

Rule 1200 Health Risk Assessment

Facility Name: ARE - SD Region No. 66, LLC
Facility ID: APCD2025-SITE-04807
Application: APCD2025-APP-008737
Project Engineer: Hawzhin Muhamed
Modeler: Bill Reeve
Toxics Risk Analyst: Andrew Bernabe
Date Completed by Toxics: 7/23/2025
HRA Tools Used: Lakes-AERMOD (Version 24142)/HARP RAST (v22118)

The following estimated risks are valid only for the input data provided by the Project Engineer.

Estimated worker risk does not exceed the residential risk. Therefore, only residential risk is presented in the following results.

Estimated Risk Levels:

Maximum Individual Cancer Risk (Resident) = 0.13 in one million

Chronic Noncancer Health Hazard Index (Resident) = 3.50E-04

8-Hour Noncancer Health Hazard Index (Worker) = N/A*

Acute Health Hazard Index (**PMI) = 1.99E-02

*8-Hour Non-Cancer Health Hazard Index is only applicable when calculating worker risk

**Point of Maximum Impact

Cancer risk is due to Diesel Particulate (100%).

The proposed application is for a stationary diesel emergency engine. The ARB Air Toxics Control Measure (ATCM) limits non-emergency operations to 50 hours per year.

Input Data Provided by Project Engineer:

Type of Source: Emergency Diesel IC Engine.

Controls Description: None.

Worst-Case TAC Emissions Increase:

Toxic Air Contaminant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
DIESEL PARTICULATE	N/A	3.88E-01
ACETALDEHYDE	1.20E-02	5.99E-01
ARSENIC COMPOUNDS	2.45E-05	1.22E-03
BENZENE	2.85E-03	1.43E-01
BUTADIENE, 1,3-	3.32E-03	1.66E-01
CADMIUM AND COMPOUNDS	2.30E-05	1.15E-03
CHLOROBENZENE	3.06E-06	1.53E-04
CHROMIUM (HEXAVALENT)	1.53E-06	7.65E-05
COPPER AND COMPOUNDS	6.27E-05	3.14E-03
ETHYL BENZENE	1.67E-04	8.34E-03
FORMALDEHYDE	2.64E-02	1.32E+00
HEXANE-N	4.12E-04	2.06E-02
HYDROCHLORIC ACID	2.85E-03	1.43E-01
LEAD & COMPOUNDS	1.27E-04	6.35E-03
MANGANESE AND COMPOUNDS	4.74E-05	2.37E-03
MERCURY AND COMPOUNDS	3.06E-05	1.53E-03
NAPHTHALENE	3.01E-04	1.51E-02
NICKEL AND NICKEL COMPOUNDS	5.97E-05	2.98E-03
POLYCYCLIC AROM. HC (PAH) [Treat as B(a)P for HRA]	5.54E-04	2.77E-02
PROPYLENE	7.15E-03	3.57E-01
SELENIUM AND COMPOUNDS	3.37E-05	1.68E-03
TOLUENE	1.61E-03	8.06E-02
XYLENES	6.49E-04	3.24E-02

Source: Acute TACs – Ventura County, 5/17/01.

Diesel particulate exhaust is a surrogate for all toxic air contaminant annual emissions from diesel-fueled engines when determining the potential cancer risk and noncancer chronic hazard index. Speciated toxic air contaminant hourly emissions are used when determining the potential noncancer acute hazard index.

Process Data:

Operation Parameter	Value
Diesel particulate emission factor (g/hp-hr)	0.01119
Engine horsepower (bhp)	315
Fuel Consumption (gal/hr)	15.3
Annual hours of operation	50

Release Parameters:

Stack Height (ft)	11.8
Stack Diameter (ft)	0.42
Temperature deg F	980
Exhaust Flow Rate (acfm)	1510

Discussion

The HRA was conducted in accordance with EPA and OEHHA guidance and District standard procedures. A point source was modeled with refined air dispersion modeling using EPA's AERMOD model, AERMET (Version 24142) processed Palomar 2019/2021 updated meteorology data, AERMAP terrain processing, and urban dispersion coefficients. Building downwash effects were calculated using the EPA BPIP-Prime model. The receptor grid was sufficiently dense to identify maximum impacts.

These risk results are based on the risk scenario calculations and health data at the time of the review, and should not be scaled with revised emissions rates without consulting with the Toxics Section.

Cancer Risk

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	RISK_SUM	SCENARIO
	1 Engine		9901	DieselExhF	0.000175	1.30E-07	30YrCancerRMP_InhSoilDermI

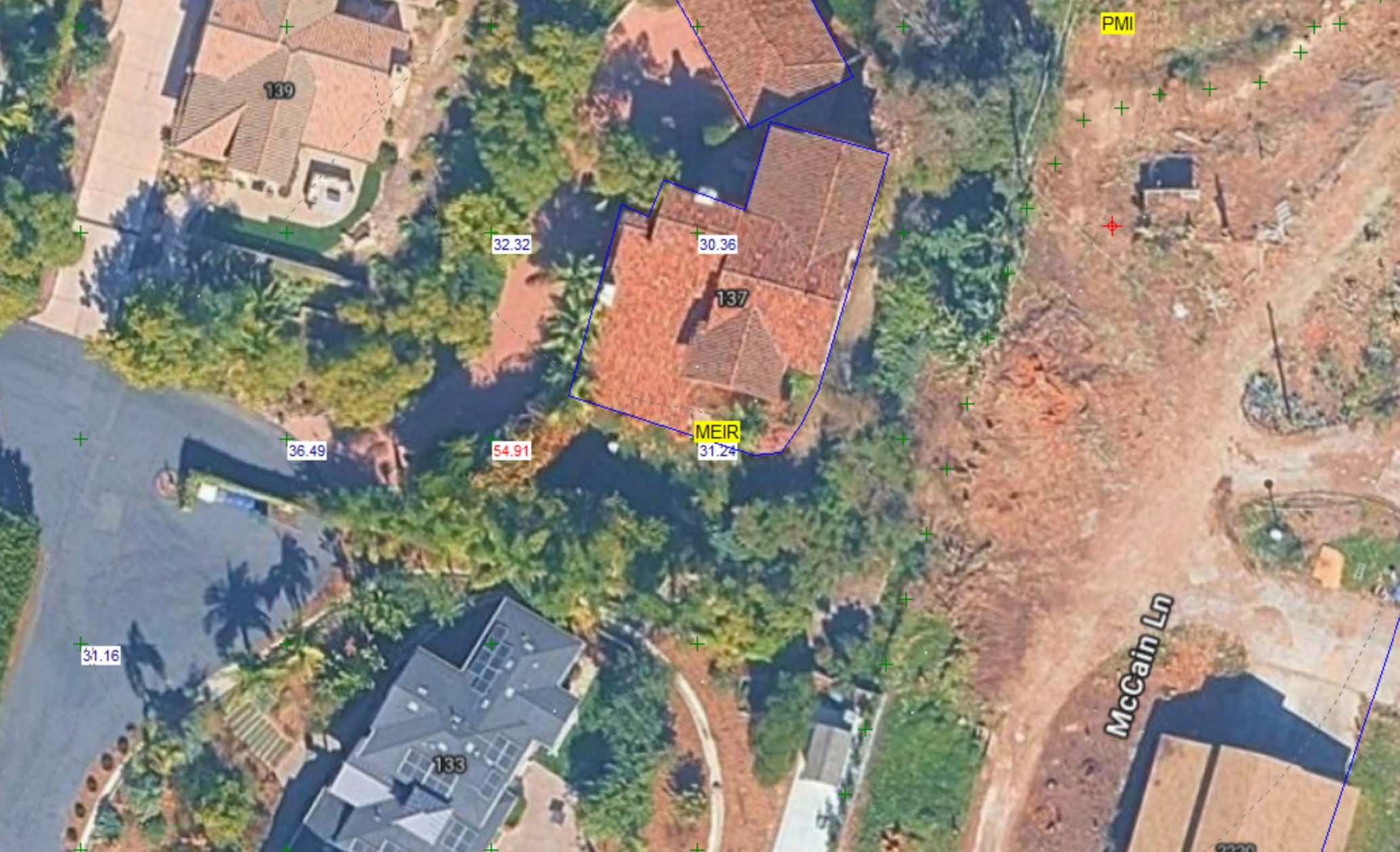
Chronic Risk

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	RESP
	1 Engine		9901	DieselExhF	0.000175	NonCancer	3.50E-05

Acute Risk

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	EYE
1	Engine		9901	DieselExhF	0	NonCancer	0.00E+00
2	Engine		75070	Acetaldehy	3.33	NonCancer	7.09E-03
3	Engine		107028	Acrolein	0.144	NonCancer	5.76E-02
4	Engine		7440382	Arsenic	0.00681	NonCancer	0.00E+00
5	Engine		71432	Benzene	0.793	NonCancer	0.00E+00
6	Engine		106990	1,3-Butadi	0.923	NonCancer	0.00E+00
7	Engine		7440439	Cadmium	0.00638	NonCancer	0.00E+00
8	Engine		108907	Chloroben	0.000851	NonCancer	0.00E+00
9	Engine		18540299	Cr(VI)	0.000426	NonCancer	0.00E+00
10	Engine		7440508	Copper	0.0174	NonCancer	0.00E+00
11	Engine		100414	Ethyl Benz	0.0464	NonCancer	0.00E+00
12	Engine		50000	Formaldeh	7.35	NonCancer	1.34E-01
13	Engine		110543	Hexane	0.114	NonCancer	0.00E+00
14	Engine		7647010	HCl	0.793	NonCancer	3.78E-04
15	Engine		7439921	Lead	0.0353	NonCancer	0.00E+00
16	Engine		7439965	Manganes	0.0132	NonCancer	0.00E+00
17	Engine		7439976	Mercury	0.00851	NonCancer	0.00E+00
18	Engine		91203	Naphthale	0.0838	NonCancer	0.00E+00
19	Engine		7440020	Nickel	0.0166	NonCancer	0.00E+00
20	Engine		1151	PAHs-w/o	0.154	NonCancer	0.00E+00
21	Engine		115071	Propylene	1.99	NonCancer	0.00E+00
22	Engine		7782492	Selenium	0.00936	NonCancer	0.00E+00
23	Engine		108883	Toluene	0.449	NonCancer	8.98E-05
24	Engine		1330207	Xylenes	0.18	NonCancer	8.18E-06
							1.99E-01

MMilk_FAH16to70



139

32.32

30.36

137

MEIR

31.24

36.49

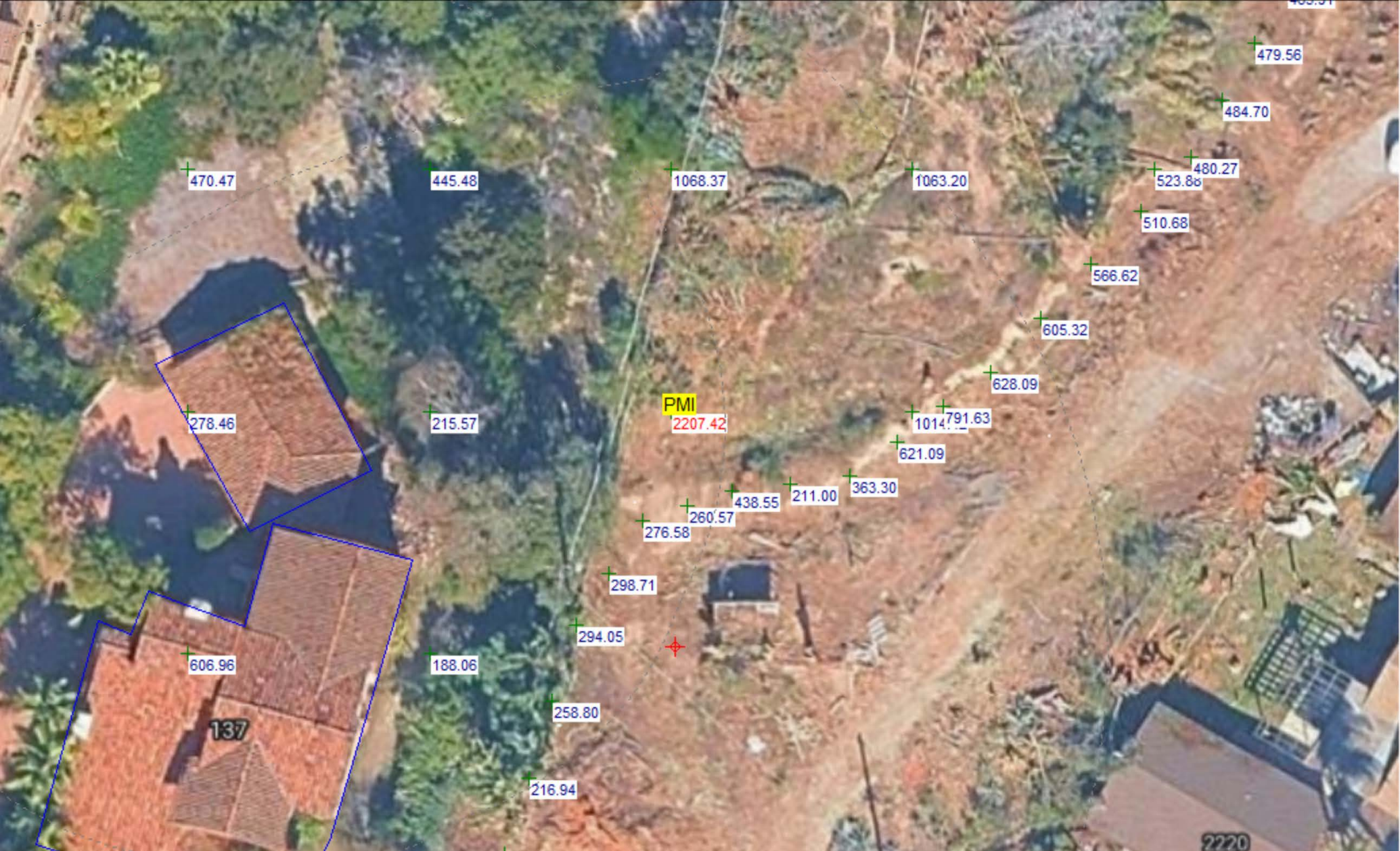
54.91

31.16

133

McCain Ln

PMI



FACILITY NAME: ARE - SD Region No. 66, LLC																	
Fuel Consumption (gal/hr): 15.30 Diesel Particulate Emission Factor (g/hp-hr): 0.01119 Brake Horsepower (hp): 315 Annual Hours of Operation (hrs): 50	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: yellow;"> <th colspan="2" style="text-align: center;">RISK ANALYST ONLY</th> </tr> <tr> <th colspan="2" style="text-align: center;">DISPERSION MODELING DATA</th> </tr> <tr> <td>Annual Receptor Type:</td> <td>Resident ▼</td> </tr> <tr> <td>ANNUAL DISPERSION FACTOR (µg/m3)/(g/s):</td> <td>31.3</td> </tr> <tr> <td>Distance (m):</td> <td></td> </tr> <tr> <td>Hourly Receptor Type:</td> <td>PMI ▼</td> </tr> <tr> <td>HOURLY DISPERSION FACTOR (µg/m3)/(g/s):</td> <td>2207.4</td> </tr> <tr> <td>Distance (m):</td> <td></td> </tr> </table>	RISK ANALYST ONLY		DISPERSION MODELING DATA		Annual Receptor Type:	Resident ▼	ANNUAL DISPERSION FACTOR (µg/m3)/(g/s):	31.3	Distance (m):		Hourly Receptor Type:	PMI ▼	HOURLY DISPERSION FACTOR (µg/m3)/(g/s):	2207.4	Distance (m):	
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Distance (m):																	
FACILITY ID: APCD2025-SITE-04807 APPLICATION NO.: APCD2025-APP-008737 ENGINEER: Hawzhin Muhamed																	

CHEMICAL NAME	Emission Factor lb/1000 gal	Acute Emission Rate lb/hr	Annual Emission Rate lb/yr	Acute Emissions Rate g/s	Annual Emission Rate g/s	Hourly GLC µg/m ³	Annual GLC µg/m ³
DIESEL PARTICULATE			3.88E-01		5.58E-06		1.75E-04
ACETALDEHYDE	7.83E-01	1.20E-02	5.99E-01	1.51E-03		3.33E+00	
ACROLEIN*	3.39E-02	5.19E-04	2.59E-02	6.54E-05		1.44E-01	
ARSENIC COMPOUNDS	1.60E-03	2.45E-05	1.22E-03	3.08E-06		6.81E-03	
BENZENE	1.86E-01	2.85E-03	1.43E-01	3.59E-04		7.93E-01	
BUTADIENE, 1,3-	2.17E-01	3.32E-03	1.66E-01	4.18E-04		0.9234274	
CADMIUM AND COMPOUNDS	1.50E-03	2.30E-05	1.15E-03	2.89E-06		6.38E-03	
CHLOROBENZENE	2.00E-04	3.06E-06	1.53E-04	3.86E-07		8.51E-04	
CHROMIUM (HEXAVALENT)	1.00E-04	1.53E-06	7.65E-05	1.93E-07		4.26E-04	
COPPER AND COMPOUNDS	4.10E-03	6.27E-05	3.14E-03	7.90E-06		1.74E-02	
ETHYL BENZENE	1.09E-02	1.67E-04	8.34E-03	2.10E-05		4.64E-02	
FORMALDEHYDE	1.73E+00	2.64E-02	1.32E+00	3.33E-03		7.35E+00	
HEXANE-N	2.69E-02	4.12E-04	2.06E-02	5.19E-05		1.14E-01	
HYDROCHLORIC ACID	1.86E-01	2.85E-03	1.43E-01	3.59E-04		7.93E-01	
LEAD & COMPOUNDS	8.30E-03	1.27E-04	6.35E-03	1.60E-05		3.53E-02	
MANGANESE AND COMPOUNDS	3.10E-03	4.74E-05	2.37E-03	5.98E-06		1.32E-02	
MERCURY AND COMPOUNDS (INORGANIC)	2.00E-03	3.06E-05	1.53E-03	3.86E-06		8.51E-03	
NAPHTHALENE	1.97E-02	3.01E-04	1.51E-02	3.80E-05		8.38E-02	
NICKEL AND NICKEL COMPOUNDS	3.90E-03	5.97E-05	2.98E-03	7.52E-06		1.66E-02	
POLYCYCLIC AROM. HC (PAH) [Treat as B(a)P for H	3.62E-02	5.54E-04	2.77E-02	6.98E-05		1.54E-01	
PROPYLENE	4.67E-01	7.15E-03	3.57E-01	9.00E-04		1.99E+00	
SELENIUM AND COMPOUNDS	2.20E-03	3.37E-05	1.68E-03	4.24E-06		9.36E-03	
TOLUENE	1.05E-01	1.61E-03	8.06E-02	2.03E-04		4.49E-01	
XYLENES	4.24E-02	6.49E-04	3.24E-02	8.17E-05		1.80E-01	

Facility Name: ARE - SD Region No. 66, LLC
 Application Number: APCD2025-APP-008737
 Site ID Number: APCD2025-SITE-04807
 Equipment Address: 2220 Encinitas Boulevard, Encinitas, CA 92024
 Project Description: Emergency diesel engine powering generator
 alex.leonard@greystar.com
 Project Engineer: Hawzhin Muhamed 402-326-8596
 Tam@proehs 7144171368

Make: John Deere
 Model: 6068HFG85A
 S/N: TBD
 Fuel Type: Diesel
 BHP Rating: 315
 Model Year: 2024
 Tier Level: 3
 Engine Family Number: RJDXL13.5103
 Device Driven: 200 kW emergency generator JM-CRT(+)-2-N-CS-BITO-8/8-LP
 Emissions Controls: Aftermarket DPF - Johnson Matthey CRT+ (CARB certified for EPA family #)

Based on Manufacturer Specs		
NOx, g/BHP-hr:	2.47	3.31 g/kW-hr
CO, g/BHP-hr:	0.09	0.12 g/kW-hr
NMHC, g/BHP-hr:	0.02	0.03 g/kW-hr
PM10, g/BHP-hr:	0.01	0.02 g/kW-hr

NOx, g/BHP-hr: + NMHC, g/BHP-hr: 2.49

Fuel Usage, gal/hr: 15.3
 Operating Schedule, hrs/day: 24
 Operating Schedule, hrs/yr: 50

Exhaust Flow Rate, cfm: 1510
 Exhaust Temperature, °F: 980
 Stack Height above ground, ft: 11.8
 Stack Diameter, ft: 0.4

Nearest School, ft: 997.00
 Residential Receptor, m: 25.00 60 ft
 Occupational Receptor, m: 121.01 397 ft
 Acute Receptor, m: 25.00 60 ft

AB3205?

Consult Toxics?

Vertical Exhaust? (yes/no): yes
 Flapper Valve? (flapper/birdscreen/no cover/raincap/other): flapper
 Plot Plan? (yes/no): yes
 Flow Obstructions: no

**San Diego Air Pollution Control District
Supplemental Application Information
Rule 1200 Toxics Evaluation**

(ALL REQUESTED INFORMATION IS IMPORTANT - PLEASE FILL BLUE CELLS)

Facility Name: ARE - SD Region No. 66, LLC
Equipment Location: 2220 Encinitas Boulevard, Encinitas, CA 92024

Project Description:
Control Equipment: None

Operating Schedule: Hours per Day: Weeks per Year:
Days per Week: Days per Year:

RELEASE POINT DATA

How are the emissions from this project released into the outdoor air? (Check all that apply)

Point Source	Non-Point Source
☒ Exhaust Stack	☐ Passive Ventilation ☐ Released through windows and/or roll-up doors ☐ Fugitive Emissions

Point Source

Parameter	Point Source #1	Point Source #2	Point Source #3
Height of release above ground (ft)	11.8		
Stack Diameter (or length x width) (ft)	0.42		
Exhaust Gas Temperature (°F) ¹	980		
Exhaust Gas Flow (ACFM)	1510		
Direction of Flow ²	vertical		
Flow Obstruction ³	no		
Distance to Nearest Property Line (+/- 10ft)	60.00		

¹ Use "70 °F" or "Ambient" if unknown

² if "other" describe:

³ if "other" describe:

AERIAL MAP AND FACILITY PLOT PLAN must be attached and labeled with **Release Point(s) and Building(s)**
(includes facility and neighboring buildings within 5x the release height of a point source(s)).

Parameter	Building A	Building B	Building C
Point Source(s)			
Point Source Location			
Building Length (ft) (optional)			
Building Width (ft) (optional)			
Building Height above ground (ft)			

San Diego APCD Use Only

Additional Rule 1200 Submittal Information

Submittal Date:		Site ID:	APCD2025-SITE-04807
Project Engineer:	Hawzhin Muhamed	Appl. Number(s):	APCD2025-APP-008737
Fees Collected:		PTO No. (if existing):	

*** AERMOD - VERSION 24142 *** *** D:\Modeling Projects\8737_ARE\8737_ARE.isc
 *** 07/22/25
 *** AERMET - VERSION 24142 *** ***
 *** 15:21:11

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** MODEL SETUP OPTIONS SUMMARY ***

** AERMOD Source Pathway

**

**

SO STARTING

** Source Location **

** Source ID - Type - X Coord. - Y Coord. **

LOCATION STCK1	POINT	477673.270	3655726.450	40.830
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** Source Parameters **

SRCPARAM STCK1	1.0	3.597	799.817	55.3671014519532	0.128016
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** Building Downwash **

BUILDHGT STCK1	0.00	0.00	0.00	0.00	7.62	7.62
BUILDHGT STCK1	7.62	7.62	7.62	7.62	7.62	7.62
BUILDHGT STCK1	3.96	0.00	0.00	0.00	0.00	0.00
BUILDHGT STCK1	0.00	0.00	0.00	0.00	7.62	7.62
BUILDHGT STCK1	7.62	7.62	0.00	0.00	0.00	12.19
BUILDHGT STCK1	12.19	12.19	12.19	12.19	12.19	12.19

BUILDWID STCK1	0.00	0.00	0.00	0.00	21.37	21.52
BUILDWID STCK1	22.91	23.85	24.30	24.14	24.56	26.95
BUILDWID STCK1	35.56	0.00	0.00	0.00	0.00	0.00
BUILDWID STCK1	0.00	0.00	0.00	0.00	21.37	21.52
BUILDWID STCK1	22.91	23.85	0.00	0.00	0.00	86.70
BUILDWID STCK1	89.63	89.84	87.31	82.14	74.47	64.53

BUILDLN STCK1	0.00	0.00	0.00	0.00	29.23	29.05
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BUILDLN	STCK1	27.99	26.08	23.37	19.95	18.14	19.38
BUILDLN	STCK1	28.05	0.00	0.00	0.00	0.00	0.00
BUILDLN	STCK1	0.00	0.00	0.00	0.00	29.23	29.05
BUILDLN	STCK1	27.99	26.08	0.00	0.00	0.00	57.04
BUILDLN	STCK1	68.30	77.49	84.32	88.59	90.17	89.01
XBADJ	STCK1	0.00	0.00	0.00	0.00	-38.32	-40.54
XBADJ	STCK1	-41.52	-41.23	-39.70	-36.96	-34.22	-31.83
XBADJ	STCK1	-35.93	0.00	0.00	0.00	0.00	0.00
XBADJ	STCK1	0.00	0.00	0.00	0.00	9.09	11.48
XBADJ	STCK1	13.53	15.16	0.00	0.00	0.00	-89.23
XBADJ	STCK1	-102.23	-112.11	-118.59	-121.47	-120.66	-116.18
YBADJ	STCK1	0.00	0.00	0.00	0.00	13.57	8.57
YBADJ	STCK1	4.24	-0.08	-4.53	-8.90	-12.87	-17.03
YBADJ	STCK1	-17.17	0.00	0.00	0.00	0.00	0.00
YBADJ	STCK1	0.00	0.00	0.00	0.00	-13.57	-8.57
YBADJ	STCK1	-4.24	0.08	0.00	0.00	0.00	46.51
YBADJ	STCK1	35.38	23.18	10.27	-2.95	-16.08	-28.73

URBANSRC ALL
SRCGROUP ALL

SO FINISHED

** Model Options Selected:

- * Model Uses Regulatory DEFAULT Options
- * Model Is Setup For Calculation of Average CONCentration Values.
- * NO GAS DEPOSITION Data Provided.
- * NO PARTICLE DEPOSITION Data Provided.
- * Model Uses NO DRY DEPLETION. DDPLETE = F
- * Model Uses NO WET DEPLETION. WETDPLT = F
- * Stack-tip Downwash.
- * Model Accounts for ELEVated Terrain Effects.
- * Use Calms Processing Routine.
- * Use Missing Data Processing Routine.
- * No Exponential Decay.
- * Model Uses URBAN Dispersion Algorithm for the SBL for 1 Source(s),
for Total of 1 Urban Area(s):

Urban Population = 174336.0 ; Urban Roughness Length = 1.000 m

- * Urban Roughness Length of 1.0 Meter Used.

- * ADJ_U* - Use ADJ_U* option for SBL in AERMET
- * CCVR_Sub - Meteorological data includes CCVR substitutions
- * TEMP_Sub - Meteorological data includes TEMP substitutions
- * NOTURBST - Meteorological data Ignore turbulence - stable hours
- * Model Assumes No FLAGPOLE Receptor Heights.
- * The User Specified a Pollutant Type of: OTHER

**Model Calculates 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

**This Run Includes: 1 Source(s); 1 Source Group(s); and 40435 Receptor(s)

with: 1 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 0 AREA type source(s)
and: 0 LINE source(s)
and: 0 RLINE/RLINEXT source(s)
and: 0 OPENPIT source(s)
and: 0 BUOYANT LINE source(s) with a total of 0 line(s)
and: 0 SWPOINT source(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 24142

**Output Options Selected:

- Model Outputs Tables of PERIOD Averages by Receptor
- Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
- Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
- Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 100.00 ; Decay Coef. = 0.000 ;
Rot. Angle = 0.0

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Emission Units = GRAMS/SEC                                ; Emission Rate Unit Factor =
0.10000E+07
Output Units    = MICROGRAMS/M**3

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****Approximate Storage Requirements of Model = 8.1 MB of RAM.**

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**Input Runstream File:      aermod.inp
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**Output Print File:      aermod.out
```

****Detailed Error/Message File: 8737_ARE.err**

```
**File for Summary of Results: 8737_ARE.sum
```

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*** AERMOD - VERSION 24142 ***      *** D:\Modeling Projects\8737_ARE\8737_ARE.isc
***      07/22/25
*** AERMET - VERSION 24142 ***      ***
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PAGE 2

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*** MODELOPTs:   RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
      (1=YES; 0=NO)
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[illegible]

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

PAGE 3

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Profile format: FREE

Upper air station no.: 3190
Name: UNKNOWN

Year: 2019

[illegible]

19 01 01 1 01	-7.7	0.111	-9.000	-9.000	-999.	89.	16.0	0.05	0.59	1.00	1.57	25.	7.9
280.3 2.0													
19 01 01 1 02	-9.9	0.126	-9.000	-9.000	-999.	108.	18.1	0.04	0.59	1.00	1.79	35.	7.9
279.8 2.0													
19 01 01 1 03	-17.8	0.177	-9.000	-9.000	-999.	178.	34.4	0.04	0.59	1.00	2.45	31.	7.9
279.2 2.0													
19 01 01 1 04	-9.7	0.125	-9.000	-9.000	-999.	106.	17.8	0.04	0.59	1.00	1.77	41.	7.9
278.1 2.0													
19 01 01 1 05	-15.0	0.156	-9.000	-9.000	-999.	148.	26.8	0.04	0.59	1.00	2.18	30.	7.9
279.2 2.0													
19 01 01 1 06	-14.3	0.153	-9.000	-9.000	-999.	143.	25.7	0.05	0.59	1.00	2.10	24.	7.9
278.8 2.0													
19 01 01 1 07	-15.7	0.161	-9.000	-9.000	-999.	154.	28.4	0.05	0.59	1.00	2.20	6.	7.9
279.8 2.0													
19 01 01 1 08	-17.4	0.253	-9.000	-9.000	-999.	305.	83.4	0.04	0.59	0.50	3.42	40.	7.9
280.9 2.0													
19 01 01 1 09	23.3	0.220	0.443	0.005	134.	247.	-40.9	0.04	0.59	0.29	2.61	41.	7.9
283.1 2.0													
19 01 01 1 10	59.8	0.240	0.721	0.005	225.	283.	-20.9	0.05	0.59	0.22	2.67	7.	7.9
284.8 2.0													
19 01 01 1 11	84.9	0.240	1.082	0.005	536.	281.	-14.5	0.05	0.59	0.20	2.57	17.	7.9
286.4 2.0													
19 01 01 1 12	96.9	0.246	1.299	0.005	814.	292.	-13.7	0.05	0.59	0.19	2.62	2.	7.9
287.0 2.0													
19 01 01 1 13	95.3	0.301	1.341	0.005	908.	396.	-25.6	0.05	0.59	0.19	3.35	353.	7.9
287.5 2.0													
19 01 01 1 14	80.5	0.261	1.301	0.005	982.	320.	-19.8	0.05	0.59	0.20	2.88	7.	7.9
288.8 2.0													
19 01 01 1 15	52.7	0.247	1.146	0.005	1027.	294.	-25.5	0.03	0.59	0.23	3.07	64.	7.9
288.8 2.0													
19 01 01 1 16	13.9	0.315	0.738	0.005	1035.	424.	-201.4	0.03	0.59	0.32	4.29	87.	7.9
287.0 2.0													
19 01 01 1 17	-26.3	0.294	-9.000	-9.000	-999.	384.	95.4	0.05	0.59	0.60	3.93	114.	7.9
285.3 2.0													
19 01 01 1 18	-7.3	0.108	-9.000	-9.000	-999.	125.	15.5	0.05	0.59	1.00	1.53	116.	7.9
283.8 2.0													
19 01 01 1 19	-7.7	0.111	-9.000	-9.000	-999.	89.	15.9	0.05	0.59	1.00	1.57	98.	7.9
282.0 2.0													
19 01 01 1 20	-3.9	0.078	-9.000	-9.000	-999.	53.	11.2	0.05	0.59	1.00	1.11	98.	7.9

279.8	2.0																
19	01	01	1	21	-6.4	0.101	-9.000	-9.000	-999.	77.	14.3	0.05	0.59	1.00	1.43	25.	7.9
279.8	2.0																
19	01	01	1	22	-8.3	0.115	-9.000	-9.000	-999.	93.	16.3	0.04	0.59	1.00	1.64	39.	7.9
279.2	2.0																
19	01	01	1	23	-17.8	0.176	-9.000	-9.000	-999.	177.	34.1	0.04	0.59	1.00	2.44	49.	7.9
279.2	2.0																
19	01	01	1	24	-26.3	0.262	-9.000	-9.000	-999.	321.	75.4	0.03	0.59	1.00	3.83	69.	7.9
280.3	2.0																

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
19	01	01	01	7.9	1	25.	1.57	280.4	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 24142 ***
 *** 07/22/25 ***
 *** AERMET - VERSION 24142 ***
 *** 15:21:11 ***

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (26304 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3

**

NETWORK	GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE
GRID-ID				
ALL	1ST HIGHEST VALUE IS	54.91336 AT (477628.00, 3655711.00, 41.07, 98.75, 0.00)	DC	
	2ND HIGHEST VALUE IS	37.59296 AT (477688.00, 3655756.00, 49.05, 93.91, 0.00)	DC	

3RD HIGHEST VALUE IS	36.49061 AT (	477613.00,	3655711.00,	41.55,	98.70,	0.00)	DC
4TH HIGHEST VALUE IS	32.32097 AT (	477628.00,	3655726.00,	42.03,	98.77,	0.00)	DC
5TH HIGHEST VALUE IS	31.23648 AT (	477643.00,	3655711.00,	40.86,	98.77,	0.00)	DC
6TH HIGHEST VALUE IS	31.16435 AT (	477598.00,	3655696.00,	41.31,	97.65,	0.00)	DC
7TH HIGHEST VALUE IS	30.36334 AT (	477643.00,	3655726.00,	40.86,	98.77,	0.00)	DC
8TH HIGHEST VALUE IS	30.35399 AT (	477673.00,	3655756.00,	49.89,	93.36,	0.00)	DC
9TH HIGHEST VALUE IS	29.86798 AT (	477598.00,	3655711.00,	42.40,	97.98,	0.00)	DC
10TH HIGHEST VALUE IS	29.25636 AT (	477613.00,	3655696.00,	40.32,	98.70,	0.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
 GP = GRIDPOLR
 DC = DISCCART
 DP = DISCPOLR

▲ *** AERMOD - VERSION 24142 *** *** D:\Modeling Projects\8737_ARE\8737_ARE.isc
 *** 07/22/25
 *** AERMET - VERSION 24142 *** ***
 *** 15:21:11

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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

NETWORK		DATE			
GROUP ID		AVERAGE CONC	(YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZHILL,

ZFLAG) OF TYPE GRID-ID

ALL HIGH 1ST HIGH VALUE IS 2207.42258 ON 21122404: AT (477673.00, 3655741.00, 45.51,
97.48, 0.00) DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

▲ *** AERMOD - VERSION 24142 *** *** D:\Modeling Projects\8737_ARE\8737_ARE.isc
*** 07/22/25
*** AERMET - VERSION 24142 *** ***
*** 15:21:11

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 3 Warning Message(s)
A Total of 1273 Informational Message(s)

A Total of 26304 Hours Were Processed

A Total of 701 Calm Hours Identified

A Total of 571 Missing Hours Identified (2.17 Percent)

***** FATAL ERROR MESSAGES *****
*** NONE ***

***** WARNING MESSAGES *****

SO W320	38	PPARM: Input Parameter May Be Out-of-Range for Parameter	VS
ME W186	101	MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used	0.50
ME W187	101	MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET	

HARP2 - HRACalc (dated 22118) 7/23/2025 2:11:55 PM - Output Log

GLCs loaded successfully

Pollutants loaded successfully

RISK SCENARIO SETTINGS

Receptor Type: Resident

Scenario: All

Calculation Method: Derived

EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25

Total Exposure Duration: 30

Exposure Duration Bin Distribution

3rd Trimester Bin: 0.25

0<2 Years Bin: 2

2<9 Years Bin: 0

2<16 Years Bin: 14

16<30 Years Bin: 14

16 to 70 Years Bin: 0

PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True

Soil: True

Dermal: True

Mother's milk: True

Water: False

Fish: False

Homegrown crops: False

Beef: False

Dairy: False
Pig: False
Chicken: False
Egg: False

INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

TIER 2 SETTINGS
Tier2 not used.

Calculating cancer risk
Cancer risk saved to: C:\Users\abernabe\Desktop\8737 ARE\Risk\MEIRCancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\abernabe\Desktop\8737 ARE\Risk\MEIRNCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\abernabe\Desktop\8737 ARE\Risk\MEIRNCAcuteRisk.csv
HRA ran successfully



Figure 2: Facility Plot Plan