DOCKETED

Docket Number:	08-AFC-08A
Project Title:	Hydrogen Energy Center Application for Certification Amendment
TN #:	200797
Document Title:	Wasco Coal Terminal Supplemental Environmental Analysis
Description:	N/A
Filer:	URS
Organization:	URS Corporation, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	10/9/2013 2:21:57 PM
Docketed Date:	10/9/2013

WASCO COAL TERMINAL

SUPPLEMENTAL ENVIRONMENTAL ANALYSIS RELATED TO PROVIDING SERVICE TO HYDROGEN ENERGY CALIFORNIA PROJECT

October 2013

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES

TABLES

FIGURES

TABLE OF CONTENTS

Acronyms

AAQA	ambient air quality analysis
AERMOD	AMS/EPA Regulatory Model
AFC	Application for Certification
BNSF	Burlington Northern Santa Fe
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CUP	Conditional Use Permit
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FTA	Federal Transit Administration
HAP	hazardous air pollutants
HARP	Hotspots Analysis and Reporting Program
HECA	Hydrogen Energy California
HI	hazard index(ces)
HSR	High Speed Rail
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_X	nitrogen oxide
OCA	offsite consequences analysis
OSHA	Occupational Health and Safety Administration
PM_{10}	particulate matter
$PM_{2.5}$	fine particulates
PMI	point of maximum impact
PSA/DEIS	Preliminary Staff Assessment/Draft Environmental Impact Report
PSD	Prevention of Significant Deterioration
ROG	reactive organic gases
SIL	significant impact levels
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_X	sulfur oxides
tph	tons per hour
TAC	toxic air contaminant

1.0 INTRODUCTION

In May 2012, Hydrogen Energy California LLC (HECA, or Applicant) filed an Amended Application for Certification (AFC) with the California Energy Commission (CEC) seeking approval to construct and operate the HECA Project (Docket 08-AFC-8A). The HECA Project will use a blend of coal and petroleum coke (petcoke) to produce clean hydrogen fuel. The hydrogen fuel will then be used to produce low carbon electricity and fertilizer. As indicated in the Amended AFC, the Project includes two alternative transportation methods for coal delivery. Alternative 1 consists of transporting coal via a new 5-mile railroad spur constructed from the existing San Joaquin Valley Railroad to the HECA Project Site. Alternative 2 consists of transporting coal via trucks from an existing transloading facility approximately 27 miles northeast of the HECA Project Site, the Wasco Coal Terminal (Coal Terminal).

The Coal Terminal is located in the City of Wasco at 1040 H Street, Wasco, California 93280 (Figure 1-1), and has been operating continuously for 23 years. The Coal Terminal is currently capable of transloading up to 1,500,000 tons per year of coal from trains to trucks. Coal is transferred from trains into storage silos, and then independently transferred from the silos into trucks. The use of the Coal Terminal for the HECA Project would not require any physical expansion of the Coal Terminal, or construction of any new systems or additional coal storage silos. The existing Coal Terminal would be dedicated to serving the HECA Project exclusively, and has sufficient capacity without modifications to meet the needs of the HECA Project.[1]

The Coal Terminal currently holds a conditional use permit (CUP) issued by the City of Wasco, and a Permit to Operate issued by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The existing SJVAPCD Permit to Operate allows for processing of up to 1,500,000 tons of coal per year. The CUP was approved by the City of Wasco in 1990 for transloading up to 900,000 tons of coal per year. Condition 81 in the existing CUP specifically contemplates increases in allowable throughput at the Coal Terminal of up to 1,500,000 tons per year to provide for additional customers—such as the HECA Project—as long as the project has been approved by the appropriate lead agency, and an environmental analysis identifying the operational and environmental effects from the requested increase in capacity has been completed as part of the Project analysis pursuant to Condition 81 a). The current owners and operators of the Coal Terminal intend to ask the City of Wasco to modify the CUP pursuant to Condition 81 to bring the allowable throughput in line with what is permitted under the SJVAPCD Permit to Operate. Any Conditional Use Permit Amendment would require an analysis for which the operational and environmental effects have not been not previously addressed.

The AFC and subsequent analysis conducted by the HECA Project Applicant and the staffs of the CEC and U.S. Department of Energy (DOE) includes consideration of potential impacts associated with transloading coal at the Coal Terminal to serve the HECA Project, including the impacts of trains delivering coal to the Coal Terminal and trucks delivering coal between the Coal Terminal and the HECA Project Site. This Wasco Coal Terminal Supplemental Environmental Analysis incorporates and builds upon the prior analysis, including the Amended AFC and the HECA Preliminary Staff Assessment/Draft Environmental Impact Statement

[1] Although the Amended AFC for the HECA Project initially indicated annual coal usage greater than 1,500,000 tons per year, the required quantity has since been reduced to no more than 1,500,000 tons per year.

(PSA/DEIS) prepared pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and incorporates said record herein by reference (CEC and DOE, 2013). This Supplemental Environmental Analysis provides further analysis of the potential impacts at and in the vicinity of the Coal Terminal associated with increasing throughput from existing levels to the full 1,500,000 ton per year capacity of the Coal Terminal.

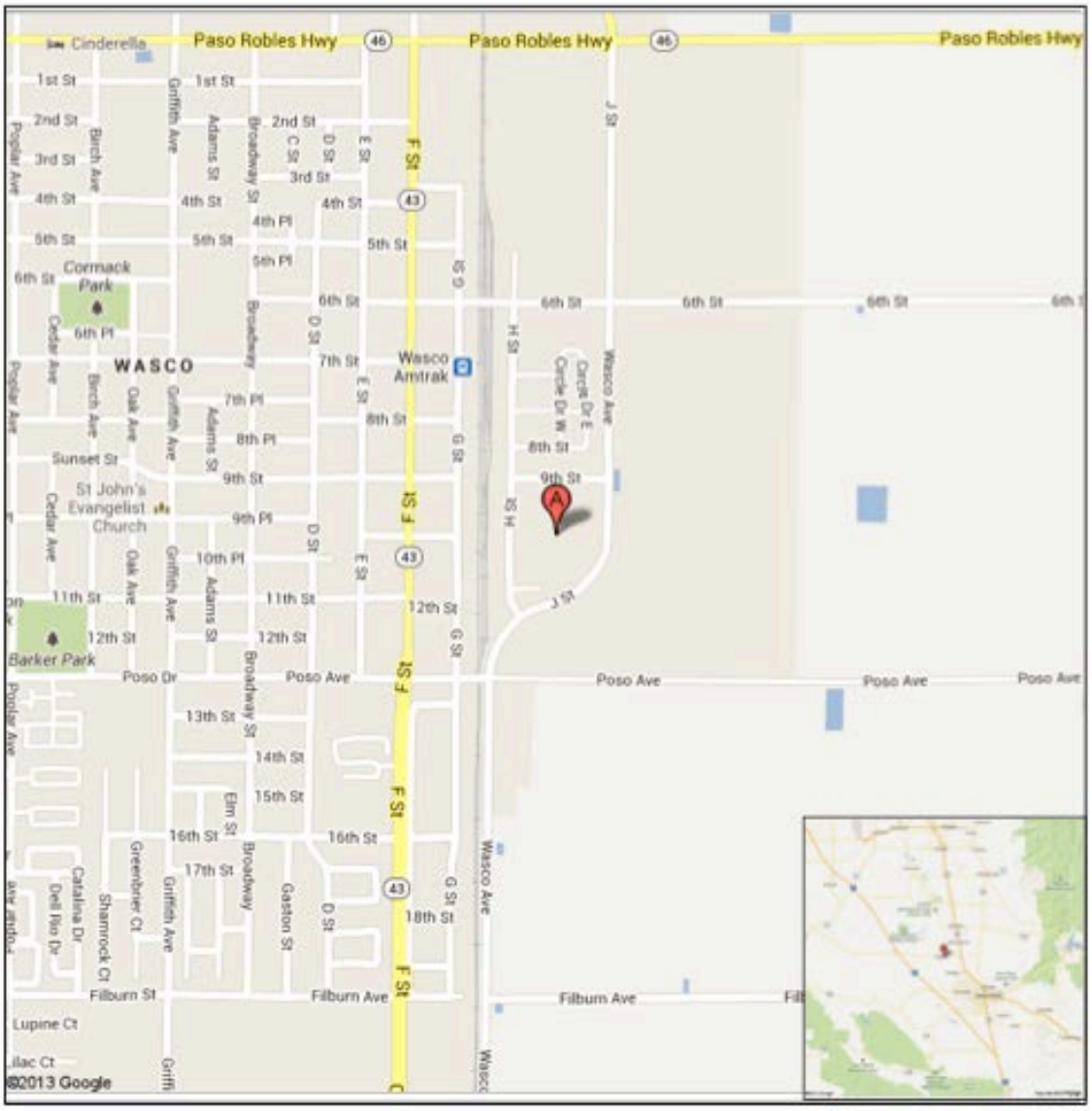

Figure 1-1 Wasco Coal Terminal Location Map

2.0 DESCRIPTION OF OPERATIONS

This section describes the Wasco Coal Terminal existing facilities; and its existing, historic average, approved, and proposed future level of operations.

The operations at the Coal Terminal include two specific independent activities: Inbound Operations, and Outbound Operations. The Inbound Operations encompasses the train handling, unloading, and coal storage. The Outbound Operations encompasses reclaiming coal from storage, batch weighing, and loading coal into trucks for delivery to the customer.

There are three specific facility areas: railcar unloading building; four storage silos; and truck loadout building. Enclosed conveyors connect these three facilities, and facilitate the automated transfer of coal. There is also an office building, onsite circulation for trucks to enter and exit the facility, and perimeter fencing. Figure 2-1 presents a general layout of the Coal Terminal operations and facilities. Figure 2-2 presents an aerial perspective of the Coal Terminal looking southeast.

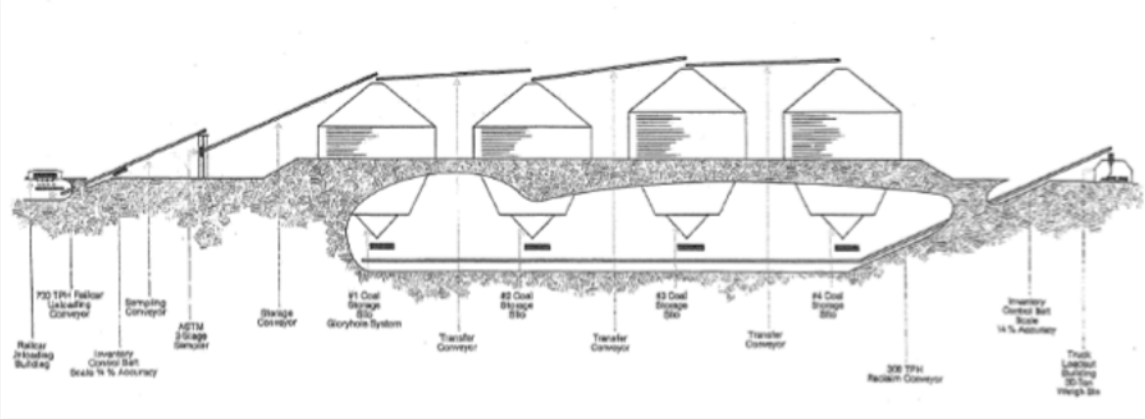

Figure 2-1 Wasco Coal Terminal General Layout

Figure 2-2 Aerial View of Wasco Coal Terminal Looking Southeast

2.1 EXISTING COAL TERMINAL OPERATIONS

Coal is delivered to the Coal Terminal in an 80-car train along the Burlington Northern Santa Fe (BNSF) railroad. The coal train is split into four 20-car segments and set off the main line by the BNSF south of the Coal Terminal in queue for unloading. The existing Inbound Operations use Savage's existing switch locomotive to move a 20-car segment to the railcar unloading building. The locomotive is used to move each train segment through the railcar unloading building. The coal is unloaded from each rail car through dropping it into a conveyance system. The conveyance system conveys the coal at an effective rate of 700 tons per hour (tph) from the railcar unloading building to a designated coal storage silo for storage. After each segment is unloaded, the empty train segment is placed on holding tracks north of the railcar unloading building, and the switch locomotive travels back to the set-off point to pick up another segment and repeat the process. Total unloading time for an 80-car train is approximately 32 clock hours; this process is currently performed over a 2-day period.

The existing Outbound Operations involve conveying coal from a selected coal storage silo to a batch weigh bin in the truck loadout building. The conveyance system sends coal in increments of 27+ ton to the batch weigh bin in preparation for the next truck arriving to pick up a load. The automated system validates the truck arrival and load destination for delivery; then the batch load of coal is automatically loaded into the truck while the trailer is inside the building below the weigh bin. Once the truck leaves the building, the automated system dispatches the next load into the weigh bin and the process is repeated. Total truck loading time for each truck is 7 minutes, and this process is repeated 6 times per hour, or a maximum of 49 times per day based on a coordinated delivery schedule with the existing customer. Outbound Operations typically occur 8 hours per day for 5.5 days per week.

2.2 PROPOSED COAL TERMINAL OPERATIONS

The proposed operations at the Coal Terminal to support the HECA Project would involve the same inbound and outbound processes described for existing operations. Implementation of the HECA Project would not require construction of any new coal storage silos at the Coal Terminal. Implementation of the HECA Project would increase the volume of coal being transloaded through the Coal Terminal relative to recent historical levels.

Table 2-1 summarizes the operations levels at the Coal Terminal as follows: 2012; historic average operations from 1989 to 2011; existing Wasco CUP; and current permit to operate (PTO) by SJVAPCD and proposed Wasco CUP amendment. The existing Wasco CUP allows up to 900,000 tons of coal per year to be transferred through the Coal Terminal. The facility operations peaked at 500,000 tons per year, with only 119,405 tons being transloaded in 2012. The HECA Project would involve 1,500,000 tons of coal per year being transloaded through the Coal Terminal, as allowed under the SJVAPCD PTO and an amended Wasco CUP.

Under the current PTO by SJVAPCD and proposed Wasco CUP amendment scenario, the coal delivery train size is anticipated to increase from 80 to 111 cars per train. The train segments would increase from four 20-car segments to five 20-car segments and one 11-car segment. The Coal Terminal would be using a 2005-2010 Tier 2 switch locomotive. Each rail car would be carrying approximately 115 tons of coal. The total anticipated Inbound Operations time would average 35 clock hours, and this process would be repeated approximately 117 times a year (based on 111 cars per train).

Table 2-1
Wasco Coal Terminal Operations Description

	2012 Operations	Historic Average Operations (1989-2011)	Operation Under Current CUP	Operation Permitted Under SJVAPCD PTO and Proposed CUP Amendment
Tons/Year	119,405	500,000	900,000	1,500,000
Trucks/Year [1]	4,353	18,225	32,805	54,675
Average Trucks Per Day [2]	22.2	50	91	150
Maximum Trucks Per day [3]	49	120	182	182
Average Trucks/Hour [4]	3	2-3	5	7-8
Maximum Trucks per Hour	6	6	9	9
Trains/Year	9	39	70	117 [5]
Rail Cars/Year [6]	1,041	4,348	7,826	13,043
Locomotive Idle Hours/year	369	1,193	2,142	3,580
Locomotive [7] Half-Throttle Hours/year	41	133	238	398
Average Deliveries/Month	<1	3-4	6	10
Number of Employees	4	15	40	55 to 60

Source: Insight Environmental Consultants and Savage Services 2013

Notes:

(1) Based on 27+ tons per truck load

(2) Averaged over 365 operating days per year except for 2012 Operations, which was averaged over 196 operating days

(3) Historic maximum trucks per day based on six truck loadings per hour × 20 hours per day = 120 trucks per day maximum. Maximum trucks per day under existing CUP and SJVAPCD PTO is based on facility capacity to load a truck every 6.66 minutes for nine trucks per hour × 20 hours per day = 182 trucks per day maximum

(4) Average trucks per day averaged over 20 loading hours per day except for 2012 Operations, which was averaged over an 8-hour operating day

(5) Based on 111 cars per train

(6) Based on 115 tons per rail car

(7) 2012 locomotive is a 1979 Tier 0 engine; future locomotive is a 2005-2010 Tier 2 engine

The anticipated Outbound Operations would occur 7 days per week for 365 days per year, and the number of truck-loading processes would be an average of 150 in a 20-hour period each day; this would generate seven to eight trucks per hour, based on the 1,500,000-ton maximum volume to service the HECA Project. The truck-loading operations have historically operated up to 20 hours per day as allowed by the existing SJVAPCD PTO.

2.3 MATERIALS DESIGNATION

In the City of Wasco CUP, the Coal Terminal is currently designated to handle "Bituminous Coal." The Coal Terminal is designated as a "Non Metallic Minerals" facility in the SJVAPCD PTO. The proposed City of Wasco CUP amendment would include a proposed change in the

materials designation from "Bituminous Coal" to "Non Metallic Minerals" to bring the Wasco CUP in alignment with the SJVAPCD PTO.

Non Metallic Minerals are generally defined as mineral resources that do not contain metals; examples include all grades of coal, building stone, gravel, sand, gypsum, phosphate, and salt. Metals are typically defined as "any of a class of elementary substances, as gold, silver, or copper, all of which are crystalline when solid and many of which are characterized by opacity, ductility, conductivity, and a unique luster when freshly fractured."[2] Minerals that do not exhibit the characteristics defined as "metal" are therefore defined as "non-metallic." The SJVAPCD uses the facility's Standard Industrial Code (SIC) to classify each permitted facility. Because the Coal Terminal operation is classified as SIC 3299, the SJVAPCD incorporated this designation into the permit's Facility Description.

This change in material designation would not functionally change the materials being handled within the Coal Terminal, and thus have no environmental effects.

2.4 OTHER RELATED PROJECTS

Concurrent to the development of the HECA Project, the California High Speed Rail Authority has proposed the High Speed Rail (HSR) Project. The HSR Project would initially connect San Francisco with Los Angeles basin in 3 hours with speeds exceeding 200 miles per hour. Although the HSR Project is not yet adopted, it is proposing to operate through the City of Wasco. The current HSR plan includes the proposed closure of Wasco Avenue south of the Wasco Coal Terminal between Jackson Avenue and Kimberlina. Wasco Avenue is a primary access route to the Wasco Coal Terminal. The Coal Terminal owners are working with the City of Wasco and the representatives of HSR to impress the importance of maintaining the connection at Wasco Avenue for Coal Terminal operations. The closure of Wasco Avenue would require re-routing trucks accessing the Coal Terminal into the City of Wasco on Poso Avenue to its intersection with Highway 43. If Wasco Avenue were to be closed as a result of the implementation of the HSR Project, the Coal Terminal and the HECA Project would work with the City of Wasco and the HSR Project to address the subsequent traffic effects from re-routing Coal Terminal trucks through the Highway 43 and Poso Avenue intersection.

[2] http://dictionary.reference.com/browse/metal.

3.0 ENVIRONMENTAL CONSEQUENCES

This section summarizes potential environmental impacts associated with the increase in Coal Terminal operations and change in materials designation relative to existing operations. Operations at the Coal Terminal in support of the HECA Project would involve the same inbound and outbound processes described for existing operations. Implementation of the HECA Project would not require construction of any new coal storage silos at the Coal Terminal, nor would it functionally change the materials being handled at the Coal Terminal. Implementation of the HECA Project would increase the volume of coal being transloaded through the Coal Terminal, relative to existing operations, as described above in Table 2-1. This increase in materials volume could potentially generate increases in air pollutant emissions, noise levels, and estimated traffic impacts. Each of these environmental issue areas has been examined in detail, and is discussed below in Sections 3.1 through 3.15. This Supplemental Environmental Analysis analyzes impacts associated with activities occurring within the boundaries of the Coal Terminal. Impacts associated with activities occurring outside the boundaries of the Coal Terminal (i.e., inbound trains and outbound trucks) have been analyzed elsewhere by the HECA Project Applicant and the staffs of the CEC and DOE.

The Coal Terminal, located in an Industrial zone, is bounded by H Street to the west, J Street to the south and east, and 9th Street to the north. A Ready-Mix Cement Plant is across J Street to the south of the Coal Terminal. The BNSF is to the west of the Coal Terminal, across H Street. An active agricultural field is located to the east across J Street. A residential community is located to the north across 9th Street.

3.1 AIR QUALITY

3.1.1 Construction

Because implementation of the HECA Project would not require any construction of any new systems or coal storage silos at the Coal Terminal, there would be no air quality-related construction impacts.

3.1.2 Operations

Increased throughput at the Coal Terminal would be consistent with the limits established by the facility's PTO issued by the SJVAPCD. As shown in Table 2-1, it would constitute an increase over 2012 operations, as well as the facility's average annual operations between 1990 and 2011.

A review of the SJVAPCD PTO and an estimate of criteria air pollutant emissions for the proposed processing of 1,500,000 tons per year of coal were prepared pursuant to the SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI), *January 10, 2002 Revision* and the CEQA. Based on this evaluation, the proposed Project does not pose a significant impact to the San Joaquin Valley Air Basin.

State CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "violate any air quality standard or contribute substantially to an existing or projected air quality violation" would be considered to create significant impacts on air quality. Therefore, an air quality impact analysis should determine whether the emissions from a project would cause or

contribute significantly to violations of the National (NAAQS) or California Ambient Air Quality Standards (CAAQS) when added to existing ambient concentrations.

To determine what comprises "significant impact levels," the U.S. Environmental Protection Agency (EPA) has established the federal Prevention of Significant Deterioration (PSD) program to assess whether a project should be required to conduct a detailed cumulative increment analysis in areas deemed to be in attainment with the NAAQS. A project's impacts are considered negligible if emissions are below PSD significant impact levels (SIL) for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. The increment analysis encompasses both the project and certain other existing, proposed, and reasonably foreseeable projects. Incremental increases in deterioration of air quality may be considered minor or insignificant. Emissions impacts below these thresholds are considered less than significant on a project level. Emitted pollutants include reactive organic gases (ROG), nitrogen oxides (NO_X), sulfur oxides (SO_X), carbon monoxide (CO), particulate matter (PM_{10}) and fine particulates ($PM_{2.5}$).

Operational emissions include fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions. The source of fugitive PM_{10} and $PM_{2.5}$emissions from onsite Coal Terminal operations would be from fugitive coal dust generated from transferring, loading, unloading, and storage at the Coal Terminal site. The sources of incremental exhaust emissions include the additional coal transfer trucks and additional idling and operation time of the switch locomotive.

The variables factored into estimating total project emissions include: level of activity, site characteristics, weather conditions, number of employees and visitors, and the amounts of materials to be transported on and off site. EMFAC2011 program uses the latest emissions standards and factors available through California Air Resources Board (CARB), and conservatively estimates emissions from vehicular sources, thus providing the most accurate depiction of predicted emissions impacts for the onsite truck travel and idling portion of the predicted emissions. The EPA emission factors were used to estimate emissions from the switch locomotive operation and idling time. SJVAPCD air permit emission factors were used to calculate the fugitive dust emissions from the transfer and storage operations of the coal.

An ambient air quality analysis (AAQA) was performed to determine if the increased emissions associated with operating the Coal Terminal at full capacity have the potential to impact ambient air quality through: (1) a violation of the NAAQS or CAAQS; or (2) a substantial contribution to an existing or projected air quality standard. Total project emissions at full operations were estimated and evaluated; this was considered to be the most conservative analysis approach. The emission estimates used in the AAQA are proved in Table 3.1-1.

The maximum offsite ground-level concentration of each pollutant for the 1-hour, 3-hour, 8-hour, 24-hour, and annual periods was predicted using the most recent version of EPA's AMS/EPA Regulatory Model (AERMOD) dispersion software under the Lakes Environmental ISC-AERMOD View interface. An approved pre-processed AERMET 5-year meteorological data set for the Bakersfield area (2006-2010) was supplied by the SJVAPCD for input to the AERMOD model. All of the regulatory default AERMOD model keyword parameters were employed. Rural dispersion parameters were used because the majority of the land surrounding the facility is considered "rural" under the Auer land use classification method.

Table 3.1-1
Predicted Project Emissions by Source Used in AAQA

Emissions Source	Pollutant (lbs/year)				
	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Trucks On Site Travel (SLINE1)	440.6	12.56	0.00	1.67	1.53
Trucks On Site Idle (STCK1)	2,092	1,070	1.83	14.94	13.73
Switch Locomotive Operations and Idle (SLINE2)	5,342	1,222	3.55	80.08	73.67
Fugitive Dust Baghouse (VOL1)	—	—	—	223.5	62.84
Fugitive Dust Baghouse (VOL2)	—	—	—	223.5	62.84
Fugitive Dust Baghouse (VOL3)	—	—	—	223.5	62.84
Fugitive Dust Baghouse (VOL4)	—	—	—	78.89	39.45
Fugitive Dust Baghouse (VOL5)	—	—	—	78.89	39.45
Fugitive Dust Baghouse (VOL6)	—	—	—	828.4	241.9

Source: Insight Environmental Consultants, 2013

Emissions were evaluated for each pollutant on a long-term (annual) basis, with the exception of CO, which was evaluated only for short-term exposures since there are no long-term significance thresholds for CO. The truck travel and locomotive operations were modeled as lines of volume sources; truck idling was modeled as a point source; and all six baghouses were modeled as volume sources.

For each pollutant and averaging period modeled, a "total" concentration was estimated by adding the maximum measured background air concentration to the maximum predicted Project impacts. The maximum measured background air concentrations used in this analysis were calculated from measured concentrations at the nearest monitoring stations.

The results of the air dispersion modeling, presented in Table 3.1-2, demonstrate that the maximum impacts attributable to the Project, when considered in addition to the existing background concentrations, are below the applicable ambient air quality standard (AAQS) for NO_X, SO_X, and CO. The AERMOD output files are provided in Appendix A.

Pre-Project concentrations of PM_{10} and $PM_{2.5}$ exceeded their respective ambient air quality standards. PM_{10} is therefore evaluated in accordance with the SJVAPCD recommended SIL for fugitive PM_{10} and $PM_{2.5}$ emissions in lieu of PSD SILs since the majority of the project PM_{10} and $PM_{2.5}$ emissions are from fugitive sources (Reed, personal communications, 2013). It is the District's policy to use significant impact levels to determine whether a proposed new or modified source would cause or contribute significantly to an AAQS violation. If a project's maximum impacts are below the District SIL, the project is judged to not cause or contribute significantly to an AAQS or PSD increment violation. A comparison of the proposed impact from the Project to the District SIL values is provided in Table 3.1-3. The modeled PM_{10} and $PM_{2.5}$ impacts directly attributable to the Project are below SJVAPCD's significance levels for 24-hour concentrations and annual concentrations. Because estimated emissions from increased throughput at the Coal Terminal would: (1) not cause a violation in a NAAQS or CAAQS; or (2) create a substantial contribution to an existing or projected air quality standard, the increase in operations associated with the HECA Project would have no adverse effects to existing air quality.

Table 3.1-2
Predicted Ambient Air Quality Impacts From Increased Emissions

POLLUTANT	AVERAGING PERIOD	BACKGROUND ($\mu g/m^3$)	PROPOSED 1,500,000 TONS/YEAR OPERATIONS ($\mu g/m^3$)	1,500,000 TONS/YEAR OPERATIONS + BACKGROUND ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hour	115.10	42.72	157.82	188.68	338
	Annual	8.15	2.79	10.93	100	57
SO_2	1-hour	19.20	0.04	19.24	196	655
	3-hour	18.100	0.03	18.13	—	1,300
	24-hour	10.487	0.01	10.50	365	105
	Annual	0.953	0.00	0.96	80	—
CO	1-hour	3091.50	2.32	3093.82	40,000	23,000
	8-hour	1148.82	1.20	1150.01	10,000	10,000
PM_{10}	24-hour	109.00	3.53	112.53	150	50
	Annual	59.13	0.55	59.69	—	20
$PM_{2.5}$	24-hour	83.00	1.07	84.07	35	—
	Annual	22.40	0.17	22.57	15	12

Source: Insight Environmental Consultants, 2013

Table 3.1-3
Comparison of Incremental Increased Emissions
Impacts with Significance Thresholds

POLLUTANT	AVERAGING PERIOD	PREDICTED CONCENTRATION ($\mu g/m^3$)	SIL ($\mu g/m^3$)
PM_{10}	24-hour	3.53	10.4
	Annual	0.55	2.08
$PM_{2.5}$	24-hour	1.07	2.5
	Annual	0.17	0.63

Source: Insight Environmental Consultants, 2013

For further information on air quality effects from the HECA Project, including the effects of trains and trucks coming to and from the Coal Terminal, see Section 4.1 of the PSA/DEIS (CEC and DOE, 2013); Section 5.1 of the Amended AFC (URS, 2012); HECA's Responses to Data Requests; the May 2013 HECA Project Updated Emissions and Modeling Report (URS, 2013a); and Responses to PSA/DEIS Information Requests (URS, 2013c; 2013d).

3.2 BIOLOGICAL RESOURCES

3.2.1 Construction

Because service of the HECA Project would not require construction of any new systems, including any new coal storage silos, at the Coal Terminal, there would be no biological resources-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

3.2.2 Operations

Because operational changes at the Coal Terminal necessary to serve the proposed HECA Project would remain on existing paved facilities and area roadways, and as there are no known biological resources at the Coal Terminal, given that it is paved and an operating facility, an increase in operations to full capacity of the Coal Terminal would have no adverse effects on biological resources.

For further information on biological resources effects from the HECA Project, see Section 4.2 of the PSA/DEIS (CEC and DOE, 2013); Section 5.2 of the Amended AFC (URS, 2012); HECA's Responses to Data Requests and Responses to PSA/DEIS Information Requests (URS, 2013c; 2013d).

3.3 CULTURAL RESOURCES

3.3.1 Construction

Because service of the HECA Project would not require construction of any new systems at the Wasco Coal Terminal, including any new coal storage silos, there would be no cultural resources-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

3.3.2 Operations

Because operational changes at the Coal Terminal necessary to serve the proposed HECA Project would remain on existing paved facilities and area roadways, and as there are no known cultural resources at the Coal Terminal, an increase in operations to full capacity of the Coal Terminal would have no adverse effects on cultural resources.

For further information on cultural resource effects from the HECA Project, see Section 4.4 of the PSA/DEIS (CEC and DOE, 2013), Section 5.3 of the Amended AFC (URS, 2012), HECA's Responses to Data Requests and Responses to PSA/DEIS Information Requests (URS, 2013c; 2013d).

3.4 LAND USE AND AGRICULTURE

3.4.1 Construction

Because service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos, there would be no land use-related construction impacts from increasing operations at the Coal Terminal to full capacity.

3.4.2 Operations

To serve the HECA Project, the Coal Terminal would require an amendment to the existing Wasco CUP for the Coal Terminal to make it consistent with its existing SJVAPCD Permit to Operate, and allow the Coal Terminal to operate at its full physical capacity. Because the increased operations at the Coal Terminal would result from implementation of the HECA Project, the impacts associated with the increased operations, including those identified in this Supplemental Environmental Analysis, are being fully analyzed by the CEC and the DOE in their review of the HECA Project. All potential impacts associated with increased operations at the Coal Terminal as a result of the HECA Project will be included in the HECA Project record with the CEC and DOE, and the City of Wasco may choose to rely on the HECA Project record to satisfy the environmental analysis required as part of a CUP Amendment process. This Supplemental Environmental Analysis supplements the analysis that is being conducted by the CEC, DOE, and HECA Project Applicant.

The existing Coal Terminal is operating within an Industrial zone, adjacent to a railroad, other industrial users, and an open agricultural field. The Coal Terminal is also just south of a residential area. Any potential environmental effects from increasing operations are being reviewed in other sections of this Supplemental Environmental Analysis. An increase in operations at the Coal Terminal would not require any change in land use designation, zoning, or use, and therefore would not have any adverse land use effects.

For further information on land use effects from the HECA Project, see Section 4.6 of the PSA/DEIS (CEC and DOE, 2013); Section 5.4 of the Amended AFC (URS, 2012); and HECA's Responses to Data Requests and Responses to PSA/DEIS Information Requests (URS, 2013c).

3.5 NOISE

3.5.1 Construction

Because service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos, there would be no noise-related construction impacts from increasing operations at the Coal Terminal to full capacity.

3.5.2 Operations

Expansion of operations to full capacity at the Coal Terminal would be consistent with the Modified CUP operations shown in Table 2-1. Such operations would pose an increase over 2012 operations, as well as the facility's annual average operations between 1990 and 2011. Noise sources that are above ground or not enclosed during the Inbound and Outbound Operations include:

- Inbound Operations: the Switch Locomotive, baghouse dust collectors at the various locations in the Inbound Operation systems; and above-ground conveyors. The movement of loaded and empty car segments in and around the terminal is another noise source. There is a vibratory car shaker located inside the Rail Unloading Building that is used on an as-needed basis when coal is wet and sticky.

- Outbound Operations: the above-ground portion of the Reclaim Conveyor and the weigh bin loading gates; baghouse dust collectors at the Truck Loadout Building and the trucks that enter and exit the Terminal.

- There is a truck maintenance shop and parking area where trucks are stored and maintained, and trucks being serviced are moved into and out of the enclosed shop area.

- There is an emergency electricity generator that can operate when power is not available from the grid.

An analysis of the noise environment and potential environmental effects under increased operations at the Coal Terminal was prepared by the URS Acoustics and Noise Control Team (see Appendix B).

An ambient noise survey was conducted in August 2013 on site and in the vicinity of the Coal Terminal. The existing noise environment is dominated by the active BNSF railroad; an average of 35 trains per day pass the Coal Terminal and establish the background noise conditions. The Federal Transit Administration's (FTA's) noise impact criteria were used to assess the significance of noise impacts resulting from increased operations. The results of the noise impact analysis indicate that noise levels at the nearest sensitive receptors would be less than the FTA noise impact thresholds. Furthermore, the increase in noise levels at these receptors would be less than 1 A-weighted decibel (dBA) due to the increased operations. Noise increases of 1 dBA or less are so small as to be undetectable to the human ear. Therefore, because impacts would be less than the noise impact thresholds and the increase in noise levels would not be detectable, increased operations at the Coal Terminal would not result in a significant impact.

For further information on noise effects from the HECA Project, see Section 4.7 of the PSA/DEIS (CEC and DOE, 2013), Section 5.5 of the Amended AFC (URS, 2012) and HECA's Responses to Data Requests.

3.6 PUBLIC HEALTH

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no public health-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

Increasing operations at the Wasco Coal Terminal to its full physical capacity would increase truck and train operations. These increased truck and train operations could generate a potential health risk from additional diesel and coal dust emissions for residents and workers in the vicinity of the Coal Terminal. Total project emissions at full operations were estimated and evaluated; this was considered to be the most conservative analysis approach.

To predict the potential health risk to the area population, estimates of hazardous air pollutant (HAP) emissions from increased operations at the Wasco Coal Terminal were calculated. Health risk is determined using the Hotspots Analysis and Reporting Program (HARP) software distributed by CARB (2013). The model requires peak 1-hour emission rates and annual-

averaged emission rates for all pollutants for each modeling source. The project-specific dispersion model thus provides a conservative estimate of HAP ambient air concentrations and increased individual carcinogenic risk that might result from continuous exposure over a 30-year lifetime (since the Project is expected to have a lifespan of 25 years). Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure. Individuals at businesses are not subject to a continuous exposure; therefore, worker exposure duration for cancer risk was adjusted to HARP default worker exposure assumptions. Assumptions used to calculate the emission for the various scenarios are presented in Table 2-1, and spreadsheets included in Appendix C.

Onsite HAP sources at the Wasco Coal Terminal include: locomotive travel operations; heavy-duty diesel truck operations; and facility unloading (inbound operation), transfer (conveyance and silos), and loading (outbound operation). The above HAP sources emit diesel exhaust particulate matter; and fugitive dust from coal.

Existing baseline emissions were determined using the 2012 operating year data presented in Table 2-1, including truck counts, locomotive operating hours, and amount of coal processed. Operations for year 2012 not only represent the most recent full year but are also the most conservative baseline, since the operation levels were lower than any previous year. The onsite travel distance of 0.18 mile per truck was estimated using a recent Google Earth map.

The most recent version of EPA's AMS/EPA Regulatory Model – AERMOD (recompiled for the Lakes ISC-AERMOD View interface) was used to predict the dispersion of emissions from the proposed Project (EPA, 2013). All of the regulatory default AERMOD model keyword parameters were employed. Elevated terrain options were not employed due to the simplicity of the Project Area terrain. Structure-induced downwash was not included in the air dispersion modeling since the influenced area from the building would not affect the dispersion of onsite emissions. AERMOD was used to generate ambient concentrations for the 1-hour, 4-hour, 6-hour, monthly, and annual periods. Diesel combustion emissions from the heavy-duty trucks and locomotive operation were modeled as line sources for onsite travel, and a point source for truck idling on site. Emissions from the baghouses associated with the unloading, transfer, and loading operations were modeled as elevated volume sources. A unit emission rate of 1 g/sec was input to AERMOD. A total of 771 offsite receptors was assessed during the preparation of this HRA. All receptors east of Highway 43 and all schools in the modeled area were modeled as 330 discrete individual receptors (Figure 3.6-1). Of these receptors, the ones that represent businesses (Receptors 1-84, 252-256, and 761-766) were adjusted using the HARP default worker exposure assumptions. The remaining 421 receptors were modeled as a receptor grid over the modeled area west of Highway 43. To be conservative, all grid receptors were modeled as residential receptors. The SJVAPCD provided meteorological data for Bakersfield, California to be used for projects within the Metropolitan Bakersfield Area. SJVAPCD-approved, AERMET-processed meteorological datasets for calendar years 2006 through 2010 were input to AERMOD. This was the most recent and conservative acceptable dataset available at the time the modeling runs were conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility is considered "rural" under the Auer land use classification method (Auer, 1978). AERMOD was used to generate ambient concentrations for the 1-hour, 4-hour, 6-hour, monthly, and annual periods.

Figure 3.6-1 Receptor Locations for Health Risk Analysis

Plot files generated by AERMOD were imported to HARP ONRAMP software, wherein pollutant-specific emission rates were assigned to adjust the AERMOD-predicted air concentrations calculated with unit emission rates. HARP ONRAMP was used to generate source, X/Q, and emission import files for HARP.

HARP post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA). HARP site parameters were set to enable homegrown produce, dermal, soil ingestion, and mother's milk pathways, in addition to the inhalation pathway for carcinogenic risk. The deposition rate was set to 0.02 m/s. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP output files. Total cancer risk was predicted for inhalation and non-inhalation pathways at each receptor. An HI was computed for chronic and acute non-cancer health effects for each applicable endpoint and each receptor.

SJVAPCD has set the level of significance for carcinogenic risk at ten in one million, which is understood as the possibility of causing ten additional cancer cases in a population of one million people. The level of significance for chronic and acute non-cancer risk is a HI of 1.0.

The carcinogenic risk and the health HI for chronic and acute non-cancer risk at the point of maximum impact (PMI) for each scenario are identified by receptor location, risk and pathway, and are provided in Table 3.6-1. AERMOD and HARP output files are also presented in Appendix C.

Table 3.6-1
Wasco Coal Terminal Health Risk Assessment Estimates of Potential Maximum Impacts Predicted by HARP

	2012 Operations	Average Operations (1989-2011)	Historic Operation Permitted Under Current CUP	Operation Permitted Under SJVAPCD PTO and Proposed CUP Amendment	Incremental Increase between 1,500,000 tons per year and 2012 Operations
Excess Cancer Risk					
- Value	1.75E-06	2.83E-06	5.09E-06	8.51E-06	6.75E-06
- Coordinates (UTM east, UTM north)	288686, 3939921	288686, 3939921	288686, 3939921	288686, 3939921	288686, 3939921
- Pathway	Inhalation	Inhalation	Inhalation	Inhalation	Inhalation
Chronic Hazard Index					
- Value	2.58E-03	4.41E-03	7.95E-03	1.33E-02	1.07E-02
- Coordinates (UTM east, UTM north)	288709, 3940676	288706, 3940878	288706, 3940878	288706, 3940878	288706, 3940878
- Pathway	Respiratory	Respiratory	Respiratory	Respiratory	Respiratory
Acute Hazard Index					
- Value	3.59E-04	3.59E-04	3.59E-04	3.59E-04	NA[1]
- Coordinates (UTM east, UTM north)	288702, 3940975	288702, 3940975	288702, 3940975	288702, 3940975	NA[1]
- Pathway	Respiratory	Respiratory	Respiratory	Respiratory	NA[1]
Significance Thresholds					
carcinogenic risk	10.0E-06	10.0E-06	10.0E-06	10.0E-06	10.0E-06
health hazard index	1.0	1.0	1.0	1.0	1.0
Exceeds Thresholds?	NO	NO	NO	NO	NO

Source: Insight Environmental Consultants 2013

[1] No acute risk is calculated for the incremental increase of the Project since the maximum hour emissions of HAPs with acute risk potential do not increase.

The carcinogenic risk and the health HI for chronic non-cancer risk at the PMI do not exceed the significance levels of less than ten in one million (10×10^{-6}) and 1.0, respectively. The proposed increased operations at the Wasco Coal Terminal would be found to not have adverse effects

because: (1) potential chronic carcinogenic risk from the proposed project is *below* the significance level of ten in one million at each of the modeled receptors; and (2) the HI for the potential chronic non-cancer risk from the proposed project is *below* the significance level of 1.0 at each of the modeled receptors.

For further information on public health effects from the HECA Project, see Section 4.8 of the PSA/DEIS (CEC and DOE, 2013); Section 5.6 of the Amended AFC (URS, 2012); HECA's Responses to Data Requests, and the May 2013 Updated Emissions and Modeling Report (URS, 2013a).

3.7 WORKER SAFETY AND HEALTH

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no worker safety and health-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

The existing Coal Terminal operations are currently and have always been in compliance with Occupational Health and Safety Administration (OSHA) rules and regulations since it opened for operations. Furthermore, Savage Services Corporation maintains a general Health and Safety Plan for all of its facilities, with which the Coal Terminal has always been in compliance (Penrod, personal communication, 2013).

With increased operations at the Coal Terminal, all health and safety operations compliance would be maintained (Penrod, personal communication, 2013).

For further information on worker safety effects from the HECA Project, see Section 4.16 of the PSA/DEIS (CEC and DOE, 2013), and Section 5.7 of the Amended AFC.

3.8 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no socioeconomics/environmental justice-related construction impacts from increasing operations at the Coal Terminal to full capacity.

Section 4.9, Socioeconomics, of the HECA PSA/DEIS (CEC and DOE, 2013) presents analysis and findings that the proposed HECA Project would not have substantial direct, indirect, or cumulative adverse effects on Project Area housing, schools, law enforcement services, and parks.

This finding was further tested in the immediate vicinity of the Coal Terminal from an increase in operations to full capacity. A focused evaluation of air quality, public health, and noise has shown no new adverse environmental effects from an increase in operations. Because there would be no adverse effects from expanded Coal Terminal operations, there would be no adverse effects on environmental justice populations within the City of Wasco.

An increase in operations would increase employment levels from the existing 2012 levels of 4 to 55 to 60 (see Table 2-1). This increase in employment levels would not have an adverse

effect on housing, schools, or other public services because a majority of the jobs (over 90 percent) could be filled by the available area labor force (Busch, personal communication, 2013). This increase in employment opportunities would be a beneficial effect.

An increase in operations levels to full capacity would not have an adverse effect on fire and police services within the City of Wasco, because City of Wasco's experience with the historic operations at the Coal Terminal has demonstrated safe conditions within the community (Mobley, personal communication, 2013).

Because: (1) increased operations at the Coal Terminal necessary to serve the proposed HECA Project would be on existing built environment, paved facilities, and area roadways; (2) an increase in operations would not have adverse environmental effects, and therefore no adverse effects on environmental justice populations; and (3) an increase in operations would not have adverse socioeconomic effects within the City of Wasco, then implementation of expanded operations to full capacity at the Coal Terminal would have no adverse socioeconomic or environmental justice impacts. Furthermore, an increase in employment opportunities would be a beneficial effect.

3.9 SOILS

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no soils-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

Because increased operations at the Coal Terminal necessary to serve the HECA Project would be on existing paved facilities and area roadways, an increase in operations would have no impact on soils resources.

For further information on soils resources effects from the HECA Project, see Section 4.10 of the PSA/DEIS (CEC and DOE, 2013); Section 5.9 of the Amended AFC (URS, 2012); and HECA's Responses to Data Requests and Responses to PSA/DEIS Information Requests (URS, 2013c).

3.10 TRAFFIC AND TRANSPORTATION

The CEC and DOE thoroughly assessed potential traffic effects in Section 4.11 of the PSA/DEIS (CEC and DOE, 2013). The HECA Project Applicant also assessed potential traffic impacts in the HECA Project Traffic Study Technical Memorandum, Revision 2 (July 2013 Traffic Study Report)) (URS, 2013b). This section relies on those findings.

HECA would result in a substantial increase in number of vehicles on local roads during construction and operation. Service of the HECA Project would not require construction of any new systems, including any new coal storage silos, at the Coal Terminal; therefore, there would be no traffic and transportation-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

Two alternatives are under consideration for transporting coal to the HECA facility: 1) constructing a rail spur; or 2) using trucks to deliver coal after it has been transported by rail from New Mexico. For the rail spur option (Alternative 1 in the Amended AFC), an approximately 5-mile-long new industrial railroad spur would be constructed to connect the

HECA facility to the existing San Joaquin Valley Railroad (SJVRR) Buttonwillow railroad line. This railroad spur would also be used to transport some HECA products to market. For the no rail spur option (Alternative 2 in the Amended AFC), an approximately 27-mile-long coal truck transport route would be used via existing roads to transport the coal from the Wasco Coal Terminal, an existing coal transloading facility northeast of the HECA Project site. The Applicant is currently requesting that both options be certified.

During operations (post-construction), expected traffic levels were estimated for each of the two alternatives. Alternative 1 – Rail Option, would likely have 308 operations and maintenance worker vehicle round trips per day; 208 truck round trips per day for transport of process materials (fertilizers and gasification solids); 14 truck round trips per day for maintenance and miscellaneous activities; and 106 truck round trips per day for feed stock deliveries (predominantly petcoke and fluxant). Alternative 2 – Truck Option, would have 308 operations and maintenance worker vehicles round trips per day; 584 truck round trips per day for transport of process materials; 14 truck round trips per day for maintenance and miscellaneous activities; 106 truck round trips per day for delivery of petcoke and fluxant; and a maximum 368 truck round trips per day for delivery of coal (URS, 2013b).

Table 2-1 shows that daily truck trips from the Coal Terminal to the HECA Project Site would average 150 deliveries, based on operations 365 days per year. This is well within the maximum daily coal delivery estimate (i.e., 184 coal truck deliveries, or 368 roundtrips) assessed with the HECA Project traffic analysis in the July 2013 Traffic Study Report (URS, 2013b), and discussed further below.

3.10.1 Construction

Service of the HECA Project would not require construction of any new systems at the Wasco Coal Terminal, including any new coal storage silos; therefore, there would be no traffic and transportation related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

3.10.2 Operations

As currently proposed, vehicle trips associated with the HECA Project, which would include trucks delivering coal to the HECA Project Site from the Coal Terminal (Alternative 2), could result in significant impacts to the traffic and transportation system serving the Project Site and surrounding community as follows:

- The HECA Project could significantly degrade existing peak-hour levels-of-service (LOS) at the intersections of State Route (SR) 43/Stockdale Highway, Dairy Road/Adohr Road, and Dairy Road/Stockdale Highway, resulting in increased delays for vehicles. However, Conditions of Certification would reduce these impacts.

- The HECA Project could substantially increase traffic on certain roadway segments, resulting in potential degradation of roadway surfaces. However, Conditions of Certification would reduce these impacts. Proposed Conditions of Certification are contained in the PSA/DEIS. These proposed Conditions of

Certification will be refined, based—amongst other things—on input from the City of Wasco; and revised Conditions of Certification will be included in the CEC staff's Final Staff Assessment.

Truck trips from the Coal Terminal to the HECA Project would increase traffic levels within the City of Wasco. Detailed consideration of increased traffic levels on affected roadway segments and intersection was included in the July 2013 Traffic Study Report (URS, 2013b).

Levels of service LOS within the City of Wasco would not be significantly affected. All study intersections are forecast to operate at LOS D or better, with the exception of SR 43/Stockdale Highway and SR 119/Tupman Road, which are not within the City; LOS D is an acceptable LOS on roadways under the jurisdiction of Caltrans (URS, 2013b). LOS C is the significance criteria for City of Wasco roadways and intersections (City of Wasco General Plan, 2002).

The City of Wasco may request a "fair share" contribution towards roadway maintenance and signalization in the vicinity of the Coal Terminal as a condition of approval, which could be required from an increase in truck traffic (Mobley, personal communication, 2013). Furthermore, if the proposed HSR Project results in the closure of Wasco Avenue, the Coal Terminal and the HECA Project Applicant would work with the City of Wasco to address subsequent traffic impacts from truck re-routing and appropriate fair share conditions.

For further information on traffic and transportation effects from the HECA Project, see Section 4.11 of the PSA/DEIS; Section 5.10 of the Amended AFC (URS, 2012); the July 2013 Traffic Study Report (URS, 2013b); and Responses to PSA/DEIS Information Requests (URS, 2013c; 2013d).

3.11 VISUAL RESOURCES

3.11.1 Construction

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no visual resource-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

3.11.2 Operations

The Wasco Coal Terminal has four coal storage silos that are visible off site from the south. These four silos are located in an industrial area of Wasco. Because service of the HECA Project would not require construction of any new systems at the Wasco Coal Terminal, including coal storage silos, and trains and trucks delivering coal to and from the Coal Terminal would use existing railroads and roadways, an increase in operations to full capacity would have no new impact on visual resources.

For further information on visual resource effects from the HECA Project, see Section 4.13 of the PSA/DEIS (CEC and DOE, 2013), and Section 5.11 of the Amended AFC and Responses to Data Requests.

3.12 HAZARDOUS MATERIALS

3.12.1 Construction

Service of the HECA Project would not require construction of any new systems at the Wasco Coal Terminal, including any new coal storage silos; therefore, there would be no hazardous material-related construction impacts from increasing operations at the Wasco Coal Terminal to full capacity.

3.12.2 Operations

The Coal Terminal is an existing coal transloading facility operating in compliance with all applicable rules and regulations for storing and handling hazardous materials, including preparation and implementation of a Hazardous Materials Business Plan. Operations necessary to serve the proposed HECA Project would occur within the existing facility and in compliance with all applicable rules and regulations for hazardous materials. Train operators and truck drivers are required to comply with all rules and regulations for transporting hazardous materials. An increase in operational volumes would have no adverse hazardous materials effects.

For further information on hazardous materials from the HECA Project, see Section 4.5 of the PSA/DEIS (CEC and DOE, 2013), Section 5.12 of the Amended AFC (URS, 2012), and Responses to Data Requests.

3.13 WASTE MANAGEMENT

3.13.1 Construction

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no waste management-related construction impacts from increasing operations at the Coal Terminal to full capacity.

3.13.2 Operations

The Coal Terminal is an existing coal transloading operation. The primary sources of waste are from office and employee activities and equipment maintenance. All wastes other than hazardous materials (such as lube oils) are hauled off through a licensed waste management contactor. The nominally increased volume of waste to be generated from a change in operational levels would be from the required additional employees. Because the increase in waste stream would be considered nominal (almost no change over existing waste generation), the increase in operations at the Coal Terminal necessary to serve the proposed HECA Project would have a less-than-significant effect on waste management.

Current operations at the Coal Terminal serve customers whose demand for coal is somewhat unpredictable with respect to quantities and timing. As a result, there is little ability to control the types of train cars currently used to deliver coal. Some of the train cars that have delivered coal recently are of a design that can result in depositing small amounts of coal on the tracks during car handling operations outside the Coal Terminal (“Track Fouling”). With implementation of the HECA Project, the Coal Terminal would be dedicated to the HECA Project. All trains delivering coal to the Coal Terminal would be of a design that is compatible

with the unloading facilities at the Coal Terminal to ensure that there is no Track Fouling outside the Coal Terminal. This would represent a return to operations at the Coal Terminal more indicative of the historical operations that existed until recently, and which resulted in no Track Fouling outside the Coal Terminal. Thus, service of the HECA Project would result in an improvement relative to recent operating conditions at the Coal Terminal in this regard.

For further information on waste management from the HECA Project, see Section 4.14 of the PSA/DEIS (CEC and DOE, 2013); Section 5.13 of the Amended AFC (URS, 2012); Responses to Data Requests, and Responses to PSA/DEIS Information Requests (URS, 2013c; 2013d).

3.14 WATER RESOURCES

3.14.1 Construction

Service of the HECA Project would not require construction of any systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no water resource-related construction impacts from increasing operations at the Coal Terminal to full capacity.

3.14.2 Operation

The Coal Terminal is an existing coal transloading operation. The primary demand for water resources is from office and employee activities and occasional equipment and facility washing. There is no water used in the transloading operation. The Coal Terminal has existing water and wastewater connections with the City of Wasco to service office and employee water demands. The volume of water resources to be generated from a change in operations levels would nominally increase due to additional employees at the Coal Terminal. This change in demand for water resources (water and wastewater) would be considered less than significant, and would not generate an adverse effect from an increase in operations at the Coal Terminal.

For further information on water resources in the HECA Project area, see Section 5.14 of the Amended AFC (URS, 2012); Responses to Data Requests, and Responses to PSA/DEIS Information Requests (URS, 2013c; 2013d).

3.15 GEOLOGIC AND PALEONTOLOGICAL RESOURCES

Service of the HECA Project would not require construction of any new systems at the Coal Terminal, including any new coal storage silos; therefore, there would be no geologic and paleontologic resource-related construction impacts from increasing operations at the Coal Terminal to full capacity.

The existing Coal Terminal was previously constructed in conformance with the California Building Code. Furthermore, as shown in the Kern County General Plan Update PEIR, Table 4.1-1, (Kern County Planning Department, 2004), there are no major faults in the vicinity of Wasco.

Because there would be no construction of new physical facilities at the Coal Terminal, and the closest fault is over 10 miles from the City of Wasco, an increase in operations at the Coal Terminal would have no adverse effects on geologic or paleontological resources.

For further information on geologic and paleontological resources in the HECA Project area, see Section 5.2 of the PSA/DEIS (CEC and DOE, 2013); Sections 5.15 and 5.16 of the Amended AFC, and Responses to PSA/DEIS Information Requests (URS, 2013c).

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5.0 ENVIRONMENTAL SUMMARY REPORT PREPARATION

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APPENDIX A
Air Quality

Savage Coal Terminal
AAQA Emission Estimates

Existing On-site Truck Exhaust Emissions - EMFAC2011
2012 Operations

Based on:

Vehicles/year:	4353
Max Vehicles/hr:	6
Miles/Truck:	0.18
Total miles travelled/year:	784
Max miles travelled/hr:	1.08

	PM10	PM2.5	NOX	CO	SOX
Em. Factor (grams/mile)*	1.16	1.06	22.80	6.52	0.00
Lbs/Mile	2.55E-03	2.34E-03	5.03E-02	1.44E-02	0.00E+00
lbs/hr	1.25E+00	1.14E+00	2.46E+01	7.04E+00	0.00E+00
Lbs/Year	2.00	1.83	39.38	11.26	0.00

*EMFAC2011: Kern County, 2012 Calendar Year, T7 Public, 15 mph, aggregate model years

Post-Project On-site Truck Travel Exhaust Emissions - EMFAC2011
1.5M TPY Processed

Based on:

Vehicles/year:	54675
Max Vehicles/hr:	9
Miles/Truck:	0.18
Total miles travelled/year:	9,842
Max miles travelled/hr:	1.62

	PM10	PM2.5	NOX	CO	SOX
Em. Factor (grams/mile)*	0.17	0.16	22.12	1.10	0.00
Lbs/Mile	3.73E-04	3.42E-04	4.88E-02	2.42E-03	0.00E+00
lbs/hr	2.74E-01	2.51E-01	3.58E+01	1.78E+00	0.00E+00
Lbs/Year	3.67	3.36	479.93	23.82	0.00

*EMFAC2011: Kern County, 2013 Calendar Year, T7 Public, 15 mph, aggregate model years

Existing On-Site Truck Idle Emissions - EMFAC2011
2012 Operations

Based on:

Vehicles/year:	4353
Max Vehicles/hr:	6
Minutes/Truck:	15
Total Hours/year:	1,088
Max Idle Time/hr:	1.50

	PM10	PM2.5	NOX	CO	SOX
Em. Factor (grams/hour)*	0.73	0.67	83.12	41.83	0.07
Lbs/hour	1.61E-03	1.48E-03	1.83E-01	9.22E-02	1.46E-04
lbs/hr	1.10E+00	1.01E+00	1.25E+02	6.27E+01	9.90E-02
Lbs/Year	1.75	1.61	199.42	100.36	0.16

*EMFAC2011: SJV, 2012, HHDT, annual average

Post-Project On-Site Truck Idle Emissions - EMFAC2011
1.5M TPY Processed

Based on:

Vehicles/year:	54675
Max Vehicles/hr:	9
Minutes/Truck:	15
Total Hours/year:	13,669
Max Idle Time/hr:	2.25

	PM10	PM2.5	NOX	CO	SOX
Em. Factor (grams/hour)*	0.55	0.51	76.07	38.82	0.07
Lbs/hour	1.22E-03	1.12E-03	1.68E-01	8.56E-02	1.46E-04
lbs/hr	1.25E+00	1.15E+00	1.71E+02	8.73E+01	1.49E-01
Lbs/Year	16.69	15.34	2292.27	1169.82	1.99

*EMFAC2011: SJV, 2013, HHDT, annual average

Existing On-site Locomotive Exhaust Emissions - EMFAC2011
2012 Operations

Based on:

HP:	750	(Half Throttle)
hr/yr:	41.043	

	PM10	PM2.5	NOX	CO	SOX**
Em. Factor (grams/bhp-hr)*	0.26	0.24	11.80	8.00	0.0051
Lbs/bhp-hr	5.73E-04	5.27E-04	2.60E-02	1.76E-02	1.12E-05
Lbs/hr	4.30E-01	3.96E-01	1.95E+01	1.32E+01	8.43E-03
Lbs/Year	17.64	16.23	800.79	542.91	0.35

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 0
**CARB: Emission factors for SOx based on 15 ppmv S in fuel

Post-Project On-site Locomotive Travel Exhaust Emissions - EMFAC2011
1.5M TPY Processed

Based on:

HP:	750	(Half Throttle)
hr/yr:	397.8	(117 tains @ 34 hrs/train)

	PM10	PM2.5	NOX	CO	SOX
Em. Factor (grams/bhp-hr)*	0.13	0.12	8.10	2.40	0.0051
Lbs/bhp-hr	2.87E-04	2.64E-04	1.79E-02	5.29E-03	1.12E-05
Lbs/hr	2.15E-01	1.98E-01	1.34E+01	3.97E+00	8.43E-03
Lbs/Year	85.51	78.67	5327.77	1578.60	3.35

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2
**CARB: Emission factors for SOx based on 15 ppmv S in fuel

Existing On-site Locomotive Exhaust Emissions - EMFAC2011
2012 Operations

Based on:

HP:	15	(Idling)
hr/yr:	369.387	

	PM10	PM2.5	NOX	CO	SOX**
Em. Factor (grams/bhp-hr)*	0.26	0.24	11.80	8.00	0.0051
Lbs/bhp-hr	5.73E-04	5.27E-04	2.60E-02	1.76E-02	1.12E-05
Lbs/hr	8.60E-03	7.91E-03	3.90E-01	2.65E-01	1.69E-04
Lbs/Year	3.18	2.92	144.14	97.72	0.06

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 0
**CARB: Emission factors for SOx based on 15 ppmv S in fuel

Post-Project On-site Locomotive Travel Exhaust Emissions - EMFAC2011
1.5M TPY Processed

Based on:

HP:	15	(Idling)
hr/yr:	3580.2	(117 tains @ 34 hrs/train)

	PM10	PM2.5	NOX	CO	SOX
Em. Factor (grams/bhp-hr)*	0.13	0.12	8.10	2.40	0.0051
Lbs/bhp-hr	2.87E-04	2.64E-04	1.79E-02	5.29E-03	1.12E-05
Lbs/hr	4.30E-03	3.96E-03	2.68E-01	7.94E-02	1.69E-04
Lbs/Year	15.39	14.16	959.00	284.15	0.60

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2
**CARB: Emission factors for SOx based on 15 ppmv S in fuel

Permit S-872-1

Name	Existing PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							
Inputs	PM_{10} Rate lb/hr	PM_{10} Rate lb/yr	**Formula**				
Process Rate	3.40E-01	58.00	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				

Substances	CAS#	Weight Fraction Coal PM_{10} Dust*	LB/HR	LB/YR		
Aluminum	**7429905**	6.46E-02	2.20E-02	3.75E+00		
Antimony	**7440360**	1.30E-04	4.42E-05	7.54E-03		
Barium	**7440393**	2.30E-04	7.82E-05	1.33E-02		
Cadmium	**7440439**	1.20E-04	4.08E-05	6.96E-03		
Chlorine	**7782505**	9.80E-04	3.33E-04	5.68E-02		
Chromium	**7440473**	4.00E-05	1.36E-05	2.32E-03		
Cobalt	**7440484**	6.67E-03	2.27E-03	3.87E-01		
Copper	**7440508**	6.00E-05	2.04E-05	3.48E-03		
Hexavalent Chromium**	**18540299**	2.00E-06	6.80E-07	1.16E-04		
Lead	**7439921**	3.40E-04	1.16E-04	1.97E-02		
Manganese	**7439965**	4.00E-05	1.36E-05	2.32E-03		
Phosphorus	**7723140**	1.17E-03	3.98E-04	6.79E-02		
Zinc	**7440666**	1.00E-04	3.40E-05	5.80E-03		

References:

* Based on a EPA speciation of Coal Dust (1989)
http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

**5% of Chromium considered Hexavalent Chromium (District Policy)

Existing Baseline Emissions (2012)		
0.34	lbs PM10/hr (Emission factor from Permit S-872-1)	
119,405	tons Coal/yr (2012 Existing Operating Conditions)	
170.58	hrs/yr (Based on Max receiving capacity of 700 tons/hr)	
58.00	lbs PM10/yr	
19.33	lbs PM10/yr (Per Baghouse)	
5.65	lbs PM2.5/yr (Per Baghouse)	

Name	Post-Project PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							
Inputs	PM_{10} Rate lb/hr	PM_{10} Rate lb/yr	**Formula**				
Process Rate	3.40E-01	728.57	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				

Substances	CAS#	Weight Fraction Coal PM_{10} Dust*	LB/HR	LB/YR		
Aluminum	**7429905**	6.46E-02	2.20E-02	4.71E+01		
Antimony	**7440360**	1.30E-04	4.42E-05	9.47E-02		
Barium	**7440393**	2.30E-04	7.82E-05	1.68E-01		
Cadmium	**7440439**	1.20E-04	4.08E-05	8.74E-02		
Chlorine	**7782505**	9.80E-04	3.33E-04	7.14E-01		
Chromium	**7440473**	4.00E-05	1.36E-05	2.91E-02		
Cobalt	**7440484**	6.67E-03	2.27E-03	4.86E+00		
Copper	**7440508**	6.00E-05	2.04E-05	4.37E-02		
Hexavalent Chromium**	**18540299**	2.00E-06	6.80E-07	1.46E-03		
Lead	**7439921**	3.40E-04	1.16E-04	2.48E-01		
Manganese	**7439965**	4.00E-05	1.36E-05	2.91E-02		
Phosphorus	**7723140**	1.17E-03	3.98E-04	8.52E-01		
Zinc	**7440666**	1.00E-04	3.40E-05	7.29E-02		

References:

* Based on a EPA speciation of Coal Dust (1989)
http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

**5% of Chromium considered Hexavalent Chromium (District Policy)

Post-Project Emissions (1.5 Million TPY)		
0.34	lbs PM10/hr (Emission factor from Permit S-872-1)	
1,500,000	tons Coal/yr (Post-Project Operating Conditions)	
2142.86	hrs/yr (Based on Max receiving capacity of 700 tons/hr)	
728.57	lbs PM10/yr	
242.86	lbs PM10/yr (Per Baghouse)	
68.49	lbs PM2.5/yr (Per Baghouse)	

Permit S-872-2 thru -5

Name	Existing PM_{10} based Emissions from Operations generating Dust from Coal							Name	Post-Project PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.							**Applicability**	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013				*Author or updater*	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation							**Facility:**	Savage Coal Service Corporation						
ID#:								**ID#:**							
Project #:								**Project #:**							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**					**Inputs**	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	8.00E-02	13.65	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.					Process Rate	8.00E-02	171.43	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**				**Substances**	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	5.17E-03	8.82E-01				**Aluminum**	**7429905**	6.46E-02	5.17E-03	1.11E+01			
Antimony	**7440360**	1.30E-04	1.04E-05	1.77E-03				**Antimony**	**7440360**	1.30E-04	1.04E-05	2.23E-02			
Barium	**7440393**	2.30E-04	1.84E-05	3.14E-03				**Barium**	**7440393**	2.30E-04	1.84E-05	3.94E-02			
Cadmium	**7440439**	1.20E-04	9.60E-06	1.64E-03				**Cadmium**	**7440439**	1.20E-04	9.60E-06	2.06E-02			
Chlorine	**7782505**	9.80E-04	7.84E-05	1.34E-02				**Chlorine**	**7782505**	9.80E-04	7.84E-05	1.68E-01			
Chromium	**7440473**	4.00E-05	3.20E-06	5.46E-04				**Chromium**	**7440473**	4.00E-05	3.20E-06	6.86E-03			
Cobalt	**7440484**	6.67E-03	5.34E-04	9.10E-02				**Cobalt**	**7440484**	6.67E-03	5.34E-04	1.14E+00			
Copper	**7440508**	6.00E-05	4.80E-06	8.19E-04				**Copper**	**7440508**	6.00E-05	4.80E-06	1.03E-02			
Hexavalent Chromium**	**18540299**	2.00E-06	1.60E-07	2.73E-05				**Hexavalent Chromium****	**18540299**	2.00E-06	1.60E-07	3.43E-04			
Lead	**7439921**	3.40E-04	2.72E-05	4.64E-03				**Lead**	**7439921**	3.40E-04	2.72E-05	5.83E-02			
Manganese	**7439965**	4.00E-05	3.20E-06	5.46E-04				**Manganese**	**7439965**	4.00E-05	3.20E-06	6.86E-03			
Phosphorus	**7723140**	1.17E-03	9.36E-05	1.60E-02				**Phosphorus**	**7723140**	1.17E-03	9.36E-05	2.01E-01			
Zinc	**7440666**	1.00E-04	8.00E-06	1.36E-03				**Zinc**	**7440666**	1.00E-04	8.00E-06	1.71E-02			
References:								**References:**							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410								* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date								Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)								**5% of Chromium considered Hexavalent Chromium (District Policy)							
Existing Baseline Emissions (2012)								**Post-Project Emissions (1.5 Million TPY)**							
0.08	lbs PM10/hr (Emission factor from Permit S-872-2 thru -5)							0.08	lbs PM10/hr (Emission factor from Permit S-872-2 thru -5)						
119,405	tons Coal/yr (2012 Existing Operating Conditions)							1,500,000	tons Coal/yr (Post-Project Operating Conditions)						
170.58	hrs/yr (Based on Max receiving capacity of 700 tons/hr)							2142.86	hrs/yr (Based on Max receiving capacity of 700 tons/hr)						
13.65	lbs PM10/yr							171.43	lbs PM10/yr						
6.82	lbs PM10/yr (Per Baghouse)							85.71	lbs PM10/yr (Per Baghouse)						
1.99	lbs PM2.5/yr (Per Baghouse)							25.03	lbs PM2.5/yr (Per Baghouse)						

Permit S-872-6

Name	Existing PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	1.50E-01	71.64	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	9.69E-03	4.63E+00			
Antimony	**7440360**	1.30E-04	1.95E-05	9.31E-03			
Barium	**7440393**	2.30E-04	3.45E-05	1.65E-02			
Cadmium	**7440439**	1.20E-04	1.80E-05	8.60E-03			
Chlorine	**7782505**	9.80E-04	1.47E-04	7.02E-02			
Chromium	**7440473**	4.00E-05	6.00E-06	2.87E-03			
Cobalt	**7440484**	6.67E-03	1.00E-03	4.78E-01			
Copper	**7440508**	6.00E-05	9.00E-06	4.30E-03			
Hexavalent Chromium**	**18540299**	2.00E-06	3.00E-07	1.43E-04			
Lead	**7439921**	3.40E-04	5.10E-05	2.44E-02			
Manganese	**7439965**	4.00E-05	6.00E-06	2.87E-03			
Phosphorus	**7723140**	1.17E-03	1.76E-04	8.38E-02			
Zinc	**7440666**	1.00E-04	1.50E-05	7.16E-03			
References:							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)							
Existing Baseline Emissions (2012)							
0.15	lbs PM10/hr (Emission factor from Permit S-872-6)						
119,405	tons Coal/yr (2012 Existing Operating Conditions)						
477.62	hrs/yr (Based on Max reclaiming capacity of 250 tons/hr)						
71.64	lbs PM10/yr						
71.64	lbs PM10/yr (Per Baghouse)						
20.92	lbs PM2.5/yr (Per Baghouse)						

Name	Post-Project PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	1.50E-01	900.00	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	9.69E-03	5.82E+01			
Antimony	**7440360**	1.30E-04	1.95E-05	1.17E-01			
Barium	**7440393**	2.30E-04	3.45E-05	2.07E-01			
Cadmium	**7440439**	1.20E-04	1.80E-05	1.08E-01			
Chlorine	**7782505**	9.80E-04	1.47E-04	8.82E-01			
Chromium	**7440473**	4.00E-05	6.00E-06	3.60E-02			
Cobalt	**7440484**	6.67E-03	1.00E-03	6.00E+00			
Copper	**7440508**	6.00E-05	9.00E-06	5.40E-02			
Hexavalent Chromium**	**18540299**	2.00E-06	3.00E-07	1.80E-03			
Lead	**7439921**	3.40E-04	5.10E-05	3.06E-01			
Manganese	**7439965**	4.00E-05	6.00E-06	3.60E-02			
Phosphorus	**7723140**	1.17E-03	1.76E-04	1.05E+00			
Zinc	**7440666**	1.00E-04	1.50E-05	9.00E-02			
References:							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)							
Post-Project Emissions (1.5 Million TPY)							
0.15	lbs PM10/hr (Emission factor from Permit S-872-6)						
1,500,000	tons Coal/yr (Post-Project Operating Conditions)						
6000.00	hrs/yr (Based on Max reclaiming capacity of 250 tons/hr)						
900.00	lbs PM10/yr						
900.00	lbs PM10/yr (Per Baghouse)						
262.80	lbs PM2.5/yr (Per Baghouse)						

AAQA for Savage (1)
All Values are in ug/m^3

	Nox 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM10 24 Hour	PM10 Annual	PM2.5 24 Hour	PM2.5 Annual
SLINE1	1.51E+00	6.75E-01	3.97E-01	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-03	4.16E-04	3.01E-03	3.81E-04
SLINE2	3.76E+01	2.60E-01	1.94E-01	7.20E-02	3.33E-02	2.86E-03	1.10E-03	2.31E-04	5.00E-02	1.83E-02	4.60E-02	1.69E-02
STCK1	3.64E+00	1.85E+00	1.73E+00	9.82E-01	4.25E-03	2.60E-02	1.07E-02	2.16E-03	1.00E-03	9.87E-05	9.22E-03	9.09E-04
VOL1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E+00	2.39E-01	4.30E-01	6.99E-02
VOL2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E+00	2.46E-01	4.88E-01	7.19E-02
VOL3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.48E-02	1.01E-02	1.89E-02	2.95E-03
VOL4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-02	3.32E-03	6.31E-03	9.69E-04
VOL5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E-02	3.29E-03	6.34E-03	9.62E-04
VOL6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-01	3.39E-02	6.70E-02	9.90E-03
Background	1.15E+02	8.15E+00	3.09E+03	1.15E+03	1.92E+01	1.81E+01	1.05E+01	9.53E-01	1.09E+02	5.91E+01	8.30E+01	2.24E+01
Facility Totals	1.58E+02	1.09E+01	3.09E+03	1.15E+03	1.92E+01	1.81E+01	1.05E+01	9.56E-01	1.13E+02	5.97E+01	8.41E+01	2.26E+01
AAQS	188.68	100	23000	10000	196	1300	105	80	50	20	35	12
	Pass	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Fail**	**Fail**	**Fail**	**Fail**

Project Significance Level (ug/m^3)

NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM10 24 Hour	PM10 Annual	PM2.5 24 Hour	PM2.5 Annual
8	**1**	**2000**	**500**	**0**	**25**	**5**	**1**	**10.4**	**2.08**	**2.5**	**0.63**
								Pass	**Pass**	**Pass**	**Pass**

AAQA Emission (g/sec)

Device	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM10 24 Hour	PM10 Annual	PM2.5 24 Hour	PM2.5 Annual
SLINE1	6.34E-03	6.34E-03	1.81E-04	1.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-05	2.40E-05	2.20E-05	2.20E-05
SLINE2	7.68E-02	7.68E-02	1.75E-03	1.75E-03	5.11E-05	5.11E-05	5.11E-05	5.11E-05	1.15E-03	1.15E-03	1.06E-03	1.06E-03
STCK1	3.01E-02	3.01E-02	1.54E-03	1.54E-03	2.63E-05	2.63E-05	2.63E-05	2.63E-05	2.14E-05	2.14E-05	1.97E-04	1.97E-04
VOL1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E-03	3.21E-03	9.37E-04	9.37E-04
VOL2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E-03	3.21E-03	9.37E-04	9.37E-04
VOL3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E-03	3.21E-03	9.37E-04	9.37E-04
VOL4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-03	1.13E-03	3.30E-04	3.30E-04
VOL5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-03	1.13E-03	3.30E-04	3.30E-04
VOL6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-02	1.19E-02	3.47E-03	3.47E-03

APPENDIX B
Noise

NOISE TECHNICAL REPORT

WASCO COAL TERMINAL NOISE TECHNICAL REPORT WASCO, CALIFORNIA

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September 2013

Tables

Figures

Appendices

Acronyms and Abbreviations

Cadna/A	Computer-Aided Noise Abatement
CNEL	Community Noise Equivalent Level
CUP	Conditional Use Permit
dB	decibel
dBA	A-weighted decibels
DNL	Day-Night Average Sound Level
FTA	Federal Transit Administration
HECA	Hydrogen Energy California
Hz	Hertz
L_{eq}	equivalent sound level
$L_{eq(h)}$	equivalent sound level for a 1-hour period
L_{dn}	Day-Night Average Sound Level
L_{max}	Maximum Sound Level
L_{min}	Minimum Sound Level
LT-X	Long-Term Measurement Site X
L_{xx}	Percentile-Exceeded Sound Level
mph	miles per hour
MR-X	Modeled Receiver Site X
OSHA	Occupational Safety and Health Administration
PTO	Permission to Operate
SLM	sound level meter

1.0 INTRODUCTION

Savage Services Corporation operates the Wasco Coal Terminal in the City of Wasco, and proposes to amend the Wasco Coal Terminal Conditional Use Permit (CUP) #489-87 to be consistent with its existing San Joaquin Valley Air Pollution Control District Permission to Operate (PTO) and the proposed Hydrogen Energy California (HECA) project. Table 1 illustrates the difference in average operations between 1989 and 2011 and the proposed CUP #489-87 Amendment.

Table 1
Wasco Coal Terminal Operations

	Average Operations (1989-2011)	2012 Operations	Operation Permitted Under Current PTO and Modified CUP[1]
Tons/Year	500,000	119,405	1,500,000
Trucks/Year	18,225	4,353	54,675
Average Trucks/Day	50	22.2	152
Maximum Trucks/Day	182	49	182
Average Trucks/Hour[2]	2-3	3	7-8
Maximum Truck/Hour	9	6	9
Trains/Year	39	9	117
Rail Car/Year	4,348	1,041	13,043
Locomotive Idle Hours/Year	1,193	369	3,580
Locomotive Half-Throttle Hours/Year	133	41	398
Average Deliveries/Month	3-4	<1	10

Notes:

[1] Source: Insight Environmental Consultants, 2013.

[2] Average trucks per day averaged over 20 hours per day except for 2012 Operations, which was averaged over an 8-hour operating day.

CUP = Conditional Use Permit
PTO = Permission to Operate

Coal is transported to the facility via rail, and is unloaded in the Railcar Unloading Building west of the Wasco Coal Terminal. The coal is then placed on a conveyor belt and transported underground to the Wasco Coal Terminal, where it is eventually loaded onto trucks at the Truck Loadout Building for delivery. This process and current activities will remain in place unaltered. The purpose of the proposed project is to increase the number of these operations.

The purpose of this report is to identify noise-sensitive receivers that may potentially be impacted by the implementation of the proposed Project, and identify mitigation measures that may be necessary to reduce potential noise impacts.

2.0 FUNDAMENTALS OF ACOUSTICS

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity, and that interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise exposure levels is annoyance. The responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise; the perceived importance of the noise; its appropriateness to the setting; the time of day and the type of activity during which the noise occurs; and individual noise sensitivity.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure (loudness). Because the range of sound pressures that occur in the environment is extremely large, it is convenient to express these pressures on a logarithmic scale that compresses the wide range of pressures into a more useful range of numbers. The standard unit of sound pressure measurement is the decibel (dB).

Outdoor sound levels decrease logarithmically as the distance from the source increases. This is due to wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound waves travel away from the source, the sound energy is dispersed over a greater area, decreasing the sound pressure of the wave. Spherical spreading of the sound wave reduces the noise level at a rate of 6 dB per doubling of distance.

Atmospheric absorption also influences the sound levels received by an observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound, as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest (i.e., sound carries further) at high humidity and high temperatures, and lower frequencies are less readily absorbed (i.e., sound carries further) than higher frequencies. Over long distances, lower frequencies become dominant as the higher frequencies are more rapidly attenuated. Turbulence, gradients of wind, and other atmospheric phenomena also play a significant role in determining the degree of attenuation. Certain conditions, such as temperature inversions, can channel or focus the sound waves, resulting in higher noise levels than would result from simple spherical spreading.

Hertz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. When the drum skin vibrates 100 times per second, it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/ brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the healthy human ear.

Sound from a tuning fork contains a single frequency (a pure tone), but most sounds one hears in the environment do not consist of a single frequency, but rather a broad band of many frequencies

differing in sound level. Because of the broad range of audible frequencies, methods have been developed to quantify these values into a single number. The most common method used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that is reflective of human hearing. Human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This process of discriminating frequencies based upon human sensitivity is termed "A weighting," and the resulting dB level is termed the "A-weighted" decibel (dBA). A-weighting is widely used in local noise ordinances, and in state and federal guidelines. In practice, the level of a noise source is conveniently measured using a sound level meter (SLM) that includes a filter corresponding to the dBA curve. Unless specifically noted, the use of A-weighting is always assumed with respect to environmental sound and community noise, even if the notation does not show the "A." A-weighted sound pressure levels of typical sources of noise are shown in Table 2.

Table 2
Sound Levels of Typical Noise Sources and Noise Environments

Noise Source (at a given distance)	Scale of dBA Sound Levels	Noise Environment	Human Judgment of Noise Loudness (Relative to a Reference Loudness of 70 dBs*)
Commercial Jet Take-Off (200 feet)	120		Threshold of pain *32 times as loud
Pile Driver (50 feet)	110	Rock Music Concert	*16 times as loud
Ambulance Siren (100 feet) Newspaper Press (5 feet) Power Lawn Mower (3 feet)	100		Very loud *8 times as loud
Motorcycle (25 feet) Propeller Plane Flyover (1,000 feet) Diesel Truck, 40 mph (50 feet)	90	Boiler Room Printing Press Plant	*4 times as loud
Garbage Disposal (3 feet)	80	High Urban Ambient Sound	*2 times as loud
Passenger Car, 65 mph (25 feet) Vacuum Cleaner (10 feet)	70		Moderately loud *70 decibels (Reference loudness)
Normal Conversation (5 feet) Air Conditioning Unit (100 feet)	60	Data Processing Center Department Store	*1/2 as loud
Light Traffic (100 feet)	50	Private Business Office	*1/4 as loud
Bird Calls (distant)	40	Lower Limit of Urban Ambient Sound	Quiet *1/8 as loud
Soft Whisper (5 feet)	30	Quiet Bedroom	
	20	Recording Studio	Very quiet
	10		
	0		Threshold of hearing

Source: Compiled by URS Corporation (2007).

Notes:

dB = decibel
dBA = A-weighted decibel
mph = miles per hour

Because of the logarithmic nature of the dB unit, sound levels cannot be added or subtracted linearly and are somewhat cumbersome to handle mathematically; however, there are common rules useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example: 60 dB + 60 dB = 63 dB, and 80 dB + 80 dB = 83 dB. Second, noise levels from point sources, such as a substation, decrease by approximately 6 dB per doubling of distance.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most ambient environmental noise includes a mixture of noise from nearby and distant sources that creates an ebb and flow of sound, including some identifiable sources plus a relatively steady background noise in which no particular source is identifiable. A single descriptor called the equivalent sound level (L_{eq}) is used to describe sound that is constant or changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a given constant source to equal the acoustic energy contained in the fluctuating sound level measured during the interval. The L_{eq} is the "base" metric used to establish other measures of environmental noise, such as the Day-Night Average Sound Level (L_{dn} or DNL) or the Community Noise Equivalent Level (CNEL).

In addition to L_{eq}, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum L_{eq} (L_{max}) and minimum L_{eq} (L_{min}). These values represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{10}, L_{50}, and L_{90} may be used. These are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the measured time interval. Sound levels associated with L_{10} typically describe transient or short-term events, such as car and truck pass-bys. Sound levels are higher than this value only 10 percent of the measurement time. L_{50} represents the median sound level during the measurement interval. Levels will be above and below this value exactly one-half of the measurement time. L_{90} is the sound level exceeded 90 percent of the time, and is often used to describe background noise conditions. Ninety percent of the time, measured levels are higher than this value, and therefore the L_{90} represents the environment at its quietest periods.

The L_{dn} or DNL is a cumulative noise metric, and represents the average sound level for a 24-hour day. DNL is calculated from the L_{eq} by adding a 10-dB penalty to sounds that occur during the nighttime period (10:00 p.m. to 7:00 a.m.). The DNL is the descriptor of choice used by nearly all federal, state, and local agencies throughout the United States to define acceptable land use compatibility with respect to noise.

In the State of California, the CNEL is sometimes used instead of DNL. CNEL is very similar to DNL, except that an additional 5-dB penalty is applied to sounds that occur during the evening hours (7:00 p.m. to 10:00 p.m.). Because of the time-of-day penalties associated with the DNL and CNEL descriptors, the DNL or CNEL dBA value for a continuously operating sound source during a 24-hour period will be numerically greater than the dBA value of the 24-hour L_{eq}.

Thus, for a continuously operating noise source producing a constant noise level operating for periods of 24 hours or more, the DNL will be 6 dB higher than the L_{eq} value.

Humans are better able to perceive changes in noise level than absolute noise levels. Potential responses of persons to changes in the noise environment are usually assessed by evaluating differences between the existing and total predicted future noise environments. The following relationships of perception and response to quantifiable noise changes are used as a basis for assessing potential effects of these changes in environmental noise level:

- Except in a carefully controlled laboratory condition, a change of 1 dBA is very difficult to perceive.
- In the outside environment, a change of 3 dBA is considered just perceptible.
- An increase of 5 dBA is considered readily perceptible, and would generally result in a change in community response.
- An increase of 10 dBA is perceived as a doubling in loudness, and would likely result in a widespread community response.

3.0 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The applicable laws, ordinances, regulations, standards, and noise guidelines used at the local level for planning purposes are presented in the following paragraphs. Local noise guidelines are often based on the broader guidelines of state and federal agencies, and many are implemented as enforceable noise ordinances.

3.1 FEDERAL

3.1.1 Occupational Safety and Health Administration

Under the Occupational Safety and Health Act of 1970 (29 United States Code § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure (29 Code of Federal Regulations § 1910.95). These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed. See Table 3 for the applicable OSHA worker noise exposure standards.

Table 3
OSHA Worker Noise Exposure Standards

Duration of Noise (hours per day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: 29 Code of Federal Regulations § 1910.95

Notes:

dBA = A-weighted decibels
OSHA = Occupational Safety and Health Administration

The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

3.1.2 Federal Transit Administration

The Federal Transit Administration (FTA) has published environmental noise guidelines for transit projects. The FTA guidelines are based on relative increase in noise exposure above ambient conditions, and contain three classifications of potential impact. These classifications are: (1) No Impact, (2) Moderate Impact, and (3) Severe Impact. The FTA guidelines for transit projects and

their associated fixed facilities such as storage and maintenance yards; passenger stations and terminals; parking facilities; and substations are shown graphically on Figure 1 (FTA, 2006).

The land use categories (1, 2, 3) shown on Figure 1 are defined in Table 4.

Figure 1
Noise Impact Criteria for Transit Projects

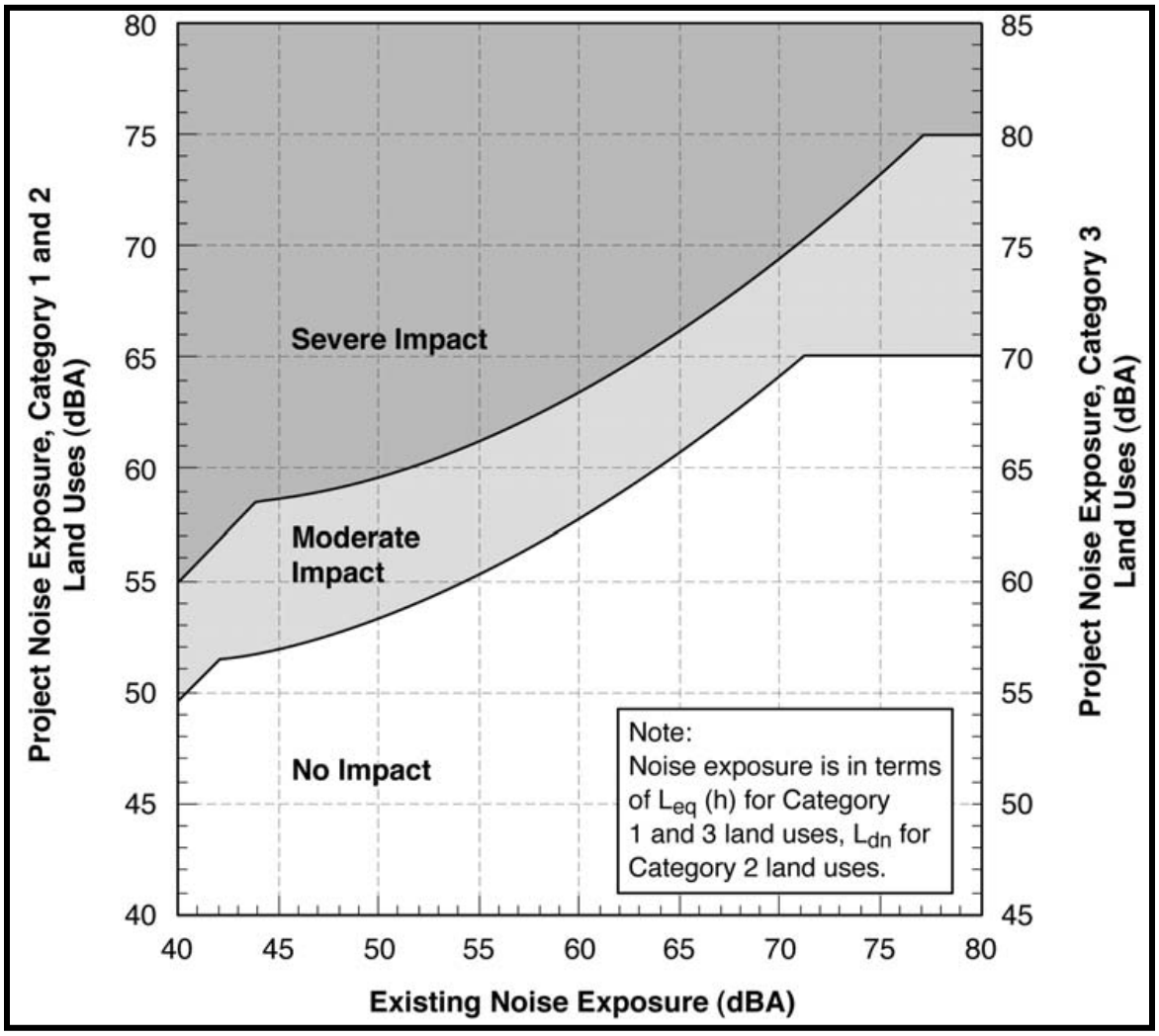


Table 4
Land Use Categories and Metrics for Transit Noise Impact Criteria

Land Use Category	Noise Metric[1] (dBA)	Land Use Category
1	Outdoor $L_{eq(h)}$[2]	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes and hospitals, where nighttime sensitivity to noise is assumed to be the utmost importance.
3	Outdoor $L_{eq(h)}$[2]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios, and concert halls fall into this category, as do places for meditation or study associated with cemeteries, monuments, and museums. Certain historical sites, parks, and recreational facilities are also included.

Source: FTA, 2006.

Notes:

[1] Onset-rate adjusted sound levels (L_{eq}, L_{dn}) are to be used where applicable.
[2] L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

dBA = A-weighted decibels
L_{dn} = day-night sound level, dBA
$L_{eq(h)}$ = equivalent sound level for a 1-hour period, dBA

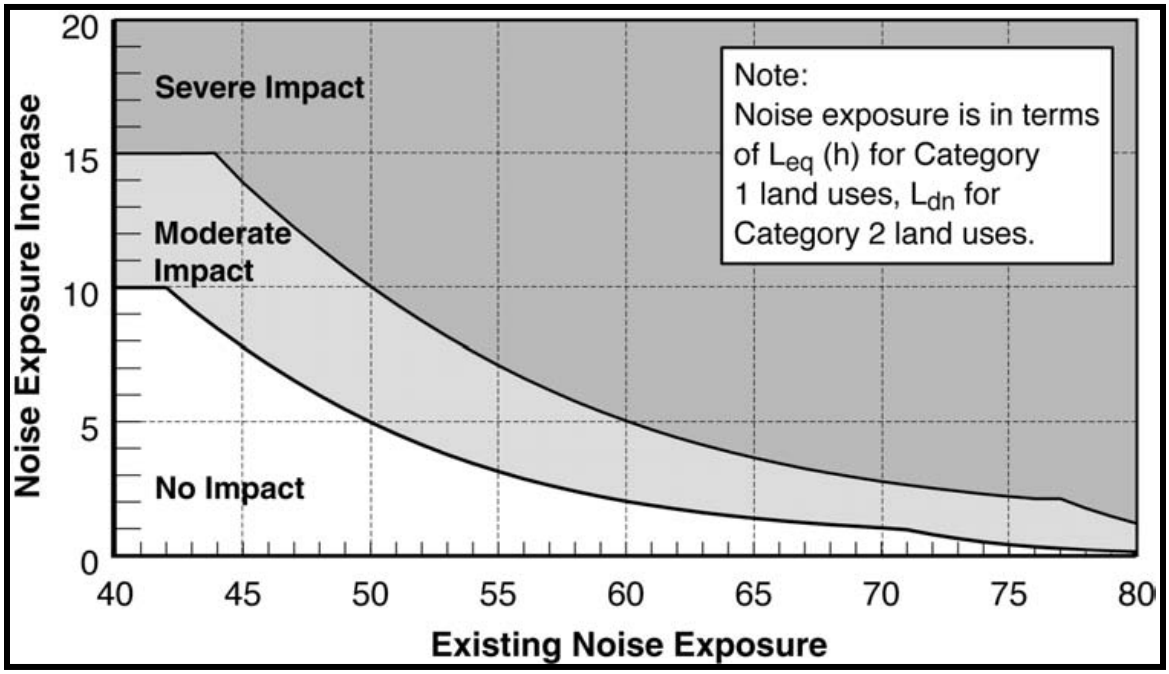
For noise exposures below the lower of the two curves on Figure 1, a proposed project is considered to have no noise impact because the project will result in an insignificant increase in noise exposure. The curve defining the onset of noise impact stops increasing at 65 dB for Category 1 and 2 land uses, a standard limit for an acceptable living environment defined by a number of federal, state, and local agencies. Project noise above the upper curve is considered to cause a severe impact because a significant percentage of people would be highly annoyed by the new noise. This curve flattens out at 75 dB for Category 1 and 2 land uses, a level associated with an unacceptable living environment. As indicated by the right-hand scale on Figure 1, the project noise criteria are 5 dB higher for Category 3 land uses, because these types of land uses are considered to be slightly less sensitive to noise than the types of land uses in Categories 1 and 2.

Between the two curves, the proposed project is judged to have a moderate impact. The change in the cumulative noise level is noticeable to most people, but may not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation, such as the existing noise level, predicted level of increase over existing noise levels, and the types and numbers of noise-sensitive land uses affected.

Although the curves shown on Figure 1 are defined in terms of the project noise exposure and the existing noise exposure, it is important to emphasize that it is the increase in the cumulative

noise—when project-generated noise is added to existing noise levels—that is the basis for the FTA criteria. To illustrate this point, Figure 2 shows the noise impact criteria for Category 1 and Category 2 land uses in terms of the allowable increase in the cumulative noise exposure. Because L_{dn} and L_{eq} are measures of total acoustic energy, any new noise source in a community will cause an increase, even if the new source level is less than the existing level. Referring to Figure 2, it can be seen that the criterion for moderate impact allows a noise exposure increase of 10 dBA if the existing noise exposure is 42 dBA or less, but only an increase of 1 dBA when the existing noise exposure is 70 dBA.

Figure 2
Allowable Increase in Cumulative Noise Levels (Categories 1 and 2)



Source: FTA, 2006

As the existing level of ambient noise increases, the allowable level of transit noise decreases and the total amount of community noise exposure is allowed to increase at a reduced rate. This reflects the increased habituation to higher noise levels while limiting maximum noise exposure. This is illustrated in the examples given in Table 5, which indicate the level of project noise allowed for different existing levels of exposure.

With respect to construction noise, there are no standard criteria that apply at the federal level. State and local noise criteria would apply. However, Section 12.1.3 of the FTA guidelines does offer suggested threshold values for two levels of analysis (general and detailed) that can help identify potential noise impacts from construction equipment (FTA, 2006).

There is no construction required at the Wasco Coal Terminal.

Table 5
Noise Impact Criteria: Effect on Cumulative Noise Exposure

L_{dn} or L_{eq} in dBA (rounded to nearest whole decibel)			
Existing Noise Exposure	**Allowable Project Noise Exposure**	**Allowable Combined Total Noise Exposure**	**Allowable Noise Exposure Increase**
45	51	52	7
50	53	55	5
55	55	58	3
60	57	62	2
65	60	66	1
70	64	71	1
75	65	75	0

Source: FTA, 2006

Notes:

dBA = A-weighted decibels
L_{dn} = Day-Night Sound Level, dBA
L_{eq} = Equivalent Sound Level, dBA

3.2 STATE

California Government Code Section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its general plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The State of California, Office of Noise Control, prepared the Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. This model also defines a simple tone, or "pure tone," as one-third octave band sound pressure levels that can be used to determine whether a noise source contains annoying tonal components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA. The California OSHA has promulgated occupational noise exposure regulations (California Code of Regulations, Title 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to federal OSHA standards (see Table 3).

3.3 LOCAL

3.3.1 Kern County

General Plan Noise Element

Two policies stated in this noise element (County of Kern, 2007) relate to the construction and operation of a project. Policy (5)(a) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor activity areas to 65 dBA L_{dn} or less. Policy (5)(b) prohibits new noise-

sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce interior noise levels within living spaces or other noise-sensitive interior spaces to 45 dBA L_{dn} or less.

Noise Control Ordinance

The Noise Control Ordinance (County of Kern, 2009) in Chapter 8.36 of the Kern County Code states that noise from construction must be limited to the following hours when construction takes place within 1,000 feet of a sensitive receptor:

- Weekdays 6:00 a.m. to 9:00 p.m.; and
- Weekends 8:00 a.m. to 9:00 p.m.

No construction activities are anticipated at the Wasco Coal Terminal.

3.3.2 City of Wasco

There are no restrictions in the current CUP that would limit the hours of operations required to meet either county or local noise ordinances. The only operational restrictions at the Wasco Coal Terminal are that 1) truck operations are limited to 20 hours per day and 2) the use of the coal car shaker is limited to daytime hours.

General Plan Noise Element

The City of Wasco Noise Element lists the following as noise-sensitive land uses:

- Residential;
- Schools;
- Hospitals, nursing, and personal care;
- Churches; and
- Other uses of a similar nature as determined by the Planning Director.

The City of Wasco Noise Element states, "[A]reas shall be recognized as noise impacted if exposed to existing or projected future noise levels at the exterior of building which exceed 65 dB L_{dn} (or CNEL). Noise-sensitive land uses should be discouraged in noise-impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce exterior noise levels to 65 dB L_{dn} (or CNEL) or less and 45 dB L_{dn} (or CNEL) or less within interior living spaces."

Noise Control Ordinance

The Noise Control Code in Chapter 8.32 of the City of Wasco Municipal Code addresses unreasonably loud noises and sounds by stating the following:

> *"It is unlawful for any person within the city to use or operate or cause to be operated or to play any radio, phonograph, jukebox, record player, loudspeaker, musical instrument, mechanical device, machine, apparatus, or instrument for intensification or amplification of the human voice or any sound or noise in a*

manner so loud as to be calculated to disturb the peace and good order of the neighborhood or sleep of ordinary persons in nearby residences, or so loud as to unreasonably disturb and interfere with the peace and comfort of the occupants of nearby residences."

4.0 ENVIRONMENTAL SETTING

The Wasco Coal Terminal is located in the city of Wasco, California. The project is surrounded by a mix of commercial, industrial, and residential land uses. Railroad tracks are immediately adjacent to, and west of, the project site (see Figure 3). The site is bounded by H Street on the west, 9th Street on the north, and J Street on the south and east. The Railcar Unloading Building is on the west side of H Street, and the railroad tracks run through the building. This is where coal is unloaded, put on a conveyor belt, and conveyed underneath H Street to the storage silos. Freight and commuter trains use the tracks immediately adjacent to the track that leads to, and out of, the Railcar Unloading Building. According to Savage Services Corporation, approximately 30 freight train operations and 12 commuter trains use these tracks each day.

An ambient noise survey was conducted on August 5 and 6, 2013. Two 24-hour long-term measurements were conducted to quantify noise exposure in the site environs for noise-sensitive receivers that may be affected by the increase in operations at Wasco Coal Terminal resulting from the current PTO and amendment to the existing CUP associated with the HECA Project. A map depicting the noise measurement locations and surrounding environs is shown on Figure 3. One measurement location was immediately north of the Wasco Coal Terminal (LT-2), and another was immediately west of the Railcar Unloading Building (LT-1). These locations represent the nearest noise-sensitive receivers, which are communities of single-family private property residences.

During the noise measurement survey, the temperature ranged from 68 to 96 degrees Fahrenheit, with an average relative humidity of 25 percent. Winds ranged from calm to light, and rarely gusted at speeds over 10 miles per hour. Sky conditions were clear to partly cloudy throughout the entire noise measurement period. These meteorological conditions are favorable for environmental noise measurement.

The SLMs were programmed to record A-weighted sound levels at the slow meter response setting in accordance with standard practice for environmental noise measurements. The SLMs were installed at key locations that are representative of the ambient noise level at the noise-sensitive receptors in the vicinity of the Wasco Coal Terminal. Both SLMs were secured to chain-link fences away from acoustically reflective surfaces. To ensure accuracy of the data, each SLM was calibrated before and after the measurement period. These field calibrations are traceable to the National Institute of Standards and Technology. Field measurement data sheets were used to record instrumentation, location, and field conditions. The field measurement data sheets can be found in Appendix A. Certificates of calibration for the equipment used during the ambient noise level survey can be found in Appendix B.

Existing noise levels at each of the long-term noise measurement locations are presented below:

LT-1: The noise-sensitive receivers near LT-1 are a community of single-family, private-property residences along the western side of G Street; approximately 225 feet west of the nearest railroad track, and approximately 290 feet west of the track used for railcar unloading. The SLM was secured to a chain-link fence approximately 5 feet above the ground; approximately 60 feet west of the nearest railroad track, and approximately 125 feet west of the track used for railcar unloading. Train pass-bys and train horn events were the predominant noise sources throughout the entire measurement period. These events define the ambient noise environment.

Figure 3
Ambient Noise Level Measurement Locations, Modeled Receiver Locations and Project Site

Table 6 lists the results of the long-term measurement survey conducted at measurement site LT-1. Hourly L_{eq} values ranged from 48.2 dBA to 81.9 dBA. The daytime (7:00 a.m. to 10:00 p.m.) L_{eq} was 71.1 dBA, and the nighttime (10:00 p.m. to 7:00 a.m.) L_{eq} was 77.6 dBA. The nighttime L_{eq} was higher than the daytime L_{eq} because of the higher number of train pass-bys and associated horn events during the nighttime hours. The 24-hour L_{eq} and L_{dn} for the entire measurement period were 74.7 and 83.5 dBA, respectively.

LT-2: The noise-sensitive receivers near LT-2 are a community of single-family, private-property residences on the northern side of 9th Street between H Street and J Street. The SLM was secured to a chain-link fence on the northern side of the Wasco Coal Terminal, and on the southern side of 9th Street, approximately 5 feet above the ground. Train pass-bys and train horn events were the predominant noise sources throughout the entire measurement period.

Table 7 lists the results of the long-term measurement survey conducted at measurement site LT-2. Hourly L_{eq} values ranged from 52.1 dBA to 65.5 dBA. The daytime L_{eq} was 60 dBA, and the nighttime L_{eq} was 62.7 dBA. The nighttime L_{eq} was higher than the daytime L_{eq} because of the higher number of train pass-bys and horn events during the nighttime hours. The 24-hour L_{eq} and L_{dn} for the entire measurement period were 61.2 dBA and 68.8 dBA, respectively.

Figure 4 illustrates the fluctuation in noise levels at LT-1 throughout the ambient noise level measurement period on August 5 and 6, 2013. The L_{eq}, L_{max}, L_{90}, L_{50}, L_{10}, and L_{min} values are charted based on 10-minute intervals collected at LT-1. There were a total of 35 train events throughout the 24-hour measurement period. Twenty of the train events were freight trains and 15 of the events were from Amtrak commuter trains. Periods containing one or more train events are depicted as loud "spikes," and are readily apparent on Figure 4.

Figure 5 depicts two train events measured at LT-1. The L_{max} values associated with both of the train events are 107 dBA. The characteristic shape of the graph indicates three or four short horn blows, followed by a loud extended horn blow and train passage

Propagating these noise events from LT-1 to the homes west of G Street indicates that a L_{max} of 98 dBA can be expected at the homes during typical train pass-bys.

Table 6
24-hour Sound Level Measurement at LT-1 (dBA)

Date and Start Time	L_{eq}	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}
8/5/13 7:00	76.2	97.7	58.8	56.2	54.7	51.8
8/5/13 8:00	73.9	103.2	57.4	54.9	52.9	50.6
8/5/13 9:00	54.2	64.7	55.7	53.7	51.7	48.1
8/5/13 10:00	74.6	97.6	57.9	55.1	53.0	50.3
8/5/13 11:00	77.7	103.1	62.5	57.4	55.1	53.3
8/5/13 12:00	53.8	68.2	56.8	50.4	46.7	43.0
8/5/13 13:00	62.4	91.6	51.1	47.5	45.6	43.0
8/5/13 14:00	71.2	94.1	55.1	50.3	47.3	44.1
8/5/13 15:00	64.8	95.6	54.1	51.1	48.7	44.7
8/5/13 16:00	55.7	82.2	52.1	47.6	45.6	43.3
8/5/13 17:00	48.8	67.3	50.7	47.3	45.5	43.5
8/5/13 18:00	60.4	87.3	50.9	46.4	45.0	43.5
8/5/13 19:00	50.5	68.6	53.8	47.6	45.5	43.7
8/5/13 20:00	72.5	96.4	53.7	51.4	49.5	47.9
8/5/13 21:00	59.1	85.2	54.8	51.0	47.7	46.3
8/5/13 22:00	77.4	106.2	50.5	48.1	46.6	44.6
8/5/13 23:00	80.5	110.0	54.4	50.3	47.1	44.7
8/6/13 0:00	80.3	107.4	54.5	49.2	46.6	44.2
8/6/13 1:00	71.8	97.2	50.4	48.0	45.6	43.6
8/6/13 2:00	48.2	53.9	49.8	47.8	46.2	43.7
8/6/13 3:00	75.7	96.2	67.1	59.1	46.4	44.6
8/6/13 4:00	81.9	108.9	64.2	59.4	58.9	58.5
8/6/13 5:00	75.2	99.6	61.1	56.5	55.0	53.9
8/6/13 6:00	68.4	92.3	60.6	57.2	55.0	53.8

Source: URS Corporation, 2013.

Notes:

dBA = A-weighted decibel
L_{eq} = equivalent sound level

Measurements conducted on August 5 and 6, 2013.
Measurement Location: N 35° 35’ 27.2”, W 119° 19’ 55.2.”
24-hour L_{eq} = 74.7 dBA
Daytime L_{eq} = 71.1 dBA
Nighttime L_{eq} = 77.6 dBA
L_{dn} = 83.5

Table 7
24-hour Sound Level Measurement at LT-2 (dBA)

Date and Start Time	L_{eq}	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}
8/5/13 7:00	63.2	88.5	61.9	57.3	56.0	55.2
8/5/13 8:00	60.3	87.5	58.6	56.4	55.7	54.7
8/5/13 9:00	58.3	76.9	59.4	57.6	56.4	54.2
8/5/13 10:00	60.6	86.7	59.4	57.7	56.0	54.6
8/5/13 11:00	63.7	87.8	59.0	56.6	55.5	54.1
8/5/13 12:00	56.4	74.3	57.4	54.9	52.6	48.4
8/5/13 13:00	56.1	74.8	56.1	52.3	49.9	47.3
8/5/13 14:00	56.7	81.4	56.0	53.3	49.5	46.7
8/5/13 15:00	64.1	76.3	67.3	63.1	51.0	47.6
8/5/13 16:00	52.4	70.5	53.1	49.6	48.3	45.6
8/5/13 17:00	52.1	69.6	53.5	49.8	48.3	46.6
8/5/13 18:00	53.4	71.7	53.9	49.8	48.6	46.9
8/5/13 19:00	55.0	76.5	55.7	53.3	49.8	48.4
8/5/13 20:00	64.4	94.0	57.8	54.3	52.3	50.0
8/5/13 21:00	54.9	76.7	55.4	53.4	51.9	51.0
8/5/13 22:00	61.1	88.2	55.1	52.7	51.2	49.6
8/5/13 23:00	62.4	88.0	57.2	53.5	51.3	49.1
8/6/13 0:00	65.5	92.2	57.7	52.7	50.9	48.7
8/6/13 1:00	57.0	77.4	54.0	52.0	50.5	48.5
8/6/13 2:00	52.1	62.8	53.2	51.8	50.7	49.5
8/6/13 3:00	64.8	92.2	59.5	57.3	51.2	50.0
8/6/13 4:00	64.6	89.2	62.2	57.7	54.9	53.7
8/6/13 5:00	63.2	90.8	59.9	57.6	56.9	56.3
8/6/13 6:00	61.7	88.9	60.5	57.9	57.0	56.3

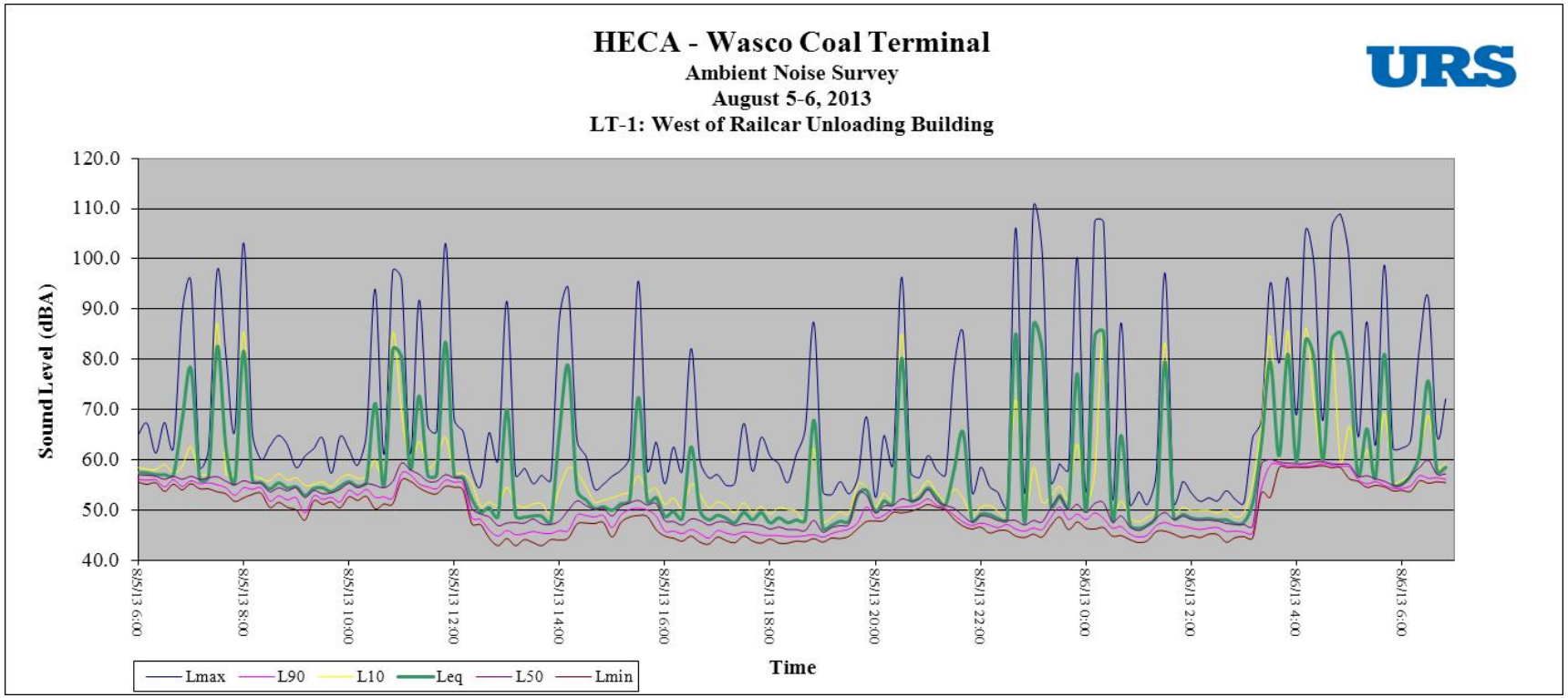
Source: URS Corporation, 2013.

Notes:

dBA = A-weighted decibel
L_{eq} = equivalent sound level

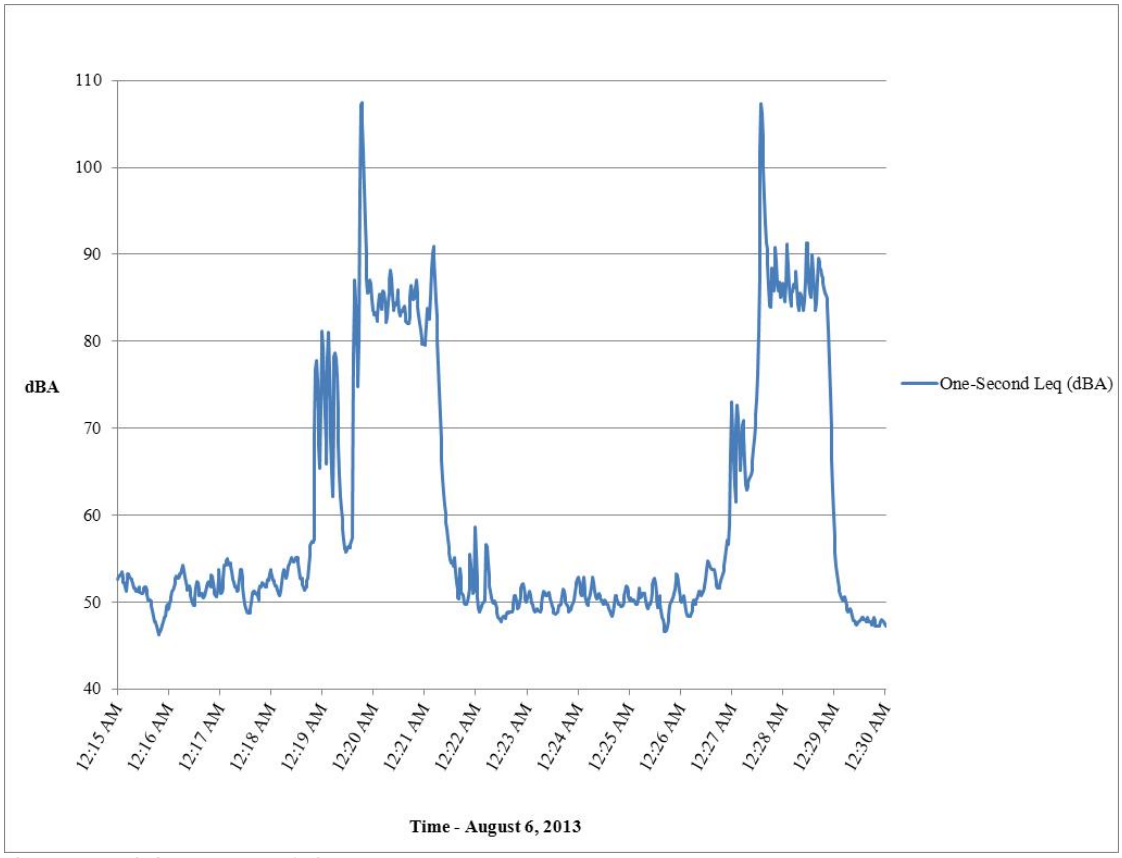
Measurements conducted on August 5 and 6, 2013.
Measurement Location: N 35° 35’ 29.1”, W 119° 19’ 49.3.”
24-hour L_{eq} = 61.2 dBA
Daytime L_{eq} = 60.0 dBA
Nighttime L_{eq} = 62.7 dBA
L_{dn} = 68.8

Figure 4
Ambient Noise Level Analysis Chart at LT-1



Source: URS Corporation, 2013.

Figure 5
Two Freight Trains Pass near LT-1 from 12:15 a.m. to 12:30 a.m. on August 6, 2013



Source: URS Corporation, 2013.

5.0 SIGNIFICANCE CRITERIA

Based on the relevant local, state, and federal standards, FTA noise impact criteria will be used to determine the significance of impacts resulting from the increase in operations. The noise FTA noise impact criteria are based on ambient noise levels at the receiver locations. LT-1 is representative of the homes west of the Railcar Unloading Building, immediately west of G Street, and between 9th and 10th Streets. LT-2 is representative of the homes immediately north of the Wasco Coal Terminal, north of 9th Street and east of H Street. The measured L_{dn} at LT-1 was 83.5 dBA, and the measured L_{dn} at LT-2 was 68.8 dBA. The noise-sensitive receptors near LT-1 are farther from the predominant noise source (the freight trains and commuter trains) than the measurement location at LT-1. The modeled receiver sites are at the homes themselves, which are further away from the noise sources than the measurement sites. The homes west of G Street will be represented by the location Modeled Receiver 1 (MR-1), which can be seen on Figure 3. Propagating the noise levels generated by the trains over the distance from measurement location LT-1 to MR-1 would result in an existing L_{dn} of 74.9 dBA at these homes.

The measured L_{dn} of 68.8 dBA at LT-2 is representative of the existing ambient noise level at the residences near MR-2, because the distances of LT-2 and MR-2 from the train tracks are equal, and the trains moving along these tracks were the predominant noise sources. Based on these numbers, the FTA thresholds for severe and moderate impacts can be found in Table 8 for MR-1 and MR-2. If the project generates noise levels of 65 or 73.1 dBA at MR-1, there is the potential for moderate or severe impacts, respectively. If the project generates noise levels of 63.5 or 68.7 dBA at MR-2, there is the potential for moderate or severe impacts, respectively.

Table 8
Noise Impact Criteria Thresholds

Site ID	Existing Ambient Noise Level (dBA L_{dn})	Project Severe Threshold (dBA L_{dn})	Project Moderate Threshold (dBA L_{dn})
MR-1	74.9	73.1	65
MR-2	68.8	68.7	63.5

Source: URS Calculations, 2013

Notes:

dBA = A-weighted decibels
L_{dn} = day-night sound level

6.0 ONSITE SOURCE NOISE LEVEL SURVEY

In addition to the long-term measurements conducted near the noise-sensitive receivers, a source noise survey was conducted onsite at the Wasco Coal Terminal and near the Railcar Unloading Building. The survey was conducted on August 5, 2013, to collect one-third octave band measurement data from major noise sources. These data were used to develop a noise model for existing and future operations at the Wasco Coal Terminal, and to calibrate the noise model at long-term and source noise survey measurement locations within the noise model. The major noise sources included the two baghouse dust collectors near the truck loading area and near the Railcar Unloading Building, the air compressor near the sampling tower, the vacuum system, the conveyor belts, and the switch locomotive. The locations of the major noise sources at the Wasco Coal Terminal are shown on Figure 6. The resultant noise source sound power levels calculated from the data obtained during the source noise level measurement survey are shown in Table 9.

Table 9
Noise Source Sound Power Levels

Noise Source	Sound Power Level (dB)
Baghouse Dust Collectors (near Truck Loading)	116.8
Vacuum System	97.0
One Coal Car Event and Equipment (including Baghouse Dust Collectors)	110.8
Switch Locomotive	118.9
Conveyor Belt	84.7
Air Compressor (near Sampling Tower)	118.5

Source: URS Source Noise Measurements and Calculations, 2013

Note:

dB = decibels

Figure 6
Major Noise Sources at Wasco Coal Terminal

7.0 NOISE IMPACT ANALYSIS

Computer-Aided Noise Abatement (Cadna/A®) was used to create a virtual model of the Wasco Coal Terminal and the surrounding communities, to estimate the noise levels generated by existing and future operations. Cadna/A® is a three-dimensional software program that is used for prediction and assessment of noise levels in the vicinity of industrial noise sources. The program uses internationally recognized algorithms (International Organization for Standardization 9613-2) for the propagation of sound outdoors to calculate noise levels, and presents the resultant noise levels in an easy-to-understand, graphically oriented or tabular format. The program allows for input of pertinent features (such as terrain, structures, and other barriers) that affect noise. Digital Terrain Modeling was used to account for elevation and terrain features. Cadna/A® accounts for topography, barrier effects, intervening structures, atmospheric attenuation, and attenuation due to sound wave divergence. The result is a highly accurate estimate of predicted noise levels.

Using the noise data collected during the source noise survey at the Wasco Coal Terminal, noise sources for all major noise-generating equipment were input into the Cadna/A® noise model, to generate noise contours that reflect noise generated by the facility within and outside of operational hours. Currently, existing operations are conducted between 5:00 a.m. and 2:00 p.m. As a worst case for future operations, it was assumed that the facility would operate 24 hours per day. During existing operations, and outside of the 5:00 a.m. to 2:00 p.m. operational hours, the air compressor near the sampling tower is the only piece of equipment in operation. Noise generated during operations at the Railcar Unloading Building will continue to be the same, because the baghouse dust collectors are the predominant noise source and they operate continuously as trains are being loaded; only the number of railcars unloaded per day will increase. The time it takes to unload a train will also remain the same (10 to 12 minutes). The only major change that will occur is the total number of operations and associated additional hours of operation.

Using both the data collected during the noise source survey and the onsite noise source calibration measurements for the noise model, existing operations were modeled from the Wasco Coal Terminal at the modeled receivers and compared to noise generated by future operations at the Wasco Coal Terminal. Table 10 lists the existing ambient noise level without existing Wasco Coal Terminal operations; existing terminal noise levels; existing terminal plus existing ambient; project noise levels generated by future operations; and future project noise levels plus existing ambient noise levels at each of the modeled receiver locations.

Table 11 lists the measured existing ambient noise level with the plant in operation; the future project noise level; the measured existing ambient noise level plus future project operations; the change in noise exposure due to future operations; and the severe and moderate project thresholds. For Site MR-1, the existing ambient noise level is 74.9 dBA L_{dn}. At this existing level, the project noise level threshold to result in a Moderate impact is 65 dBA L_{dn}, and the project noise level threshold to result in a Severe impact is 73.1 dBA L_{dn}. The project noise level is only expected to be 62.5 L_{dn}, which is well below the Moderate threshold level of 65 dBA L_{dn}. Similarly, the project noise level of 62.5 dBA L_{dn} for Site MR-2 is below the Moderate (63.5 dBA L_{dn}) and Severe (68.7 dBA L_{dn}) threshold levels for that site. Assuming 24-hour operations, the noise levels at MR-1 and MR-2 will increase by 0.2 and 0.9 dBA L_{dn}, respectively, as a result of the implementation of the project. Noise increases of 1 dBA L_{dn} or less are so small as to be undetectable to the human ear under the best conditions. Based on this, future operations associated with the proposed project will not result in a significant impact.

Table 10
Existing Measured Ambient and Existing and Future Modeled Noise Levels

Site Identification	Existing Ambient Noise Level without Existing Terminal Operations (dBA L_{dn})	Existing Terminal Noise Level (dBA L_{dn})	Existing Noise Level – Existing Terminal Plus Existing Ambient (dBA L_{dn})	Future Project Noise Level (dBA L_{dn})	Future Noise Level – Future Project Noise Plus Existing Ambient (dBA L_{dn})
MR-1	74.8	57.2	74.9	62.5	75.1
MR-2	67.9	61.3	68.8	62.5	69.7

Source: URS Calculations, 2013

Notes:

dBA = A-weighted decibels
L_{dn} = day-night sound level

Table 11
Noise Impacts According to FTA Standards

Site Identification	Measured Existing Ambient Noise Level (dBA L_{dn})	Future Project Noise Level (dBA L_{dn})	Measured Existing Ambient Plus Project (dBA L_{dn})	Change in Noise Exposure due to Implementation of Project (dBA L_{dn})	Project Severe Threshold (dBA L_{dn})	Project Moderate Threshold (dBA L_{dn})	Impact
MR-1	74.9	62.5	75.1	0.2	73.1	65	None
MR-2	68.8	62.5	69.7	0.9	68.7	63.5	None

Source: URS Calculations, 2013

Notes:

dBA = A-weighted decibels
FTA = Federal Transit Administration
L_{dn} = day-night sound level

8.0 MITIGATION

There will be no mitigation necessary as part of future operations, because the estimated project noise effects were found to be less than significant.

9.0 REFERENCES

County of Kern, 2007. "Code of Ordinances," Title 8 – Health and Safety, Chapter 8.36, Noise Control, Section 8.36.020(H). Effective March 2007.

County of Kern, 2009. "Noise Element." Chapter 3 in Kern County General Plan. June 15, 2004. Prepared by Kern County Planning Department.

FTA (Federal Transit Administration), 2006. Transit Noise and Vibration Impact Assessment. Report No. FTA-VA-90 1003 06. Washington, DC: Department of Transportation. May 2006. http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.

Insight Environmental Consultants, 2013.

URS Corporation, 2007. "Sound Levels of Typical Noise Sources." Compiled by URS Corporation.

URS Corporation, 2013, Hydrogen Energy California Project, Updated Emissions and Modeling Report, May.

Appendix A

Ambient Noise Level Field Data Measurement Sheet

FIELD MEASUREMENT DATA SHEET

URS

Project Name: HECA Noise Measurements Job # 28068052.31203

ID

SITE IDENTIFICATION: LT-1b OBSERVER(s): SA & RM
START DATE & TIME: 6:30 8/5/13 END DATE & TIME: 7:04 8/5/13
ADDRESS:
GPS coordinates: N 35°35'27.2" W 119°19'55.2"

Weather

TEMP: 65 °F HUMIDITY: 52 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 0-1 MPH DIR: N NE E SE S SW W NW STEADY GUSTY ___MPH
SKY: CLEAR SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other:

Acoustic Measurements

INSTRUMENT: 820 Blue TYPE: (1) 2 SERIAL #: 1768
CALIBRATOR: CA 1200 SERIAL #: 2794
CALIBRATION CHECK: PRE-TEST 93.9 dBA SPL POST-TEST 93.8 dBA SPL WINDSCREEN X
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:
Rec # Start Time / End Time
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, ___
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, ___
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, ___
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, ___
COMMENTS: Barking Dog inside fence

Source Info and Traffic Counts

PRIMARY NOISE(S): TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER
ROADWAY TYPE:
COUNT DURATION: ___-MINUTE

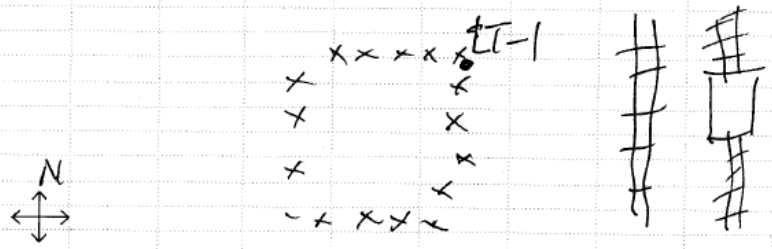
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	___/___	___/___	___/___	___/___
MED. TRUCKS:	___/___	___/___	___/___	___/___
HVY TRUCKS:	___/___	___/___	___/___	___/___
BUSES:	___/___	___/___	___/___	___/___
MOTORCYCLES:	___/___	___/___	___/___	___/___

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER:

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH:



2020 East First Street, Suite 400, Santa Ana, CA 92705, 714-835-6886 fax 714-433-7701

FIELD MEASUREMENT DATA SHEET

URS

Project Name: HECA Noise Measurements **Job #** 28068052.31203

ID

SITE IDENTIFICATION: LT-2b **OBSERVER(s):** SA + RM
START DATE & TIME: 8/5/13 5:36 **END DATE & TIME:** 8/6/13 7:14
ADDRESS:
GPS coordinates: N 35°35'29.1" W119°14'49.3"

Weather

TEMP: 63 °F HUMIDITY: 52 % R.H. WIND: (CALM) LIGHT MODERATE VARIABLE
WINDSPEED: 0-1 MPH DIR: N NE E SE S SW W NW STEADY GUSTY ____MPH
SKY: (CLEAR) SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other: ____

Acoustic Measurements

INSTRUMENT: 820 Red **TYPE:** (1) 2 **SERIAL #:** 1528
CALIBRATOR: Cal 200 **SERIAL #:** 2794
CALIBRATION CHECK: **PRE-TEST** 93.8 **dBA SPL** **POST-TEST** 93.9 **dBA SPL** **WINDSCREEN** X
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL RANDOM ANSI OTHER: ____

Rec #	Start Time / End Time	
____/	5:36 / 7:14	: L_{eq}____, L_{max}____, L_{min}____, L_{90}____, L_{50}____, L_{10}____, ____
____/	____/____	: L_{eq}____, L_{max}____, L_{min}____, L_{90}____, L_{50}____, L_{10}____, ____
____/	____/____	: L_{eq}____, L_{max}____, L_{min}____, L_{90}____, L_{50}____, L_{10}____, ____
____/	____/____	: L_{eq}____, L_{max}____, L_{min}____, L_{90}____, L_{50}____, L_{10}____, ____

COMMENTS: ~~Train~~ Landscaping during pickup

Source Info and Traffic Counts

PRIMARY NOISE(S): (TRAFFIC) AIRCRAFT (RAIL) INDUSTRIAL AMBIENT OTHER ____
ROADWAY TYPE:
COUNT DURATION: ____-MINUTE

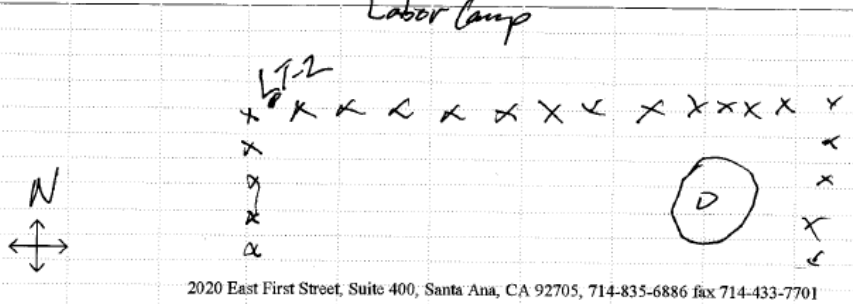
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	____ / ____	____ / ____	____ / ____	____ / ____
MED. TRUCKS:	____ / ____	____ / ____	____ / ____	____ / ____
HVY TRUCKS:	____ / ____	____ / ____	____ / ____	____ / ____
BUSES:	____ / ____	____ / ____	____ / ____	____ / ____
MOTORCYCLES:	____ / ____	____ / ____	____ / ____	____ / ____

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER: ____

Description / Sketch

TERRAIN: **HARD SOFT MIXED FLAT OTHER:** ____
PHOTOS: ____
OTHER COMMENTS / SKETCH:



2020 East First Street, Suite 400, Santa Ana, CA 92705, 714-835-6886 fax 714-433-7701

Appendix B

Certification of Calibration for Ambient Noise Survey Equipment

PCB PIEZOTRONICS
A PCB GROUP COMPANY

Certificate of Calibration and Conformance

Certificate Number 2011-151300

Instrument Model 820, Serial Number 1768, was calibrated on 08NOV2011. The instrument meets factory specifications per Procedure D0001.8160, ANSI S1.4 1983, IEC 651-Type 1 1979, and IEC 804-Type 1 1985.

Instrument found to be in calibration as received: YES
Date Calibrated: 08NOV2011
Calibration due: 08NOV2013

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	LDSigGn/2239	0099 / 0104	12 Months	18JAN2012	2011-138645

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 23 ° Centigrade

Relative Humidity: 25 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data same as shipped data.
Tested with PRM828-2751

Signed: Ron Harris
Technician: Ron Harris

Page 1 of 1

Provo Engineering and Manufacturing Center, 1681 West 820 North, Provo, Utah 84601
Toll Free: 888.258.3222 Telephone: 716.926.8243 Fax: 716.926.8215
ISO 9001-2008 Certified

PCB PIEZOTRONICS
A PCB GROUP COMPANY

Certificate of Calibration and Conformance

Certificate Number 2011-151397

Microphone Model 377B20, Serial Number 112353, was calibrated on 10NOV2011. The microphone meets factory specifications per Test Procedure D0001.8167.

Instrument found to be in calibration as received: YES
Date Calibrated: 10NOV2011
Calibration due: 10NOV2013

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Hewlett Packard	34401A	3146A62099	12 Months	11NOV2011	4994123
Larson Davis	2559	2504	12 Months	29NOV2011	17865-1
Larson Davis	PRM916	0102	12 Months	23DEC2011	2010-137908
Larson Davis	CAL250	42630	12 Months	04JAN2012	2011-138110
Larson Davis	2900	0575	12 Months	14JUN2012	2011-144882
Larson Davis	PRM915	0102	12 Months	16AUG2012	2011-147581
Larson Davis	PRM902	0206	12 Months	16AUG2012	2011-147576
Larson Davis	MTS1000 / 2201	1000 / 0100	12 Months	09SEP2012	SM090911-3

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data is the same as shipped data.

Signed: _____
Technician: Abraham Ortega

Page 1 of 1

Provo Engineering and Manufacturing Center, 1681 West 820 North, Provo, Utah 84601
Toll Free: 888.258.3222 Telephone: 716.926.8243 Fax: 716.926.8215
ISO 9001-2008 Certified

PCB PIEZOTRONICS
A PCB GROUP COMPANY

Certificate of Calibration and Conformance

Certificate Number 2011-151245

Instrument Model PRM828, Serial Number 2751, was calibrated on 08NOV2011. The instrument meets factory specifications per Procedure D0001.8135.

Instrument found to be in calibration as received: YES
Date Calibrated: 08NOV2011
Calibration due: 08NOV2013

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Hewlett Packard	34401A	MY41044529	12 Months	26JAN2012	5056765
Larson Davis	LDSigGn/2209	0277 / 0109	12 Months	21MAR2012	2011-141059

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 23 ° Centigrade

Relative Humidity: 25 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data same as shipped data.

Signed: Ron Harris

Technician: Ron Harris

Page 1 of 1

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PCB PIEZOTRONICS
A PCB GROUP COMPANY

Certificate of Calibration and Conformance

Certificate Number 2012-153626

Instrument Model 820, Serial Number 1528, was calibrated on 11JAN2012. The instrument meets factory specifications per Procedure D0001.8160, ANSI S1.4 1983, IEC 651-Type 1 1979, and IEC 804-Type 1 1985.

Instrument found to be in calibration as received: NO
Date Calibrated: 11JAN2012
Calibration due: 11JAN2014

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	LDSigGn/2209	0277 / 0109	12 Months	21MAR2012	2011-141059

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 23 ° Centigrade

Relative Humidity: 27 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data unavailable due to unit failure.
Tested with PRM828-2437

Signed: Ron Harris
Technician: Ron Harris

Page 1 of 1

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PCB PIEZOTRONICS
A PCB GROUP COMPANY

Certificate of Calibration and Conformance

Certificate Number 2012-153708

Microphone Model PCB377A02, Serial Number 47468, was calibrated on 22DEC2011. The microphone meets factory specifications per Test Procedure D0001.8167.

Instrument found to be in calibration as received: YES
Date Calibrated: 22DEC2011
Calibration due: 22DEC2013

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	2559	2506	12 Months	24MAY2012	18309-1
Larson Davis	2900	0575	12 Months	14JUN2012	2011-144882
Larson Davis	PRM915	0102	12 Months	16AUG2012	2011-147581
Larson Davis	PRM902	0206	12 Months	16AUG2012	2011-147576
Larson Davis	MTS1000 / 2201	1000 / 0100	12 Months	09SEP2012	SM090911-3
Hewlett Packard	34401A	3146A62099	12 Months	15NOV2012	5436054
Larson Davis	PRM916	0102	12 Months	22DEC2012	2011-153087
Larson Davis	CAL250	42630	12 Months	04JAN2013	2012-153336

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data is the same as shipped data.

Signed: Abraham Ortega
Technician: Abraham Ortega

Page 1 of 1

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PCB PIEZOTRONICS
A PCB GROUP COMPANY

Certificate of Calibration and Conformance

Certificate Number 2012-153624

Instrument Model PRM828, Serial Number 2437, was calibrated on 11JAN2012. The instrument meets factory specifications per Procedure D0001.8135.

Instrument found to be in calibration as received: NO
Date Calibrated: 11JAN2012
Calibration due: 11JAN2014

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Hewlett Packard	34401A	MY41044529	12 Months	26JAN2012	5056765
Larson Davis	LDSigGn/2209	0277 / 0109	12 Months	21MAR2012	2011-141059

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 23 ° Centigrade

Relative Humidity: 27 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

SEE "AS RECEIVED" data.

Signed: Ron Harris
Technician: Ron Harris

Page 1 of 1

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Odin Metrology, Inc.
Calibration of Sound & Vibration Instruments

Certificate Number: 19574-1

Certificate of Calibration for Brüel & Kjær Sound Level Calibrator

This calibration is performed by comparison with measurement reference standard pistonphones:

Type No.	4220	4228
Serial No.	1048473	1504084
Calibrated by	TE	TE
Cal Date	23 OCT 2012	23 OCT 2012
Due Date	23 OCT 2013	23 OCT 2013

a) Estimated uncertainty of comparison: **± 0.05** dB
b) Estimated uncertainty of calibration service for standard pistonphone: **± 0.06** dB
c) Total uncertainty: $\sqrt{a^2+b^2}$ = **± 0.08** dB
d) Expanded uncertainty (coverage factor k = 2 for 95% confidence level): = **± 0.16** dB

This acoustic calibrator has been calibrated using standards with values traceable to the National Institute of Standards and Technology. This calibration is traceable to NIST Test Number **681/280896-11 D1308**.

CONDITION OF TEST		
Ambient Pressure	**994.48**	hPa
Temperature	**23**	°C
Relative Humidity	**43**	%
Date of Calibration	**28 NOV 2012**	
Re-calibration due on	**28 NOV 2013**	

The calibration of this acoustic calibrator was performed using a test system conforming to the requirements of ANSI/NCSLZ540-1, 1994, ISO 17025, and ISO 9001-2008, Certification NQA No. 11252.

Calibration performed by Harold Lynch

Harold Lynch, Service Manager

ODIN METROLOGY, INC.
3533 OLD CONEJO ROAD, SUITE 125
THOUSAND OAKS, CA 91320
PHONE: (805) 375-0830; FAX: (805) 375-0405

Calibrator type **4231**
Serial no. **1850301**
Submitted by **URS Corporation**
Santa Ana, CA 92705
Purchase order no. **01158213.000001127-12**
Asset no. **N/A**

This calibrator has been found to perform **within** the specifications listed below at the normalized conditions stated.

SPL produced in coupler terminated by a loading volume of 1.333 cm^3	94.0 ± 0.2 dB
Level Step	20 ± 0.1 dB
Frequency	1,000 Hz ± 0.1%
Distortion	< 1%
At 1,013 hPa, 20°C, and 65% relative humidity	

PERFORMANCE AS RECEIVED		
Frequency	**999.8**	Hz
SPL	**94.00**	dB
SPL+20 dB	**114.03**	dB
Distortion	**0.3**	%
Battery Voltage	**1.14**	V

Was adjustment performed? **No**
Were batteries replaced? **Yes**

FINAL PERFORMANCE		
Frequency	**999.8**	Hz
SPL	**94.00**	dB
SPL+20 dB	**114.03**	dB
Distortion	**0.3**	%

Note: This calibrator was **within** manufacturer's specifications as received.

Page 1 of 2

APPENDIX C
Public Health

Permit S-872-1

Name	Existing PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							

Inputs	PM_{10} Rate lb/hr	PM_{10} Rate lb/yr	Formula
Process Rate	3.40E-01	58.00	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.

Substances	CAS#	Weight Fraction Coal PM_{10} Dust*	LB/HR	LB/YR
Aluminum	**7429905**	6.46E-02	2.20E-02	3.75E+00
Antimony	**7440360**	1.30E-04	4.42E-05	7.54E-03
Barium	**7440393**	2.30E-04	7.82E-05	1.33E-02
Cadmium	**7440439**	1.20E-04	4.08E-05	6.96E-03
Chlorine	**7782505**	9.80E-04	3.33E-04	5.68E-02
Chromium	**7440473**	4.00E-05	1.36E-05	2.32E-03
Cobalt	**7440484**	6.67E-03	2.27E-03	3.87E-01
Copper	**7440508**	6.00E-05	2.04E-05	3.48E-03
Hexavalent Chromium**	**18540299**	2.00E-06	6.80E-07	1.16E-04
Lead	**7439921**	3.40E-04	1.16E-04	1.97E-02
Manganese	**7439965**	4.00E-05	1.36E-05	2.32E-03
Phosphorus	**7723140**	1.17E-03	3.98E-04	6.79E-02
Zinc	**7440666**	1.00E-04	3.40E-05	5.80E-03

References:

* Based on a EPA speciation of Coal Dust (1989)
http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

**5% of Chromium considered Hexavalent Chromium (District Policy)

Existing Baseline Emissions (2012)

0.34	lbs/hr (Emission factor from Permit S-872-1)
119,405	tons/yr (2012 Existing Operating Conditions)
170.58	hrs/yr (Based on Max receiving capacity of 700 tons/hr)
58.00	lbs/yr

Name	Post-Project PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							

Inputs	PM_{10} Rate lb/hr	PM_{10} Rate lb/yr	Formula
Process Rate	3.40E-01	728.57	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.

Substances	CAS#	Weight Fraction Coal PM_{10} Dust*	LB/HR	LB/YR
Aluminum	**7429905**	6.46E-02	2.20E-02	4.71E+01
Antimony	**7440360**	1.30E-04	4.42E-05	9.47E-02
Barium	**7440393**	2.30E-04	7.82E-05	1.68E-01
Cadmium	**7440439**	1.20E-04	4.08E-05	8.74E-02
Chlorine	**7782505**	9.80E-04	3.33E-04	7.14E-01
Chromium	**7440473**	4.00E-05	1.36E-05	2.91E-02
Cobalt	**7440484**	6.67E-03	2.27E-03	4.86E+00
Copper	**7440508**	6.00E-05	2.04E-05	4.37E-02
Hexavalent Chromium**	**18540299**	2.00E-06	6.80E-07	1.46E-03
Lead	**7439921**	3.40E-04	1.16E-04	2.48E-01
Manganese	**7439965**	4.00E-05	1.36E-05	2.91E-02
Phosphorus	**7723140**	1.17E-03	3.98E-04	8.52E-01
Zinc	**7440666**	1.00E-04	3.40E-05	7.29E-02

References:

* Based on a EPA speciation of Coal Dust (1989)
http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

**5% of Chromium considered Hexavalent Chromium (District Policy)

Post-Project Emissions (1.5 Million TPY)

0.34	lbs/hr (Emission factor from Permit S-872-1)
1,500,000	tons/yr (Post-Project Operating Conditions)
2142.86	hrs/yr (Based on Max receiving capacity of 700 tons/hr)
728.57	lbs/yr

Permit S-872-2 thru -5

Name	Existing PM_{10} based Emissions from Operations generating Dust from Coal							Name	Post-Project PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.							**Applicability**	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013				*Author or updater*	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation							**Facility:**	Savage Coal Service Corporation						
ID#:								**ID#:**							
Project #:								**Project #:**							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**					**Inputs**	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	8.00E-02	13.65	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.					Process Rate	8.00E-02	171.43	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**				**Substances**	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	5.17E-03	8.82E-01				**Aluminum**	**7429905**	6.46E-02	5.17E-03	1.11E+01			
Antimony	**7440360**	1.30E-04	1.04E-05	1.77E-03				**Antimony**	**7440360**	1.30E-04	1.04E-05	2.23E-02			
Barium	**7440393**	2.30E-04	1.84E-05	3.14E-03				**Barium**	**7440393**	2.30E-04	1.84E-05	3.94E-02			
Cadmium	**7440439**	1.20E-04	9.60E-06	1.64E-03				**Cadmium**	**7440439**	1.20E-04	9.60E-06	2.06E-02			
Chlorine	**7782505**	9.80E-04	7.84E-05	1.34E-02				**Chlorine**	**7782505**	9.80E-04	7.84E-05	1.68E-01			
Chromium	**7440473**	4.00E-05	3.20E-06	5.46E-04				**Chromium**	**7440473**	4.00E-05	3.20E-06	6.86E-03			
Cobalt	**7440484**	6.67E-03	5.34E-04	9.10E-02				**Cobalt**	**7440484**	6.67E-03	5.34E-04	1.14E+00			
Copper	**7440508**	6.00E-05	4.80E-06	8.19E-04				**Copper**	**7440508**	6.00E-05	4.80E-06	1.03E-02			
Hexavalent Chromium**	**18540299**	2.00E-06	1.60E-07	2.73E-05				**Hexavalent Chromium****	**18540299**	2.00E-06	1.60E-07	3.43E-04			
Lead	**7439921**	3.40E-04	2.72E-05	4.64E-03				**Lead**	**7439921**	3.40E-04	2.72E-05	5.83E-02			
Manganese	**7439965**	4.00E-05	3.20E-06	5.46E-04				**Manganese**	**7439965**	4.00E-05	3.20E-06	6.86E-03			
Phosphorus	**7723140**	1.17E-03	9.36E-05	1.60E-02				**Phosphorus**	**7723140**	1.17E-03	9.36E-05	2.01E-01			
Zinc	**7440666**	1.00E-04	8.00E-06	1.36E-03				**Zinc**	**7440666**	1.00E-04	8.00E-06	1.71E-02			
References:								**References:**							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410								* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date								Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)								**5% of Chromium considered Hexavalent Chromium (District Policy)							
Existing Baseline Emissions (2012)								**Post-Project Emissions (1.5 Million TPY)**							
0.08	lbs/hr (Emission factor from Permit S-872-2 thru -5)							0.08	lbs/hr (Emission factor from Permit S-872-2 thru -5)						
119,405	tons/yr (2012 Existing Operating Conditions)							1,500,000	tons/yr (Post-Project Operating Conditions)						
170.58	hrs/yr (Based on Max receiving capacity of 700 tons/hr)							2142.86	hrs/yr (Based on Max receiving capacity of 700 tons/hr)						
13.65	lbs/yr							171.43	lbs/yr						

Permit S-872-6

Name	Existing PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	1.50E-01	71.64	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	9.69E-03	4.63E+00			
Antimony	**7440360**	1.30E-04	1.95E-05	9.31E-03			
Barium	**7440393**	2.30E-04	3.45E-05	1.65E-02			
Cadmium	**7440439**	1.20E-04	1.80E-05	8.60E-03			
Chlorine	**7782505**	9.80E-04	1.47E-04	7.02E-02			
Chromium	**7440473**	4.00E-05	6.00E-06	2.87E-03			
Cobalt	**7440484**	6.67E-03	1.00E-03	4.78E-01			
Copper	**7440508**	6.00E-05	9.00E-06	4.30E-03			
Hexavalent Chromium**	**18540299**	2.00E-06	3.00E-07	1.43E-04			
Lead	**7439921**	3.40E-04	5.10E-05	2.44E-02			
Manganese	**7439965**	4.00E-05	6.00E-06	2.87E-03			
Phosphorus	**7723140**	1.17E-03	1.76E-04	8.38E-02			
Zinc	**7440666**	1.00E-04	1.50E-05	7.16E-03			
References:							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)							
Existing Baseline Emissions (2012)							
0.15	lbs/hr (Emission factor from Permit S-872-6)						
119,405	tons/yr (2012 Existing Operating Conditions)						
477.62	hrs/yr (Based on Max reclaiming capacity of 250 tons/hr)						
71.64	lbs/yr						

Name	Post-Project PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	1.50E-01	900.00	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	9.69E-03	5.82E+01			
Antimony	**7440360**	1.30E-04	1.95E-05	1.17E-01			
Barium	**7440393**	2.30E-04	3.45E-05	2.07E-01			
Cadmium	**7440439**	1.20E-04	1.80E-05	1.08E-01			
Chlorine	**7782505**	9.80E-04	1.47E-04	8.82E-01			
Chromium	**7440473**	4.00E-05	6.00E-06	3.60E-02			
Cobalt	**7440484**	6.67E-03	1.00E-03	6.00E+00			
Copper	**7440508**	6.00E-05	9.00E-06	5.40E-02			
Hexavalent Chromium**	**18540299**	2.00E-06	3.00E-07	1.80E-03			
Lead	**7439921**	3.40E-04	5.10E-05	3.06E-01			
Manganese	**7439965**	4.00E-05	6.00E-06	3.60E-02			
Phosphorus	**7723140**	1.17E-03	1.76E-04	1.05E+00			
Zinc	**7440666**	1.00E-04	1.50E-05	9.00E-02			
References:							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)							
Post-Project Emissions (1.5 Million TPY)							
0.15	lbs/hr (Emission factor from Permit S-872-6)						
1,500,000	tons/yr (Post-Project Operating Conditions)						
6000.00	hrs/yr (Based on Max reclaiming capacity of 250 tons/hr)						
900.00	lbs/yr						

Existing On-site Truck Exhaust DPM Emissions - EMFAC2011
2012 Operations

Based on:

Vehicles/year:	4353
Miles/Truck:	0.18
Total miles travelled/year:	784

	DPM
Em. Factor (grams/mile)*	1.16
Lbs/Mile	2.55E-03
Lbs/Year	2.00

*EMFAC2011: Kern County, 2012 Calendar Year, T7 Public, 15 mph, aggregate model years

Post-Project On-site Truck Travel Exhaust DPM Emissions - EMFAC2011
1.5M TPY Processed

Based on:

Vehicles/year:	54675
Miles/Truck:	0.18
Total miles travelled/year:	9,842

	DPM
Em. Factor (grams/mile)*	0.17
Lbs/Mile	3.73E-04
Lbs/Year	3.67

*EMFAC2011: Kern County, 2013 Calendar Year, T7 Public, 15 mph, aggregate model years

Existing On-Site Truck Idle DPM Emissions - EMFAC2011
2012 Operations

Based on:

Vehicles/year:	4353
Minutes/Truck:	15
Total Hours/year:	1,088

	DPM
Em. Factor (grams/hour)*	0.73
Lbs/hour	1.61E-03
Lbs/Year	1.75

*EMFAC2011: SJV, 2012, HHDT, annual average

Post-Project On-Site Truck Idle DPM Emissions - EMFAC2011
1.5M TPY Processed

Based on:

Vehicles/year:	54675
Minutes/Truck:	15
Total Hours/year:	13,669

	DPM
Em. Factor (grams/hour)*	0.55
Lbs/hour	1.22E-03
Lbs/Year	16.69

*EMFAC2011: SJV, 2013, HHDT, annual average

Existing On-site Locomotive Exhaust DPM Emissions - EMFAC2011
2012 Operations

Based on:

HP:	750	(Half Throttle)
hr/yr:	41.043	

	DPM
Em. Factor (grams/bhp-hr)*	0.26
Lbs/bhp-hr	5.73E-04
Lbs/Year	17.64

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 0

Post-Project On-site Locomotive Travel Exhaust DPM Emissions - EMFAC2011
1.5M TPY Processed

Based on:

HP:	750	(Half Throttle)
hr/yr:	397.8	(117 tains @ 34 hrs/train)

	DPM
Em. Factor (grams/bhp-hr)*	0.13
Lbs/bhp-hr	2.87E-04
Lbs/Year	85.51

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2

Existing On-site Locomotive Exhaust DPM Emissions - EMFAC2011
2012 Operations

Based on:

HP:	15	(Idling)
hr/yr:	369.387	

	DPM
Em. Factor (grams/bhp-hr)*	0.26
Lbs/bhp-hr	5.73E-04
Lbs/Year	3.18

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 0

Post-Project On-site Locomotive Travel Exhaust DPM Emissions - EMFAC2011
1.5M TPY Processed

Based on:

HP:	15	(Idling)
hr/yr:	3580.2	(117 tains @ 34 hrs/train)

	DPM
Em. Factor (grams/bhp-hr)*	0.13
Lbs/bhp-hr	2.87E-04
Lbs/Year	15.39

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2

Permit S-872-1

Name	Average PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							

Inputs	PM_{10} Rate lb/hr	PM_{10} Rate lb/yr	Formula
Process Rate	3.40E-01	242.86	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.

Substances	CAS#	Weight Fraction Coal PM_{10} Dust*	LB/HR	LB/YR
Aluminum	**7429905**	6.46E-02	2.20E-02	1.57E+01
Antimony	**7440360**	1.30E-04	4.42E-05	3.16E-02
Barium	**7440393**	2.30E-04	7.82E-05	5.59E-02
Cadmium	**7440439**	1.20E-04	4.08E-05	2.91E-02
Chlorine	**7782505**	9.80E-04	3.33E-04	2.38E-01
Chromium	**7440473**	4.00E-05	1.36E-05	9.71E-03
Cobalt	**7440484**	6.67E-03	2.27E-03	1.62E+00
Copper	**7440508**	6.00E-05	2.04E-05	1.46E-02
Hexavalent Chromium**	**18540299**	2.00E-06	6.80E-07	4.86E-04
Lead	**7439921**	3.40E-04	1.16E-04	8.26E-02
Manganese	**7439965**	4.00E-05	1.36E-05	9.71E-03
Phosphorus	**7723140**	1.17E-03	3.98E-04	2.84E-01
Zinc	**7440666**	1.00E-04	3.40E-05	2.43E-02

References:

* Based on a EPA speciation of Coal Dust (1989)
http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

**5% of Chromium considered Hexavalent Chromium (District Policy)

Average Emissions (500K TPY)	
0.34	lbs/hr (Emission factor from Permit S-872-1)
500,000	tons/yr (2012 Existing Operating Conditions)
714.29	hrs/yr (Based on Max receiving capacity of 700 tons/hr)
242.86	lbs/yr

Name	Permitted PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation						
ID#:							
Project #:							

Inputs	PM_{10} Rate lb/hr	PM_{10} Rate lb/yr	Formula
Process Rate	3.40E-01	437.14	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.

Substances	CAS#	Weight Fraction Coal PM_{10} Dust*	LB/HR	LB/YR
Aluminum	**7429905**	6.46E-02	2.20E-02	2.82E+01
Antimony	**7440360**	1.30E-04	4.42E-05	5.68E-02
Barium	**7440393**	2.30E-04	7.82E-05	1.01E-01
Cadmium	**7440439**	1.20E-04	4.08E-05	5.25E-02
Chlorine	**7782505**	9.80E-04	3.33E-04	4.28E-01
Chromium	**7440473**	4.00E-05	1.36E-05	1.75E-02
Cobalt	**7440484**	6.67E-03	2.27E-03	2.92E+00
Copper	**7440508**	6.00E-05	2.04E-05	2.62E-02
Hexavalent Chromium**	**18540299**	2.00E-06	6.80E-07	8.74E-04
Lead	**7439921**	3.40E-04	1.16E-04	1.49E-01
Manganese	**7439965**	4.00E-05	1.36E-05	1.75E-02
Phosphorus	**7723140**	1.17E-03	3.98E-04	5.11E-01
Zinc	**7440666**	1.00E-04	3.40E-05	4.37E-02

References:

* Based on a EPA speciation of Coal Dust (1989)
http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

**5% of Chromium considered Hexavalent Chromium (District Policy)

Permitted Emissions (900K TPY)	
0.34	lbs/hr (Emission factor from Permit S-872-1)
900,000	tons/yr (Post-Project Operating Conditions)
1285.71	hrs/yr (Based on Max receiving capacity of 700 tons/hr)
437.14	lbs/yr

Permit S-872-2 thru -5

Name	Average PM_{10} based Emissions from Operations generating Dust from Coal							Name	Permitted PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.							**Applicability**	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013				*Author or updater*	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation							**Facility:**	Savage Coal Service Corporation						
ID#:								**ID#:**							
Project #:								**Project #:**							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**					**Inputs**	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	8.00E-02	57.14	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.					Process Rate	8.00E-02	102.86	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**				**Substances**	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	5.17E-03	3.69E+00				**Aluminum**	**7429905**	6.46E-02	5.17E-03	6.65E+00			
Antimony	**7440360**	1.30E-04	1.04E-05	7.43E-03				**Antimony**	**7440360**	1.30E-04	1.04E-05	1.34E-02			
Barium	**7440393**	2.30E-04	1.84E-05	1.31E-02				**Barium**	**7440393**	2.30E-04	1.84E-05	2.37E-02			
Cadmium	**7440439**	1.20E-04	9.60E-06	6.86E-03				**Cadmium**	**7440439**	1.20E-04	9.60E-06	1.23E-02			
Chlorine	**7782505**	9.80E-04	7.84E-05	5.60E-02				**Chlorine**	**7782505**	9.80E-04	7.84E-05	1.01E-01			
Chromium	**7440473**	4.00E-05	3.20E-06	2.29E-03				**Chromium**	**7440473**	4.00E-05	3.20E-06	4.11E-03			
Cobalt	**7440484**	6.67E-03	5.34E-04	3.81E-01				**Cobalt**	**7440484**	6.67E-03	5.34E-04	6.86E-01			
Copper	**7440508**	6.00E-05	4.80E-06	3.43E-03				**Copper**	**7440508**	6.00E-05	4.80E-06	6.17E-03			
Hexavalent Chromium**	**18540299**	2.00E-06	1.60E-07	1.14E-04				**Hexavalent Chromium****	**18540299**	2.00E-06	1.60E-07	2.06E-04			
Lead	**7439921**	3.40E-04	2.72E-05	1.94E-02				**Lead**	**7439921**	3.40E-04	2.72E-05	3.50E-02			
Manganese	**7439965**	4.00E-05	3.20E-06	2.29E-03				**Manganese**	**7439965**	4.00E-05	3.20E-06	4.11E-03			
Phosphorus	**7723140**	1.17E-03	9.36E-05	6.69E-02				**Phosphorus**	**7723140**	1.17E-03	9.36E-05	1.20E-01			
Zinc	**7440666**	1.00E-04	8.00E-06	5.71E-03				**Zinc**	**7440666**	1.00E-04	8.00E-06	1.03E-02			
References:								**References:**							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410								* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date								Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)								**5% of Chromium considered Hexavalent Chromium (District Policy)							
Average Emissions (500K TPY)								**Permitted Emissions (900K TPY)**							
0.08	lbs/hr (Emission factor from Permit S-872-2 thru -5)							0.08	lbs/hr (Emission factor from Permit S-872-2 thru -5)						
500,000	tons/yr (2012 Existing Operating Conditions)							900,000	tons/yr (Post-Project Operating Conditions)						
714.29	hrs/yr (Based on Max receiving capacity of 700 tons/hr)							1285.71	hrs/yr (Based on Max receiving capacity of 700 tons/hr)						
57.14	lbs/yr							102.86	lbs/yr						

Permit S-872-6

Name	Average PM_{10} based Emissions from Operations generating Dust from Coal								Name	Permitted PM_{10} based Emissions from Operations generating Dust from Coal						
Applicability	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.								**Applicability**	Use this spreadsheet when the emissions are from a Coal PM_{10} sources and the PM_{10} rates are known (e.g. Coal Transfer Station). Entries required in yellow areas, output in grey areas.						
Author or updater	Matthew Cegielski		*Last Update*	May 14, 2013					*Author or updater*	Matthew Cegielski		*Last Update*	May 14, 2013			
Facility:	Savage Coal Service Corporation								**Facility:**	Savage Coal Service Corporation						
ID#:									**ID#:**							
Project #:									**Project #:**							
Inputs	PM_{10} Rate	PM_{10} Rate	**Formula**						**Inputs**	PM_{10} Rate	PM_{10} Rate	**Formula**				
Process Rate	1.50E-01	300.00	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.						Process Rate	1.50E-01	540.00	Input the process rate. Emissions are a result of the product of each corresponding PM_{10} Rate and weight fraction. Totals below.				
Substances	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**					**Substances**	**CAS#**	**Weight Fraction Coal PM_{10} Dust***	**LB/HR**	**LB/YR**			
Aluminum	**7429905**	6.46E-02	9.69E-03	1.94E+01					**Aluminum**	**7429905**	6.46E-02	9.69E-03	3.49E+01			
Antimony	**7440360**	1.30E-04	1.95E-05	3.90E-02					**Antimony**	**7440360**	1.30E-04	1.95E-05	7.02E-02			
Barium	**7440393**	2.30E-04	3.45E-05	6.90E-02					**Barium**	**7440393**	2.30E-04	3.45E-05	1.24E-01			
Cadmium	**7440439**	1.20E-04	1.80E-05	3.60E-02					**Cadmium**	**7440439**	1.20E-04	1.80E-05	6.48E-02			
Chlorine	**7782505**	9.80E-04	1.47E-04	2.94E-01					**Chlorine**	**7782505**	9.80E-04	1.47E-04	5.29E-01			
Chromium	**7440473**	4.00E-05	6.00E-06	1.20E-02					**Chromium**	**7440473**	4.00E-05	6.00E-06	2.16E-02			
Cobalt	**7440484**	6.67E-03	1.00E-03	2.00E+00					**Cobalt**	**7440484**	6.67E-03	1.00E-03	3.60E+00			
Copper	**7440508**	6.00E-05	9.00E-06	1.80E-02					**Copper**	**7440508**	6.00E-05	9.00E-06	3.24E-02			
Hexavalent Chromium**	**18540299**	2.00E-06	3.00E-07	6.00E-04					**Hexavalent Chromium****	**18540299**	2.00E-06	3.00E-07	1.08E-03			
Lead	**7439921**	3.40E-04	5.10E-05	1.02E-01					**Lead**	**7439921**	3.40E-04	5.10E-05	1.84E-01			
Manganese	**7439965**	4.00E-05	6.00E-06	1.20E-02					**Manganese**	**7439965**	4.00E-05	6.00E-06	2.16E-02			
Phosphorus	**7723140**	1.17E-03	1.76E-04	3.51E-01					**Phosphorus**	**7723140**	1.17E-03	1.76E-04	6.32E-01			
Zinc	**7440666**	1.00E-04	1.50E-05	3.00E-02					**Zinc**	**7440666**	1.00E-04	1.50E-05	5.40E-02			
References:									**References:**							
* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410									* Based on a EPA speciation of Coal Dust (1989) http://cfpub.epa.gov/si/speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=2120410							
Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date									Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date							
**5% of Chromium considered Hexavalent Chromium (District Policy)									**5% of Chromium considered Hexavalent Chromium (District Policy)							
Average Emissions (500K TPY)									**Permitted Emissions (900K TPY)**							
0.15	lbs/hr (Emission factor from Permit S-872-6)								0.15	lbs/hr (Emission factor from Permit S-872-6)						
500,000	tons/yr (2012 Existing Operating Conditions)								900,000	tons/yr (Post-Project Operating Conditions)						
2000.00	hrs/yr (Based on Max reclaiming capacity of 250 tons/hr)								3600.00	hrs/yr (Based on Max reclaiming capacity of 250 tons/hr)						
300.00	lbs/yr								540.00	lbs/yr						

Average On-site Truck Exhaust DPM Emissions - EMFAC2011
500K TPY Processed

Based on:

Vehicles/year:	18225
Miles/Truck:	0.18
Total miles travelled/year:	3,281

	DPM
Em. Factor (grams/mile)*	0.17
Lbs/Mile	3.73E-04
Lbs/Year	1.22

*EMFAC2011: Kern County, 2013 Calendar Year, T7 Public, 15 mph, aggregate model years

Permitted On-site Truck Travel Exhaust DPM Emissions - EMFAC2011
900K TPY Processed

Based on:

Vehicles/year:	32805
Miles/Truck:	0.18
Total miles travelled/year:	5,905

	DPM
Em. Factor (grams/mile)*	0.17
Lbs/Mile	3.73E-04
Lbs/Year	2.20

*EMFAC2011: Kern County, 2013 Calendar Year, T7 Public, 15 mph, aggregate model years

Average On-Site Truck Idle DPM Emissions - EMFAC2011
500K TPY Processed

Based on:

Vehicles/year:	18225
Minutes/Truck:	15
Total Hours/year:	4,556

	DPM
Em. Factor (grams/hour)*	0.55
Lbs/hour	1.22E-03
Lbs/Year	5.56

*EMFAC2011: SJV, 2013, HHDT, annual average

Permitted On-Site Truck Idle DPM Emissions - EMFAC2011
900K TPY Processed

Based on:

Vehicles/year:	32805
Minutes/Truck:	15
Total Hours/year:	8,201

	DPM
Em. Factor (grams/hour)*	0.55
Lbs/hour	1.22E-03
Lbs/Year	10.02

*EMFAC2011: SJV, 2013, HHDT, annual average

Average On-site Locomotive Exhaust DPM Emissions - EMFAC2011
500K TPY Processed

Based on:

HP:	750	(Half Throttle)
hr/yr:	132.6	(39 tains @ 34 hrs/train)

	DPM
Em. Factor (grams/bhp-hr)*	0.13
Lbs/bhp-hr	2.87E-04
Lbs/Year	28.50

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2

Post-Project On-site Locomotive Travel Exhaust DPM Emissions - EMFAC2011
900K TPY Processed

Based on:

HP:	750	(Half Throttle)
hr/yr:	238	(70 tains @ 34 hrs/train)

	DPM
Em. Factor (grams/bhp-hr)*	0.13
Lbs/bhp-hr	2.87E-04
Lbs/Year	51.16

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2

Average On-site Locomotive Exhaust DPM Emissions - EMFAC2011
500K TPY Processed

Based on:

HP:	15	(Idling)
hr/yr:	1193.4	(39 tains @ 34 hrs/train)

	DPM
Em. Factor (grams/bhp-hr)*	0.13
Lbs/bhp-hr	2.87E-04
Lbs/Year	5.13

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2

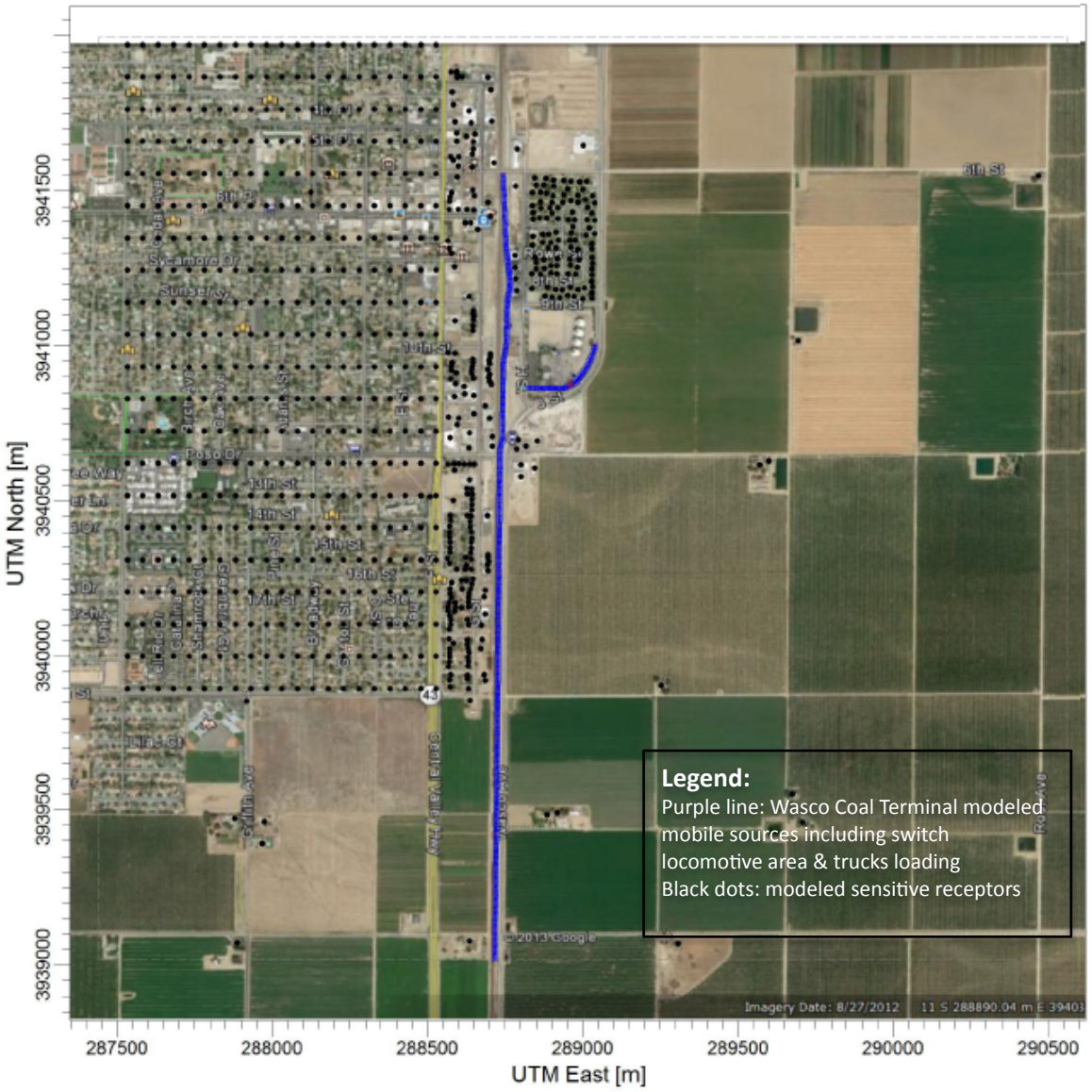
Post-Project On-site Locomotive Travel Exhaust DPM Emissions - EMFAC2011
900K TPY Processed

Based on:

HP:	15	(Idling)
hr/yr:	2142	(70 tains @ 34 hrs/train)

	DPM
Em. Factor (grams/bhp-hr)*	0.13
Lbs/bhp-hr	2.87E-04
Lbs/Year	9.21

*40 CFR 1033.101 - EXHAUST EMISSION STANDARDS Table 2 - Tier 2


UTM North [m]
3941500
3941000
3940500
3940000
3939500
3939000
287500
288000
288500
289000
289500
290000
290500
UTM East [m]
Legend:
Purple line: Wasco Coal Terminal modeled mobile sources including switch locomotive area & trucks loading
Black dots: modeled sensitive receptors
Imagery Date: 8/27/2012
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