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July 17, 2023

Mr. Eric Chiang
Project Manager – Energy Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

Re: Data Request #2 for the SCE TLRR Gorman-Kern River 66 kV Project (A.22-02-014)

Dear Mr. Chiang:

Southern California Edison Company (SCE) submitted a Permit to Construct (PTC) application and Proponent's Environmental Assessment (PEA) to the California Public Utilities Commission (CPUC) Energy Division for the TLRR Gorman-Kern River 66kV Project. While preparing environmental analyses for the California Environmental Quality Act (CEQA) compliance documents, the CPUC identified and requested additional information from SCE in Data Request #2, dated April 10, 2023. This memorandum presents responses to Data Request #2, Comment DR2-1, by providing air toxics emission estimates from staging areas, screening Health Risk Assessments (HRA) for staging areas near sensitive receptors, and a discussion of screening HRA methodology and results.

The Office of Environmental Health Hazard Assessment's (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines state that only construction activities lasting longer than two months in duration should be assessed for health risk impacts. SCE has compiled a list of staging areas that have sensitive receptors located within 0.25 miles, where the duration of activities that could generate air toxics are anticipated to occur for more than 2 months (OEHHA, 2015). The list of staging areas that meet these criteria is provided in Table 1.

Table 1: Staging Areas Near Sensitive Receptors

Staging Area Location	Count of Staging Areas	Distance to Nearest Sensitive Receptor
Gorman Substation	1	63 meters (0.039 miles)
Lebec-Clear Canyon Rd	1	55 meters (0.034 miles)
Lebec Rd. and I-5	2	150 meters (0.093 miles)
Banducci Rd	1	57 meters (0.035 miles)
Bakersfield Tehachapi Hwy	2	57 meters (0.035 miles)
Kern Canyon Rd	3	215 meters (0.134 miles)
Crane Canyon Rd	1	55 meters (0.034 miles)

In order to evaluate health risks to sensitive receptors near staging area activities, Tier 2 screening health risk assessments (HRAs) were completed in accordance with the South Coast Air Quality Management District's (SCAQMD) Risk Assessment Procedures (SCAQMD, 2017a). The Tier 2 screening risk assessment was used to determine Maximum Individual Cancer Risk (MICR) and non-cancer Acute and Chronic Hazard Index (HIA and HIC, respectively) for each staging area listed in Table 1.

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The SCAQMD Tier 2 HRA methodology utilizes the following information to determine risk levels (SCAQMD, 2017a):

- Maximum annual emissions of toxic air contaminants (TAC) identified as carcinogens or non-cancerous chronic health hazards;
- Maximum hourly emissions of TACs with acute health risks;
- Distance from emission sources to the nearest off-site residential or worker receptor; and
- Other project characteristics such as geographic location, operating schedule, and emission release heights.

Emissions of Toxic Air Contaminants

The operation of diesel-fueled construction equipment and vehicles at staging areas is expected to generate diesel particulate matter (DPM) emissions. Although trace quantities of other TACs could be emitted from activities such as vehicle fueling, these emissions are considered negligible and assumed to have no effect on HRA results. DPM emissions were approximated using the California Emissions Estimator Model® (CalEEMod) results provided in Appendix B of the PEA. The CalEEMod model was setup with the project portioned into 32 phases, where Phase 02: Material Yards accounts for activities at staging areas for the entirety of the project. The Staging Areas portion of Table 3.6-1 of the PEA provides a detailed accounting of the relevant equipment and operating schedules.

The construction emissions modeled using CalEEMod for Material Yards includes exhaust particulate matter emissions with aerodynamic diameters less than 10-micron and 2.5-micron (exhaust PM10 and exhaust PM2.5, respectively) from combustion equipment. As a conservative estimate, DPM was assumed to be represented entirely by exhaust PM10, as PM2.5 is a subset of PM10. The CalEEMod output for Material Yards indicates 0.129 pounds (lbs) of exhaust PM10 per day from activities at staging areas. By assuming a weekly schedule of six days per week, the total annual DPM emissions from all staging areas is calculated as 40.22 lbs DPM/year.

Table 3.5-2 of the PEA lists 17 potential locations with 36 distinct staging areas, of which SCE identified seven (7) locations where one or more staging areas are located near sensitive receptors and are expected to be active for at least two months. In order to determine DPM emissions from each individual staging area, SCE assumed that staging area activity is independent of staging area size (square footage) and location along the project path. Thus, the total emissions were distributed evenly between distinct staging areas by dividing the number of staging areas at that location by the total number of staging areas and applying that percentage to the total DPM emissions. For example, there are three (3) staging areas on Kern Canyon Rd. that are near sensitive receptors, which equates to 3 out of 36, or 8.33%. DPM emissions allocated to each staging area location are presented in Table 2.

Table 2: Staging Area DPM Emissions

Staging Area Location	Staging Areas near Sensitive Receptors	Total Count of Staging Areas for Project	Percent of Project (%)	Annual DPM lbs/year
Gorman Substation	1	36	2.78%	1.117
Lebec-Clear Canyon Rd	1		2.78%	1.117
Lebec Rd. and I-5	2		5.56%	2.234
Banducci Rd	1		2.78%	1.117
Bakersfield Tehachapi Hwy	2		5.56%	2.234
Kern Canyon Rd	3		8.33%	3.351
Crane Canyon Rd	1		2.78%	1.117

Distance to Receptors

The distance between a staging area boundary and the nearest receptor fence line was used as a conservative estimate of receptor distance. If there was no easily identifiable receptor fence line, then the distance to the nearest receptor building or structure was used. Figures showing staging areas and associated sensitive receptors are provided in Appendix A.

HRA Results

The SCAQMD Tier 2 HRA methodology was used to determine MICR and HIC for DPM emissions from the staging areas shown in Table 2 above. Acute (non-cancer, HIA) health risks were not assessed because there are no published acute inhalation Reference Exposure Levels (REL) for DPM.

Table 10.2A of Attachment N of the SCAQMD Risk Assessment Procedures provides air dispersion factors for carcinogens and TACs with chronic health risks emitted as a result of diesel fuel combustion, for projects with operating schedules less than 12 hours per day (SCAQMD, 2017b). The dispersion factors are based on representative meteorological stations and distance to nearby receptors. The dispersion factors associated with the closest meteorological station to the project sites, Burbank Airport, were chosen. Although the meteorological characteristics of Burbank Airport are likely somewhat different from the meteorological characteristics of the various staging areas, the HRA results using the Burbank Airport dispersion factors are assumed to sufficiently represent health risks from activities at the various staging areas. The SCAQMD Tier 2 HRA methodology is considered more conservative than refined modeling HRA methodologies. Therefore, the calculated health risk impacts are assumed to be conservative overestimates. The residential and worker MICR and HIC for each staging area are presented in Table 3.

Table 3: Staging Area HRA Results

	MICR		Chronic (HIC)	
Staging Areas	**Resident**	**Worker**	**Resident**	**Worker**
Gorman Sub Yard	9.63E-07	4.84E-08	5.62E-04	5.62E-04
Lebec-Clear Canyon Rd	1.12E-06	5.62E-08	6.53E-04	6.53E-04
Lebec Rd. Yard and I-5 Yard	5.76E-07	2.89E-08	3.36E-04	3.36E-04
Banducci Rd. Yard	1.08E-06	5.42E-08	6.30E-04	6.30E-04
Bakersfield Tehachapi Hwy Yards	2.16E-06	1.08E-07	1.26E-03	1.26E-03
Kern Canyon Yards	2.86E-07	1.44E-08	1.67E-04	1.67E-04
Crane Canyon Yard	1.12E-06	5.62E-08	6.53E-04	6.53E-04

Most of the staging areas are located within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD), with exceptions of Gorman Sub Yard located within the jurisdiction of the SCAQMD, and Banducci Rd. Yard located within the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD). The Air Quality Thresholds of Significance for Toxic Air Contaminants published by the SJVAPCD provides a health risk significance threshold of 20 in one million for MICR and 1.0 for the maximally exposed individual for HIC (SJVAPCD, 2015). Similarly, the Air Quality Significance Thresholds published by the SCAQMD provides a health risk significance threshold of 10 in one million for MICR and 1.0 for the maximally exposed individual for HIC (SCAQMD, 2023). The EKAPCD does not have published CEQA construction thresholds of significance; they have instead adopted the SCAQMD health risk significance threshold of 10 in one million for MICR and 1.0 for the maximally exposed individual for HIC.

In comparison to the health risk significance thresholds, the calculated MICR and HIC for each staging area is well below the SCAQMD significance thresholds of 10 in one million MICR and 1.0 HIC. Therefore, the conservatively estimated health risk impacts from activities occurring at staging areas are considered less-than-significant. Detailed health risk calculations are provided in Appendix B.

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References

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. February. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

South Coast Air Quality Management District (SCAQMD). 2017a. *Risk Assessment Procedures for Rules 1401, 1401.1, and 212, Version 8.1*. September. http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12

South Coast Air Quality Management District (SCAQMD). 2017b. *Permit Application Package "N", For Use in Conjunction with the Risk Assessment Procedures for Rules 1401, 1401.1, and 212, Version 8.1*. October. http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/attachmentn-v8-1.pdf?sfvrsn=4

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South Coast Air Quality Management District (SCAQMD). 2023. *Air Quality Significance Thresholds.* March. https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25

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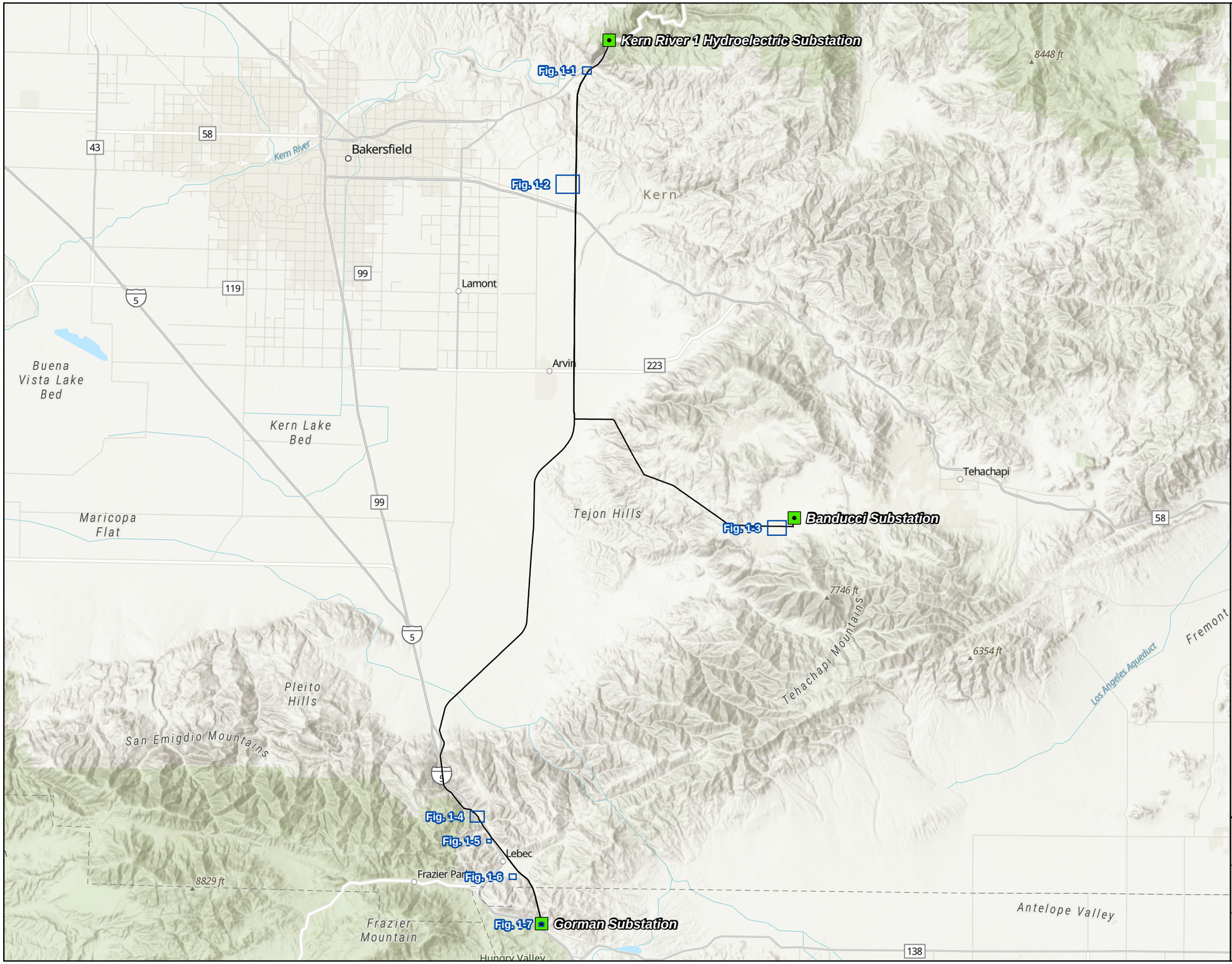
Appendix A

Staging Areas and Nearest Sensitive Receptors

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05\Laydown yard sensitive receptors 2023-05.aprx\Figure 1 - CMY sensitive receptors index • 5/12/2023 • CMHickma



Legend

- GKR Project Alignment
- Substation

Notes

• Basemap source: ESRI World Topographic Map.

Miles
0 2.5 5
Scale: 1" = 5 mi

GORMAN-KERN RIVER PROJECT

SENSITIVE RECEPTORS NEAR PROPOSED CONSTRUCTION MATERIAL YARDS

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FIGURE
1

Legend

- GKR Project Alignment
- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

Feet
0 100 200
Scale: 1" = 200'

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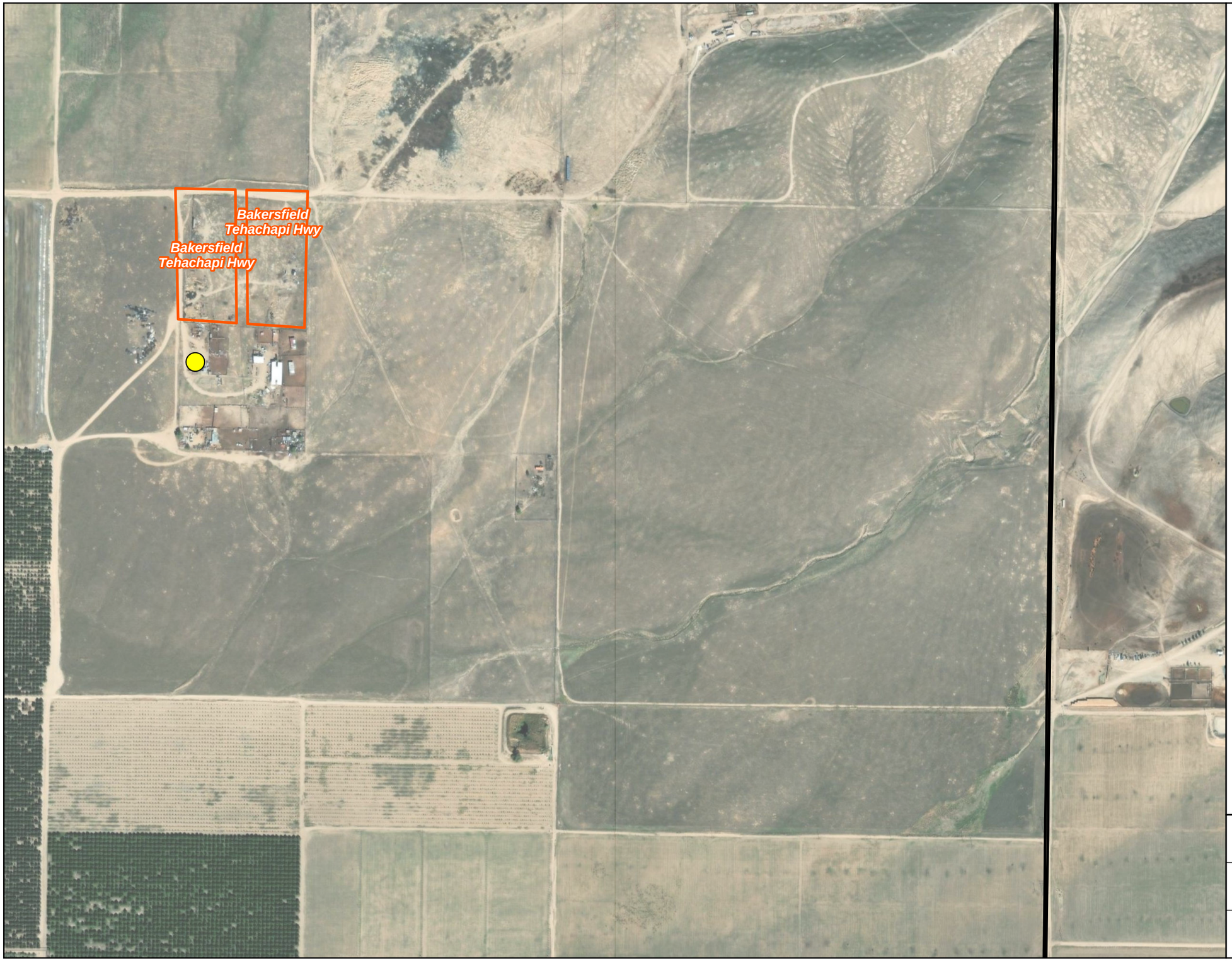
FIGURE
1-1

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma



Legend

- GKR Project Alignment
- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

0 250 500 Feet

Scale: 1" = 500'

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FIGURE
1-2

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma

T:_ENVSCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma

Legend

- GKR Project Alignment
- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

Feet
0 200 400
Scale: 1" = 400'

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SENSITIVE RECEPTORS NEAR PROPOSED CONSTRUCTION MATERIAL YARDS

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FIGURE
1-3

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma

Legend

- GKR Project Alignment
- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

Feet
0 150 300
Scale: 1" = 300'

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SENSITIVE RECEPTORS NEAR PROPOSED CONSTRUCTION MATERIAL YARDS

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FIGURE
1-4

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma

Legend

- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

Feet
0 50 100
Scale: 1" = 100'

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SENSITIVE RECEPTORS NEAR PROPOSED CONSTRUCTION MATERIAL YARDS

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FIGURE
1-5

Legend

- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

0 75 150 Feet

Scale: 1" = 150'

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SENSITIVE RECEPTORS NEAR PROPOSED CONSTRUCTION MATERIAL YARDS

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FIGURE **1-6**

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma

Legend

- GKR Project Alignment
- Substation
- Construction Material Yard
- Sensitive Receptor

Notes

• Basemap source: ESRI World Imagery Hybrid.

Feet
0 50 100
Scale: 1" = 100'

GORMAN-KERN RIVER PROJECT

SENSITIVE RECEPTORS NEAR PROPOSED CONSTRUCTION MATERIAL YARDS

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FIGURE **1-7**

T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\GKR\Projects\Laydown yard sensitive receptors 2023-05.aprx\Figure 1-1 through 1-7 - CMY sensitive receptors • 5/12/2023 • CMHickma

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Appendix B

Detailed HRA Calculations

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Staging Area DPM Emissions

Staging Areas	Location (Latitude/Longitude)		Count of Staging Areas Near Sensitive Receptors	Total Count of Staging Areas	% of project	Total DPM lb/day	DPM per Staging Area lb/day	Annual DPM per Staging Area lb/year
Gorman Sub Yard	34.789814°	-118.827505°	1	36	2.78%	0.1289	0.004	1.117
Lebec-Clear Canyon Rd	34.852676°	-118.876308°	1		2.78%		0.004	1.117
Lebec Rd. Yard and I-5 Yard	34.873242°	-118.891597°	2		5.56%		0.007	2.234
Banducci Rd. Yard	35.093665°	-118.611966°	1		2.78%		0.004	1.117
Bakersfield Tehachapi Hwy Yards	35.354351°	-118.822218°	2		5.56%		0.007	2.234
Kern Canyon Yards	35.437478°	-118.798158°	3		8.33%		0.011	3.351
Crane Canyon Yard	34.826471°	-118.854659°	1		2.78%		0.004	1.117

Staging Area HRA Results

	MICR		Chronic (HIC)		8hr Chronic		Acute	
Staging Areas	Resident	Worker	Resident	Worker	Resident	Worker	Resident	Worker
Gorman Sub Yard	9.63E-07	4.84E-08	5.62E-04	5.62E-04	N/A	N/A	N/A	N/A
Lebec-Clear Canyon Rd	1.12E-06	5.62E-08	6.53E-04	6.53E-04	N/A	N/A	N/A	N/A
Lebec Rd. Yard and I-5 Yard	5.76E-07	2.89E-08	3.36E-04	3.36E-04	N/A	N/A	N/A	N/A
Banducci Rd. Yard	1.08E-06	5.42E-08	6.30E-04	6.30E-04	N/A	N/A	N/A	N/A
Bakersfield Tehachapi Hwy Yards	2.16E-06	1.08E-07	1.26E-03	1.26E-03	N/A	N/A	N/A	N/A
Kern Canyon Yards	2.86E-07	1.44E-08	1.67E-04	1.67E-04	N/A	N/A	N/A	N/A
Crane Canyon Yard	1.12E-06	5.62E-08	6.53E-04	6.53E-04	N/A	N/A	N/A	N/A

Yorke ENGINEERING, LLC
www.YorkeEngr.com

Gorman Substation Yard Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Gorman Substation Yard Location Latitude	34.789814°
Gorman Substation Yard Location Longitude	-118.827505°
Diesel Particulate Emissions (lb/day)	3.58E-03
Diesel Particulate Emissions (lb/year)	1.12E+00

Interpolation Table			
Xa =	50	6.35	**= Ya**
X =	63	5.0344	**= Y**
Xb =	75	3.82	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	63	5.0344	N/A	311.35	1
Worker	63	5.0344	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	1.49E-04	1.12E+00	9.63E-07	4.84E-08	5.62E-04	5.62E-04	--	--	--	--
		Total	**9.63E-07**	**4.84E-08**	**5.62E-04**	**5.62E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$

$$MICR = CP \times Q_{tpy} \times \left(\chi/_Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$

$$MICR = CP \times Q_{tpy} \times \left(\chi/_Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC)

$$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/_Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8)

$$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/_Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA)

$$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/_Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$

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Lebec-Clear Canyon Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Lebec-Clear Canyon Yard Location Latitude	34.852676°
Lebec-Clear Canyon Yard Location Longitude	-118.876308°
Diesel Particulate Emissions (lb/day)	3.58E-03
Diesel Particulate Emissions (lb/year)	1.12E+00

Interpolation Table			
Xa =	50	6.35	**= Ya**
X =	55	5.844	**= Y**
Xb =	75	3.82	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	55	5.844	N/A	311.35	1
Worker	55	5.844	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	1.49E-04	1.12E+00	1.12E-06	5.62E-08	6.53E-04	6.53E-04	--	--	--	--
		Total	**1.12E-06**	**5.62E-08**	**6.53E-04**	**6.53E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$ $$MICR = CP \times Q_{tpy} \times \left(\chi/_Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$ $$MICR = CP \times Q_{tpy} \times \left(\chi/_Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/_Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/_Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA) $$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/_Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$

Yorke ENGINEERING, LLC
www.YorkeEngr.com

Lebec Rd. and I-5 (Gorman School) Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Lebec Rd. and I-5 Location Latitude	34.873242°
Lebec Rd. and I-5 Location Longitude	-118.891597°
Diesel Particulate Emissions (lb/day)	7.16E-03
Diesel Particulate Emissions (lb/year)	2.23E+00

Interpolation Table			
Xa =	100	2.46	**= Ya**
X =	150	1.505	**= Y**
Xb =	200	0.55	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	150	1.505	N/A	311.35	1
Worker	150	1.505	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	2.98E-04	2.23E+00	5.76E-07	2.89E-08	3.36E-04	3.36E-04	--	--	--	--
		Total	**5.76E-07**	**2.89E-08**	**3.36E-04**	**3.36E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$

$$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$

$$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC)

$$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8)

$$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA)

$$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$

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Banducci Rd Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Banducci Rd Location Latitude	35.093665°
Banducci Rd Location Longitude	-118.611966°
Diesel Particulate Emissions (lb/day)	3.58E-03
Diesel Particulate Emissions (lb/year)	1.12E+00

Interpolation Table			
Xa =	50	6.35	**= Ya**
X =	57	5.6416	**= Y**
Xb =	75	3.82	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	57	5.6416	N/A	311.35	1
Worker	57	5.6416	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	1.49E-04	1.12E+00	1.08E-06	5.42E-08	6.30E-04	6.30E-04	--	--	--	--
		Total	**1.08E-06**	**5.42E-08**	**6.30E-04**	**6.30E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$

$$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$

$$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC)

$$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8)

$$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA)

$$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$

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Bakersfield Tehachapi Hwy Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Bakersfield Tehachapi Hwy Location Latitude	35.354351°
Bakersfield Tehachapi Hwy Location Longitude	-118.822218°
Diesel Particulate Emissions (lb/day)	7.16E-03
Diesel Particulate Emissions (lb/year)	2.23E+00

Interpolation Table			
Xa =	50	6.35	**= Ya**
X =	57	5.6416	**= Y**
Xb =	75	3.82	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	57	5.6416	N/A	311.35	1
Worker	57	5.6416	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	2.98E-04	2.23E+00	2.16E-06	1.08E-07	1.26E-03	1.26E-03	--	--	--	--
		Total	**2.16E-06**	**1.08E-07**	**1.26E-03**	**1.26E-03**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$ $$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$ $$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA) $$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$

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Kern Canyon Yard Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Kern Canyon Yard Location Latitude	35.437478°
Kern Canyon Yard Location Longitude	-118.798158°
Diesel Particulate Emissions (lb/day)	1.07E-02
Diesel Particulate Emissions (lb/year)	3.35E+00

Interpolation Table			
Xa =	200	0.55	**= Ya**
X =	215	0.499	**= Y**
Xb =	300	0.21	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	215	0.499	N/A	311.35	1
Worker	215	0.499	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	4.48E-04	3.35E+00	2.86E-07	1.44E-08	1.67E-04	1.67E-04	--	--	--	--
		Total	**2.86E-07**	**1.44E-08**	**1.67E-04**	**1.67E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$ $$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$ $$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA) $$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$

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Crane Canyon Tier 2 Health Risk Analysis

Release Type	Point
Release Height	14.00 ft
Operating Schedule	<12 hrs/day
Meteorological Station	Burbank Airport
Crane Canyon Yard Location Latitude	34.826471°
Crane Canyon Yard Location Longitude	-118.854659°
Diesel Particulate Emissions (lb/day)	3.58E-03
Diesel Particulate Emissions (lb/year)	1.12E+00

Interpolation Table			
Xa =	50	6.35	**= Ya**
X =	55	5.844	**= Y**
Xb =	75	3.82	**= Yb**

		Dispersion Factors			
	Distance to (meters):	**Annual (χ/Q)**	**1-Hour (χ/Q)**	**CEF**	**WAF**
Residence	55	5.844	N/A	311.35	1
Worker	55	5.844	N/A	4.47	3.5

Risk Factors

Compound	**CAS**	**Cancer**				**Chronic**			**8hr Chronic**	**Acute**
		CP	**MP_R**	**MP_W**	**MWAF**	**REL**	**MP_R**	**MP_W**	**REL**	**REL**
Particulate Emissions From Diesel-Fueled Engines	9901	1.10E+00	1.00E+00	1.00E+00	1.00E+00	5.00E+00	1.00E+00	1.00E+00	--	--

Calculation of Health Risk Indices

Compound	**Emissions**		**MICR**		**Chronic**		**8hr Chronic**		**Acute**	
	1-Hour (lbs/hr)	**Annual (lbs/yr)**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**	**Resident**	**Worker**
Particulate Emissions From Diesel-Fueled Engines	1.49E-04	1.12E+00	1.12E-06	5.62E-08	6.53E-04	6.53E-04	--	--	--	--
		Total	**1.12E-06**	**5.62E-08**	**6.53E-04**	**6.53E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Maximum Individual Cancer Risk, Resident $(MICR)_R$ $$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times 10^{-6} \times MWAF$$

Maximum Individual Cancer Risk, Worker $(MICR)_W$ $$MICR = CP \times Q_{tpy} \times \left(\chi/Q\right) \times CEF \times MP \times WAF \times 10^{-6} \times MWAF$$

Chronic Health Risk, Resident/Worker (HIC) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times MP_{TAC} \times MWAF\right] / Chronic\ REL_{TAC}$$

Chronic Health Risk 8-hr, Resident/Worker (HIC8) $$HIC = \sum \left[Qtpy_{TAC} \times \left(\chi/Q\right) \times WAF \times MWAF\right] / 8-Hour\ REL_{TAC}$$

Acute Health Risk, Resident/Worker (HIA) $$HIA = \sum \left[Qhr_{TAC} \times \left(\chi/Q\right) \times MWAF\right] / Acute\ REL_{TAC}$$