silver	7440-22-4	8.70E-05	4.12E-08
VP_30	Thallium	7440-28-0	2.28E-05	1.08E-08
VP_30	Vanadium	7440-62-2	1.09E-02	5.17E-06
VP_30	Zinc	7440-66-6	1.11E-01	5.27E-05
VP_31	Aluminum	7429-90-5	1.90E+00	8.98E-04
VP_31	Antimony	7440-36-0	3.49E-04	1.65E-07
VP_31	Arsenic	7440-38-2	8.58E-04	4.05E-07

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_31	Barium	7440-39-3	5.46E-02	2.58E-05
VP_31	Beryllium	7440-41-7	1.10E-04	5.19E-08
VP_31	Cadmium	7440-43-9	6.75E-04	3.19E-07
VP_31	Chromium	7440-47-3	1.04E-01	4.89E-05
VP_31	Chromium VI	18540-29-9	5.78E-05	2.73E-08
VP_31	Cobalt	7440-48-4	2.60E-03	1.23E-06
VP_31	Copper	7440-50-8	5.22E-02	2.46E-05
VP_31	Lead	7439-92-1	2.55E-02	1.21E-05
VP_31	Manganese	7439-96-5	1.30E+00	6.13E-04
VP_31	Mercury	7439-97-6	3.51E-05	1.66E-08
VP_31	Nickel	7440-02-0	2.07E-02	9.76E-06
VP_31	Selenium	7782-49-2	9.93E-05	4.69E-08
VP_31	Silver	7440-22-4	1.70E-04	8.02E-08
VP_31	Thallium	7440-28-0	4.45E-05	2.10E-08
VP_31	Vanadium	7440-62-2	2.13E-02	1.01E-05
VP_31	Zinc	7440-66-6	2.17E-01	1.03E-04
VP_33	Aluminum	7429-90-5	6.52E-01	3.21E-04
VP_33	Antimony	7440-36-0	1.20E-04	5.89E-08
VP_33	Arsenic	7440-38-2	2.94E-04	1.45E-07
VP_33	Barium	7440-39-3	1.87E-02	9.23E-06
VP_33	Beryllium	7440-41-7	3.77E-05	1.86E-08
VP_33	Cadmium	7440-43-9	2.32E-04	1.14E-07
VP_33	Chromium	7440-47-3	3.55E-02	1.75E-05
VP_33	Chromium VI	18540-29-9	1.98E-05	9.76E-09
VP_33	Cobalt	7440-48-4	8.90E-04	4.39E-07
VP_33	Copper	7440-50-8	1.79E-02	8.81E-06
VP_33	Lead	7439-92-1	8.75E-03	4.31E-06
VP_33	Manganese	7439-96-5	4.45E-01	2.19E-04
VP_33	Mercury	7439-97-6	1.20E-05	5.93E-09
VP_33	Nickel	7440-02-0	7.09E-03	3.49E-06
VP_33	Selenium	7782-49-2	3.40E-05	1.68E-08
VP_33	Silver	7440-22-4	5.82E-05	2.87E-08
VP_33	Thallium	7440-28-0	1.52E-05	7.51E-09
VP_33	Vanadium	7440-62-2	7.30E-03	3.60E-06
VP_33	Zinc	7440-66-6	7.45E-02	3.67E-05
VP_34	Aluminum	7429-90-5	6.30E-01	3.03E-04
VP_34	Antimony	7440-36-0	1.15E-04	5.56E-08
VP_34	Arsenic	7440-38-2	2.84E-04	1.37E-07
VP_34	Barium	7440-39-3	1.81E-02	8.71E-06
VP_34	Beryllium	7440-41-7	3.64E-05	1.75E-08
VP_34	Cadmium	7440-43-9	2.23E-04	1.08E-07
VP_34	Chromium	7440-47-3	3.43E-02	1.65E-05
VP_34	Chromium VI	18540-29-9	1.91E-05	9.22E-09
VP_34	Cobalt	7440-48-4	8.59E-04	4.14E-07
VP_34	Copper	7440-50-8	1.73E-02	8.32E-06
VP_34	Lead	7439-92-1	8.45E-03	4.07E-06
VP_34	Manganese	7439-96-5	4.30E-01	2.07E-04
VP_34	Mercury	7439-97-6	1.16E-05	5.60E-09
VP_34	Nickel	7440-02-0	6.84E-03	3.30E-06
VP_34	Selenium	7782-49-2	3.28E-05	1.58E-08
VP_34	Silver	7440-22-4	5.62E-05	2.71E-08
VP_34	Thallium	7440-28-0	1.47E-05	7.09E-09
VP_34	Vanadium	7440-62-2	7.05E-03	3.40E-06
VP_34	Zinc	7440-66-6	7.19E-02	3.47E-05
VP_35	Aluminum	7429-90-5	8.91E-01	4.35E-04
VP_35	Antimony	7440-36-0	1.63E-04	7.98E-08
VP_35	Arsenic	7440-38-2	4.02E-04	1.96E-07
VP_35	Barium	7440-39-3	2.56E-02	1.25E-05
VP_35	Beryllium	7440-41-7	5.15E-05	2.52E-08
VP_35	Cadmium	7440-43-9	3.16E-04	1.55E-07
VP_35	Chromium	7440-47-3	4.85E-02	2.37E-05
VP_35	Chromium VI	18540-29-9	2.71E-05	1.32E-08
VP_35	Cobalt	7440-48-4	1.22E-03	5.94E-07
VP_35	Copper	7440-50-8	2.44E-02	1.19E-05
VP_35	Lead	7439-92-1	1.20E-02	5.84E-06
VP_35	Manganese	7439-96-5	6.08E-01	2.97E-04
VP_35	Mercury	7439-97-6	1.64E-05	8.03E-09
VP_35	Nickel	7440-02-0	9.68E-03	4.73E-06
VP_35	Selenium	7782-49-2	4.65E-05	2.27E-08
VP_35	Silver	7440-22-4	7.95E-05	3.89E-08
VP_35	Thallium	7440-28-0	2.08E-05	1.02E-08
VP_35	Vanadium	7440-62-2	9.97E-03	4.87E-06

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VP_35	Zinc	7440-66-6	1.02E-01	4.97E-05
VP_37	Aluminum	7429-90-5	1.26E+01	7.86E-03
VP_37	Antimony	7440-36-0	8.72E-03	5.43E-06
VP_37	Arsenic	7440-38-2	1.42E-02	8.85E-06
VP_37	Barium	7440-39-3	5.85E-01	3.64E-04
VP_37	Beryllium	7440-41-7	7.23E-04	4.50E-07
VP_37	Cadmium	7440-43-9	1.72E-02	1.07E-05
VP_37	Chromium	7440-47-3	8.62E-01	5.36E-04
VP_37	Chromium VI	18540-29-9	3.98E-04	2.48E-07
VP_37	Cobalt	7440-48-4	9.01E-02	5.61E-05
VP_37	Copper	7440-50-8	7.62E-01	4.74E-04
VP_37	Lead	7439-92-1	6.21E-01	3.86E-04
VP_37	Manganese	7439-96-5	4.55E+00	2.83E-03
VP_37	Mercury	7439-97-6	1.87E-03	1.16E-06
VP_37	Nickel	7440-02-0	6.81E-01	4.24E-04
VP_37	Selenium	7782-49-2	6.30E-04	3.92E-07
VP_37	Silver	7440-22-4	3.07E-03	1.91E-06
VP_37	Thallium	7440-28-0	2.56E-04	1.59E-07
VP_37	Vanadium	7440-62-2	8.92E-02	5.55E-05
VP_37	Zinc	7440-66-6	4.94E+00	3.08E-03
VP_5	Aluminum	7429-90-5	1.33E+00	6.16E-04
VP_5	Antimony	7440-36-0	2.44E-04	1.13E-07
VP_5	Arsenic	7440-38-2	6.00E-04	2.78E-07
VP_5	Barium	7440-39-3	3.82E-02	1.77E-05
VP_5	Beryllium	7440-41-7	7.69E-05	3.56E-08
VP_5	Cadmium	7440-43-9	4.72E-04	2.19E-07
VP_5	Chromium	7440-47-3	7.24E-02	3.35E-05
VP_5	Chromium VI	18540-29-9	4.04E-05	1.87E-08
VP_5	Cobalt	7440-48-4	1.82E-03	8.40E-07
VP_5	Copper	7440-50-8	3.65E-02	1.69E-05
VP_5	Lead	7439-92-1	1.79E-02	8.26E-06
VP_5	Manganese	7439-96-5	9.08E-01	4.20E-04
VP_5	Mercury	7439-97-6	2.45E-05	1.14E-08
VP_5	Nickel	7440-02-0	1.45E-02	6.69E-06
VP_5	Selenium	7782-49-2	6.94E-05	3.21E-08
VP_5	Silver	7440-22-4	1.19E-04	5.49E-08
VP_5	Thallium	7440-28-0	3.11E-05	1.44E-08
VP_5	Vanadium	7440-62-2	1.49E-02	6.89E-06
VP_5	Zinc	7440-66-6	1.52E-01	7.03E-05
VP_7	Aluminum	7429-90-5	8.89E-02	4.12E-05
VP_7	Antimony	7440-36-0	1.63E-05	7.54E-09
VP_7	Arsenic	7440-38-2	4.01E-05	1.86E-08
VP_7	Barium	7440-39-3	2.55E-03	1.18E-06
VP_7	Beryllium	7440-41-7	5.14E-06	2.38E-09
VP_7	Cadmium	7440-43-9	3.16E-05	1.46E-08
VP_7	Chromium	7440-47-3	4.84E-03	2.24E-06
VP_7	Chromium VI	18540-29-9	2.70E-06	1.25E-09
VP_7	Cobalt	7440-48-4	1.21E-04	5.62E-08
VP_7	Copper	7440-50-8	2.44E-03	1.13E-06
VP_7	Lead	7439-92-1	1.19E-03	5.52E-07
VP_7	Manganese	7439-96-5	6.07E-02	2.81E-05
VP_7	Mercury	7439-97-6	1.64E-06	7.59E-10
VP_7	Nickel	7440-02-0	9.66E-04	4.47E-07
VP_7	Selenium	7782-49-2	4.64E-06	2.15E-09
VP_7	Silver	7440-22-4	7.94E-06	3.67E-09
VP_7	Thallium	7440-28-0	2.08E-06	9.62E-10
VP_7	Vanadium	7440-62-2	9.95E-04	4.61E-07
VP_7	Zinc	7440-66-6	1.02E-02	4.70E-06
VU_10	Aluminum	7429-90-5	8.68E+00	4.26E-03
VU_10	Antimony	7440-36-0	1.59E-03	7.80E-07
VU_10	Arsenic	7440-38-2	3.91E-03	1.92E-06
VU_10	Barium	7440-39-3	2.49E-01	1.22E-04
VU_10	Beryllium	7440-41-7	5.02E-04	2.46E-07
VU_10	Cadmium	7440-43-9	3.08E-03	1.51E-06
VU_10	Chromium	7440-47-3	4.72E-01	2.32E-04
VU_10	Chromium VI	18540-29-9	2.64E-04	1.29E-07
VU_10	Cobalt	7440-48-4	1.18E-02	5.81E-06
VU_10	Copper	7440-50-8	2.38E-01	1.17E-04
VU_10	Lead	7439-92-1	1.16E-01	5.71E-05
VU_10	Manganese	7439-96-5	5.92E+00	2.91E-03
VU_10	Mercury	7439-97-6	1.60E-04	7.85E-08
VU_10	Nickel	7440-02-0	9.43E-02	4.63E-05

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VU_10	Selenium	7782-49-2	4.53E-04	2.22E-07
VU_10	Silver	7440-22-4	7.75E-04	3.80E-07
VU_10	Thallium	7440-28-0	2.03E-04	9.95E-08
VU_10	Vanadium	7440-62-2	9.71E-02	4.76E-05
VU_10	Zinc	7440-66-6	9.91E-01	4.86E-04
VU_15	Aluminum	7429-90-5	9.93E+00	5.83E-03
VU_15	Antimony	7440-36-0	1.82E-03	1.07E-06
VU_15	Arsenic	7440-38-2	4.48E-03	2.63E-06
VU_15	Barium	7440-39-3	2.85E-01	1.67E-04
VU_15	Beryllium	7440-41-7	5.74E-04	3.37E-07
VU_15	Cadmium	7440-43-9	3.52E-03	2.07E-06
VU_15	Chromium	7440-47-3	5.40E-01	3.17E-04
VU_15	Chromium VI	18540-29-9	3.02E-04	1.77E-07
VU_15	Cobalt	7440-48-4	1.36E-02	7.96E-06
VU_15	Copper	7440-50-8	2.72E-01	1.60E-04
VU_15	Lead	7439-92-1	1.33E-01	7.82E-05
VU_15	Manganese	7439-96-5	6.78E+00	3.98E-03
VU_15	Mercury	7439-97-6	1.83E-04	1.08E-07
VU_15	Nickel	7440-02-0	1.08E-01	6.33E-05
VU_15	Selenium	7782-49-2	5.18E-04	3.04E-07
VU_15	Silver	7440-22-4	8.86E-04	5.20E-07
VU_15	Thallium	7440-28-0	2.32E-04	1.36E-07
VU_15	Vanadium	7440-62-2	1.11E-01	6.52E-05
VU_15	Zinc	7440-66-6	1.13E+00	6.66E-04
VU_18	Aluminum	7429-90-5	7.27E+01	2.88E-02
VU_18	Antimony	7440-36-0	1.33E-02	5.27E-06
VU_18	Arsenic	7440-38-2	3.28E-02	1.30E-05
VU_18	Barium	7440-39-3	2.09E+00	8.26E-04
VU_18	Beryllium	7440-41-7	4.20E-03	1.66E-06
VU_18	Cadmium	7440-43-9	2.58E-02	1.02E-05
VU_18	Chromium	7440-47-3	3.96E+00	1.56E-03
VU_18	Chromium VI	18540-29-9	2.21E-03	8.73E-07
VU_18	Cobalt	7440-48-4	9.93E-02	3.93E-05
VU_18	Copper	7440-50-8	1.99E+00	7.88E-04
VU_18	Lead	7439-92-1	9.76E-01	3.86E-04
VU_18	Manganese	7439-96-5	4.96E+01	1.96E-02
VU_18	Mercury	7439-97-6	1.34E-03	5.30E-07
VU_18	Nickel	7440-02-0	7.90E-01	3.12E-04
VU_18	Selenium	7782-49-2	3.79E-03	1.50E-06
VU_18	Silver	7440-22-4	6.49E-03	2.57E-06
VU_18	Thallium	7440-28-0	1.70E-03	6.72E-07
VU_18	Vanadium	7440-62-2	8.14E-01	3.22E-04
VU_18	Zinc	7440-66-6	8.31E+00	3.28E-03
VU_21	Aluminum	7429-90-5	3.87E+01	1.56E-02
VU_21	Antimony	7440-36-0	7.10E-03	2.85E-06
VU_21	Arsenic	7440-38-2	1.75E-02	7.01E-06
VU_21	Barium	7440-39-3	1.11E+00	4.47E-04
VU_21	Beryllium	7440-41-7	2.24E-03	8.99E-07
VU_21	Cadmium	7440-43-9	1.37E-02	5.52E-06
VU_21	Chromium	7440-47-3	2.11E+00	8.46E-04
VU_21	Chromium VI	18540-29-9	1.18E-03	4.72E-07
VU_21	Cobalt	7440-48-4	5.29E-02	2.12E-05
VU_21	Copper	7440-50-8	1.06E+00	4.26E-04
VU_21	Lead	7439-92-1	5.20E-01	2.09E-04
VU_21	Manganese	7439-96-5	2.64E+01	1.06E-02
VU_21	Mercury	7439-97-6	7.15E-04	2.87E-07
VU_21	Nickel	7440-02-0	4.21E-01	1.69E-04
VU_21	Selenium	7782-49-2	2.02E-03	8.11E-07
VU_21	Silver	7440-22-4	3.46E-03	1.39E-06
VU_21	Thallium	7440-28-0	9.05E-04	3.64E-07
VU_21	Vanadium	7440-62-2	4.33E-01	1.74E-04
VU_21	Zinc	7440-66-6	4.42E+00	1.78E-03
VU_3	Aluminum	7429-90-5	1.54E+01	7.56E-03
VU_3	Antimony	7440-36-0	2.82E-03	1.39E-06
VU_3	Arsenic	7440-38-2	6.95E-03	3.41E-06
VU_3	Barium	7440-39-3	4.43E-01	2.17E-04
VU_3	Beryllium	7440-41-7	8.91E-04	4.37E-07
VU_3	Cadmium	7440-43-9	5.47E-03	2.68E-06
VU_3	Chromium	7440-47-3	8.38E-01	4.11E-04
VU_3	Chromium VI	18540-29-9	4.68E-04	2.30E-07
VU_3	Cobalt	7440-48-4	2.10E-02	1.03E-05
VU_3	Copper	7440-50-8	4.22E-01	2.07E-04

Table F-5. Mitigated Entrained Dust Toxic Metal Emission Rates by AERMOD Source Groups
TAMCO Steel Mill
Rancho Cucamonga, California

Source Group	TAC	CAS	Annual Emission[1] (lb/yr)	Max. Hourly Emission[1] (lb/hr)
VU_3	Lead	7439-92-1	2.07E-01	1.01E-04
VU_3	Manganese	7439-96-5	1.05E+01	5.16E-03
VU_3	Mercury	7439-97-6	2.84E-04	1.39E-07
VU_3	Nickel	7440-02-0	1.67E-01	8.21E-05
VU_3	Selenium	7782-49-2	8.04E-04	3.94E-07
VU_3	Silver	7440-22-4	1.38E-03	6.75E-07
VU_3	Thallium	7440-28-0	3.60E-04	1.77E-07
VU_3	Vanadium	7440-62-2	1.72E-01	8.46E-05
VU_3	Zinc	7440-66-6	1.76E+00	8.63E-04
VU_6	Aluminum	7429-90-5	1.91E+01	9.37E-03
VU_6	Antimony	7440-36-0	3.50E-03	1.72E-06
VU_6	Arsenic	7440-38-2	8.62E-03	4.23E-06
VU_6	Barium	7440-39-3	5.49E-01	2.69E-04
VU_6	Beryllium	7440-41-7	1.10E-03	5.42E-07
VU_6	Cadmium	7440-43-9	6.78E-03	3.33E-06
VU_6	Chromium	7440-47-3	1.04E+00	5.10E-04
VU_6	Chromium VI	18540-29-9	5.80E-04	2.85E-07
VU_6	Cobalt	7440-48-4	2.61E-02	1.28E-05
VU_6	Copper	7440-50-8	5.24E-01	2.57E-04
VU_6	Lead	7439-92-1	2.56E-01	1.26E-04
VU_6	Manganese	7439-96-5	1.30E+01	6.40E-03
VU_6	Mercury	7439-97-6	3.53E-04	1.73E-07
VU_6	Nickel	7440-02-0	2.08E-01	1.02E-04
VU_6	Selenium	7782-49-2	9.97E-04	4.89E-07
VU_6	Silver	7440-22-4	1.71E-03	8.37E-07
VU_6	Thallium	7440-28-0	4.47E-04	2.19E-07
VU_6	Vanadium	7440-62-2	2.14E-01	1.05E-04
VU_6	Zinc	7440-66-6	2.18E+00	1.07E-03
VU_19	Aluminum	7429-90-5	9.75E+00	3.91E-03
VU_19	Antimony	7440-36-0	1.79E-03	7.17E-07
VU_19	Arsenic	7440-38-2	4.39E-03	1.77E-06
VU_19	Barium	7440-39-3	2.80E-01	1.12E-04
VU_19	Beryllium	7440-41-7	5.63E-04	2.26E-07
VU_19	Cadmium	7440-43-9	3.46E-03	1.39E-06
VU_19	Chromium	7440-47-3	5.30E-01	2.13E-04
VU_19	Chromium VI	18540-29-9	2.96E-04	1.19E-07
VU_19	Cobalt	7440-48-4	1.33E-02	5.34E-06
VU_19	Copper	7440-50-8	2.67E-01	1.07E-04
VU_19	Lead	7439-92-1	1.31E-01	5.25E-05
VU_19	Manganese	7439-96-5	6.65E+00	2.67E-03
VU_19	Mercury	7439-97-6	1.80E-04	7.22E-08
VU_19	Nickel	7440-02-0	1.06E-01	4.25E-05
VU_19	Selenium	7782-49-2	5.08E-04	2.04E-07
VU_19	Silver	7440-22-4	8.70E-04	3.49E-07
VU_19	Thallium	7440-28-0	2.28E-04	9.15E-08
VU_19	Vanadium	7440-62-2	1.09E-01	4.38E-05
VU_19	Zinc	7440-66-6	1.11E+00	4.47E-04

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Note:
1. Each segment is used by one or more truck types as shown in Table B-9. This table summarizes the total emissions for each segment segment and we modeled each segment as a source group in AERMOD.

Table F-6. Risk and Hazard Index Summary for Mitigated Scenario
TAMCO Steel Mill
Rancho Cucamonga, California

Location	Health Effect	Risk or Hazard Index	Receptor ID	UTMx	UTMy
MEIW	Cancer	20.2	974	450700	3772500
MEIW	Chronic HI	2.73	1106	451300	3772800
PMI	Acute	2.88	4146	450869	3772854
MEIW	Acute	2.88	4146	450869	3772854

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Notes:
1. The risk results presented in the table incorporated the emission reductions due to the following mitigation measures that have been implemented at TAMCO.
   - Six light stands previously powered by diesel have been converted to solar-powered generators. Thus, there are no more diesel Particulate Matter emissions.
   - Housekeeping measures including use of dust suppressant and sweeping roads have decreased the silt loading of the roads based on the dust sampling results in 2013.
2. The mitigated scenario was also analyzed for the MEIW locations as their risk results for the unmitigated scenario exceed the SCAQMD Rule 1402 risk action levels.

Abbreviations:
PMI: Point of Maximum Impact
MEIW: Maximally Exposed Individual Worker
MEIR: Maximally Exposed Individual Residen