Rule 1200 Health Risk Assessment

Facility Name:	Ventasso Energy Storage, LLC
Facility ID:	APCD2024-SITE-04675
Application:	APCD2024-APP-008491
Project Engineer:	Hawzhin Muhamed
Modeler:	Bill Reeve
Toxics Risk Analyst:	Andrew Bernabe
Date Completed by Toxics:	12/18/2024
HRA Tools Used:	Lakes-AERMOD (Version 23132)/HARP (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)	0.37 in one million
Chronic Noncancer Health Hazard Index (Resident)	= 9.96E-05
8-Hour Noncancer Health Hazard Index (Worker)	= NA*
Acute Health Hazard Index (**PMI)	= 9.50E-02

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

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	4.18E+00
ACETALDEHYDE	1.74E-02	8.69E-01
ACROLEIN	7.53E-04	3.76E-02
ARSENIC COMPOUNDS	3.55E-05	1.78E-03
BENZENE	4.14E-03	2.07E-01
BUTADIENE, 1,3-	4.82E-03	2.41E-01
CADMIUM AND COMPOUNDS	3.33E-05	1.67E-03
CHLOROBENZENE	4.44E-06	2.22E-04
CHROMIUM (HEXAVALENT)	2.22E-06	1.11E-04
COPPER AND COMPOUNDS	9.10E-05	4.55E-03
ETHYL BENZENE	2.42E-04	1.21E-02
FORMALDEHYDE	3.83E-02	1.92E+00
HEXANE-N	5.97E-04	2.99E-02
HYDROCHLORIC ACID	4.14E-03	2.07E-01
LEAD & COMPOUNDS	1.84E-04	9.21E-03
MANGANESE AND COMPOUNDS	6.88E-05	3.44E-03
MERCURY AND COMPOUNDS	4.44E-05	2.22E-03
NAPHTHALENE	4.37E-04	2.19E-02
NICKEL AND NICKEL COMPOUNDS	8.66E-05	4.33E-03
POLYCYCLIC AROM. HC (PAH) [Treat as B(a)P for HRA]	8.04E-04	4.02E-02
PROPYLENE	1.04E-02	5.18E-01
SELENIUM AND COMPOUNDS	4.88E-05	2.44E-03
TOLUENE	2.34E-03	1.17E-01
XYLENES	9.41E-04	4.71E-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)	0.0821
Engine horsepower (bhp)	463
Fuel Consumption (gal/hr)	22.2
Annual hours of operation	50

Release Parameters:

Exhaust Flow Rate, cfm:	2246
Exhaust Temperature, °F:	927
Stack Height above ground, ft:	10.42
Stack Diameter, ft:	0.5

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 22112) processed LES 2019/2021 sigma theta updated meteorology data, AERMAP terrain processing, and rural 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

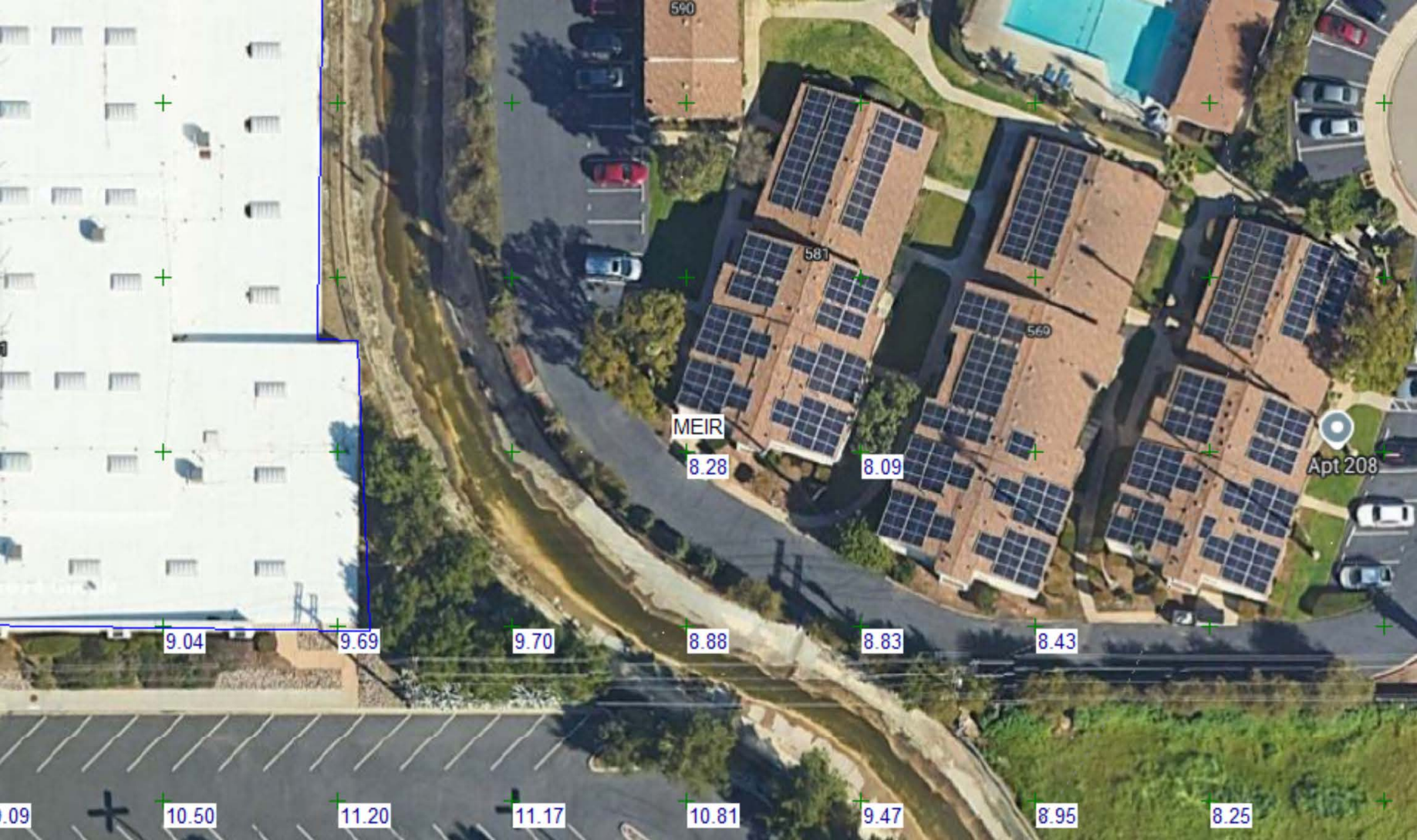
INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK
1	Engine		9901	DieselExhP	0.000498	3.71E-07	30YrCance	*	3.71E-07

Chronic Risk

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	RESP
1	Engine		9901	DieselExhP	0.000498	NonCancei	9.96E-05
							9.96E-05

Acute

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	EYE
1	Engine		9901	DieselExhP	0	NonCancei	0.00E+00
2	Engine		75070	Acetaldehy	1.59	NonCancei	3.38E-03
3	Engine		107028	Acrolein	0.0689	NonCancei	2.76E-02
4	Engine		7440382	Arsenic	0.00325	NonCancei	0.00E+00
5	Engine		71432	Benzene	0.378	NonCancei	0.00E+00
6	Engine		106990	1,3-Butadi	0.441	NonCancei	0.00E+00
7	Engine		7440439	Cadmium	0.00305	NonCancei	0.00E+00
8	Engine		108907	Chloroben	0.000406	NonCancei	0.00E+00
9	Engine		18540299	Cr(VI)	0.000203	NonCancei	0.00E+00
10	Engine		7440508	Copper	0.00833	NonCancei	0.00E+00
11	Engine		100414	Ethyl Benz	0.0221	NonCancei	0.00E+00
12	Engine		50000	Formaldeh	3.51	NonCancei	6.38E-02
13	Engine		110543	Hexane	0.0546	NonCancei	0.00E+00
14	Engine		7647010	HCl	0.378	NonCancei	1.80E-04
15	Engine		7439921	Lead	0.0169	NonCancei	0.00E+00
16	Engine		7439965	Manganes	0.0063	NonCancei	0.00E+00
17	Engine		7439976	Mercury	0.00406	NonCancei	0.00E+00
18	Engine		91203	Naphthale	0.04	NonCancei	0.00E+00
19	Engine		7440020	Nickel	0.00792	NonCancei	0.00E+00
20	Engine		1151	PAHs-w/o	0.0735	NonCancei	0.00E+00
21	Engine		115071	Propylene	0.949	NonCancei	0.00E+00
22	Engine		7782492	Selenium	0.00447	NonCancei	0.00E+00
23	Engine		108883	Toluene	0.214	NonCancei	4.28E-05
24	Engine		7664417	NH3	0	NonCancei	0.00E+00
25	Engine		1330207	Xylenes	0.0861	NonCancei	3.91E-06
							9.50E-02


590
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11.17
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143.35
337.71
511.50
PMI
726.22
311.70
709.25
714.70
489.47
518.81
424.94
Bath Fitter

FACILITY NAME: Ventasso Energy Storage, LLC

Fuel Consumption (gal/hr):	22.20
Diesel Particulate Emission Factor (g/hp-hr):	0.08206
Brake Horsepower (hp):	463
Annual Hours of Operation (hrs):	50
FACILITY ID:	APCD2024-SITE-04675
APPLICATION NO.:	APCD2024-APP-008491
ENGINEER:	**Hawzhin Muhamed**

RISK ANALYST ONLY

DISPERSION MODELING DATA

Annual Receptor Type:	Resident
ANNUAL DISPERSION FACTOR (µg/m3)/(g/s):	**8.3**
Distance (m):	
Hourly Receptor Type:	PMI
HOURLY DISPERSION FACTOR (µg/m3)/(g/s):	**726.2**
Distance (m):	

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/m³	Annual GLC µg/m³
DIESEL PARTICULATE			4.18E+00		6.02E-05		4.98E-04
ACETALDEHYDE	7.83E-01	1.74E-02	8.69E-01	2.19E-03		1.59E+00	
ACROLEIN*	3.39E-02	7.53E-04	3.76E-02	9.48E-05		6.89E-02	
ARSENIC COMPOUNDS	1.60E-03	3.55E-05	1.78E-03	4.48E-06		3.25E-03	
BENZENE	1.86E-01	4.14E-03	2.07E-01	5.21E-04		3.78E-01	
BUTADIENE, 1,3-	2.17E-01	4.82E-03	2.41E-01	6.07E-04		0.44081	
CADMIUM AND COMPOUNDS	1.50E-03	3.33E-05	1.67E-03	4.20E-06		3.05E-03	
CHLOROBENZENE	2.00E-04	4.44E-06	2.22E-04	5.59E-07		4.06E-04	
CHROMIUM (HEXAVALENT)	1.00E-04	2.22E-06	1.11E-04	2.80E-07		2.03E-04	
COPPER AND COMPOUNDS	4.10E-03	9.10E-05	4.55E-03	1.15E-05		8.33E-03	
ETHYL BENZENE	1.09E-02	2.42E-04	1.21E-02	3.05E-05		2.21E-02	
FORMALDEHYDE	1.73E+00	3.83E-02	1.92E+00	4.83E-03		3.51E+00	
HEXANE-N	2.69E-02	5.97E-04	2.99E-02	7.52E-05		5.46E-02	
HYDROCHLORIC ACID	1.86E-01	4.14E-03	2.07E-01	5.21E-04		3.78E-01	
LEAD & COMPOUNDS	8.30E-03	1.84E-04	9.21E-03	2.32E-05		1.69E-02	
MANGANESE AND COMPOUNDS	3.10E-03	6.88E-05	3.44E-03	8.67E-06		6.30E-03	
MERCURY AND COMPOUNDS (INORGANIC)	2.00E-03	4.44E-05	2.22E-03	5.59E-06		4.06E-03	
NAPHTHALENE	1.97E-02	4.37E-04	2.19E-02	5.51E-05		4.00E-02	
NICKEL AND NICKEL COMPOUNDS	3.90E-03	8.66E-05	4.33E-03	1.09E-05		7.92E-03	
POLYCYCLIC AROM. HC (PAH) [Treat as B(a)P for	3.62E-02	8.04E-04	4.02E-02	1.01E-04		7.35E-02	
PROPYLENE	4.67E-01	1.04E-02	5.18E-01	1.31E-03		9.49E-01	
SELENIUM AND COMPOUNDS	2.20E-03	4.88E-05	2.44E-03	6.15E-06		4.47E-03	
TOLUENE	1.05E-01	2.34E-03	1.17E-01	2.95E-04		2.14E-01	
AMMONIA (only if SCR)	N/A						
XYLENES	4.24E-02	9.41E-04	4.71E-02	1.19E-04		8.61E-02	

Facility Name:	Ventasso Energy Storage, LLC		
Application Number:	APCD2024-APP-008491		
Site ID Number:	APCD2024-SITE-04675		
Equipment Address:	203 North Johson Avenue		
	El Cajon CA 92020		
Contact Name:	Patrick Tam	Evelyn Mokin	
Contact Title:	Director		
Contact Affiliation:	Ventasso Energy Storage, LLC		
Contact Number:	714- 893-7900	619-209-0284	
Contact E-Mail:	tam@proehs.com	evelyn.mokin@rwe.com	
Project Engineer:	Hawzhin Muhamed		
Make:	John Deere		
Model:	6090HFG86A		
S/N:			
Fuel Type:	Diesel		
BHP Rating:	463		
Model Year:	2023		
Tier Level:	3		
Engine Family Number:	PJDXL09.0114		
Device Driven:	300 kW		
NOx, g/BHP-hr:	2.83	3.80	g/kW-hr
CO, g/BHP-hr:	0.67	0.90	g/kW-hr
NMHC, g/BHP-hr:	0.03	0.05	g/kW-hr
PM10, g/BHP-hr:	0.08	0.11	g/kW-hr
NH3 Slip from SCR (yes/no)	no	0	ppm (default 10 ppm i
Fuel Usage, gal/hr:	22.2		
Operating Schedule, hrs/day:	24		
Operating Schedule, hrs/yr:	50		
Exhaust Flow Rate, cfm:	2246		
Exhaust Temperature, °F:	927		
Stack Height above ground, ft:	10.42		
Stack Diameter, ft:	0.5		
Nearest School, ft:	450		
Residential Receptor, m:	147.83	485	ft
Occupational Receptor, m:	47.24	155	ft
Acute Receptor, m:	47.24	155	ft
Vertical Exhaust? (yes/no):	yes		
Flapper Valve? (flapper/raincap):	Flapper		
Plot Plan? (yes/no):	yes		
Flow Obstructions:	no		

203 North Johson Avenue, El Cajon CA 92020

NOx, g/BHP-hr: + NMHC, g/BHP-hr: 2.87

ENGINE INFORMATION

Model:	John Deere, 6090HFG86A	Bore:	118.4mm (4.66 in.)
Nameplate BHP @ 1800 RPM:	463	Stroke:	136mm (5.35 in.)
Type:	4-Cycle, 6 Cylinder, Inline	Displacement:	9.0 L (548 cu. in.)
Aspiration:	Turbocharged, Charge Air-Cooled		
Compression Ratio	16.0:1	EPA Family:	PJDXL09.0114
		EPA Certificate:	PJDXL09.0114-011

f applicable)

Table 1

PERFORMANCE DATA:	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine bkW @ Stated Load	86	173	259	345
Fuel Consumption (g/kWh)	247	240	215	205
Exhaust Gas Flow (m^3/min)				64
Exhaust Temperature (°C)				497

EXHAUST EMISSION DATA:	Table 2 EPA D2 Cycle 5-mode weighted
HC (Total Unburned Hydrocarbons)	0.05
NOx (Oxides of Nitrogen as NO2)	3.80
CO (Carbon Monoxide)	0.9
PM (Particulate Matter)	0.11

Values are in g/kWh unless otherwise not

Literacy First Charter School liberty Academy 450 ft

ted

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

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

Facility Name: Ventasso Energy Storage, LLC
Equipment Location: 203 North Johson Avenue El Cajon CA 92020

Project Description: Emergency Diesel Engine
Control Equipment: None
Operating Schedule: Hours per Day: 24 Weeks per Year: 50
Days per Week: 7 Days per Year: 50

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)	10.4		
Stack Diameter (or length x width) (ft)	0.50		
Exhaust Gas Temperature (°F)[1]	927		
Exhaust Gas Flow (ACFM)	2246		
Direction of Flow[2]	vertical		
Flow Obstruction[3]	no		
Distance to Nearest Property Line (+/- 10ft)	155.00		

[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:	APCD2024-SITE-04675
Project Engineer:	Hawzhin Muhamed	Appl. Number(s):	APCD2024-APP-008491
Fees Collected:		PTO No. (if existing):	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN SigA Data

*** MODEL SETUP OPTIONS SUMMARY ***

SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
LOCATION STCK1 POINT 502742.150 3628799.090 128.860
** Source Parameters **
SRCPARAM STCK1 1.0 3.170 770.372 58.1089683165449 0.1524

** 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 = 102991.0 ; Urban Roughness Length = 1.000 m
* Urban Roughness Length of 1.0 Meter Used.
* 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 17931 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:  22112

 **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) =   141.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      5.5 MB of RAM.

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

 **Detailed Error/Message File:   8491_Ventasso.err
 **File for Summary of Results:   8491_Ventasso.sum
 *** AERMOD - VERSION 23132  ***   *** D:\Modeling Projects\8491_Ventasso\8491_Ventasso.isc                ***        12/10/24
 *** AERMET - VERSION  22112 ***   ***                                                                    ***       12:22:06
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN SigA Data

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

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

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN SigA Data

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

Surface file: C:\Users\breeve\OneDrive - County of San Diego\Meteorology Documents\AERMET File Met Version: 22112
Profile file: C:\Users\breeve\OneDrive - County of San Diego\Meteorology Documents\AERMET File
Surface format: FREE
Profile format: FREE
Surface station no.: 53143 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN
Year: 2019 Year: 2019

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
19	01	01	1	01	-1.2	0.036	-9.000	-9.000	-999.	17.	3.4	0.03	1.10	1.00	1.07	109.	10.0	279.8	10.0
19	01	01	1	02	-0.4	0.018	-9.000	-9.000	-999.	6.	1.5	0.03	1.10	1.00	0.54	221.	10.0	278.4	10.0
19	01	01	1	03	-0.4	0.020	-9.000	-9.000	-999.	7.	1.7	0.03	1.10	1.00	0.58	120.	10.0	277.3	10.0
19	01	01	1	04	-0.9	0.029	-9.000	-9.000	-999.	12.	2.3	0.03	1.10	1.00	0.85	74.	10.0	276.5	10.0
19	01	01	1	05	-0.6	0.024	-9.000	-9.000	-999.	9.	2.0	0.03	1.10	1.00	0.72	108.	10.0	276.0	10.0
19	01	01	1	06	-1.1	0.032	-9.000	-9.000	-999.	14.	2.6	0.03	1.10	1.00	0.94	44.	10.0	275.4	10.0
19	01	01	1	07	-0.7	0.024	-9.000	-9.000	-999.	9.	2.0	0.03	1.10	1.00	0.72	288.	10.0	275.5	10.0
19	01	01	1	08	-0.5	0.024	-9.000	-9.000	-999.	9.	2.5	0.03	1.10	0.49	0.72	231.	10.0	276.0	10.0
19	01	01	1	09	33.8	-9.000	-9.000	-9.000	154.	-999.	-99999.0	0.03	1.10	0.30	0.00	0.	10.0	279.9	10.0
19	01	01	1	10	85.0	0.120	0.857	0.005	265.	100.	-1.8	0.03	1.10	0.23	1.16	332.	10.0	283.3	10.0
19	01	01	1	11	119.9	0.189	1.381	0.005	785.	197.	-5.0	0.03	1.10	0.21	2.10	320.	10.0	285.3	10.0
19	01	01	1	12	136.4	0.238	1.521	0.005	922.	278.	-8.8	0.03	1.10	0.20	2.82	18.	10.0	286.5	10.0
19	01	01	1	13	133.6	0.307	1.572	0.005	1039.	409.	-19.4	0.03	1.10	0.20	3.93	12.	10.0	286.8	10.0
19	01	01	1	14	112.1	0.313	1.524	0.005	1127.	419.	-24.3	0.03	1.10	0.21	4.07	26.	10.0	286.8	10.0
19	01	01	1	15	72.7	0.324	1.339	0.005	1180.	443.	-41.9	0.03	1.10	0.24	4.38	62.	10.0	286.8	10.0
19	01	01	1	16	18.5	0.316	0.851	0.005	1191.	426.	-152.4	0.03	1.10	0.33	4.51	44.	10.0	285.8	10.0
19	01	01	1	17	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.03	1.10	0.61	4.02	71.	10.0	284.5	10.0
19	01	01	1	18	-21.6	0.194	-9.000	-9.000	-999.	205.	30.1	0.03	1.10	1.00	3.67	76.	10.0	283.2	10.0
19	01	01	1	19	-8.3	0.088	-9.000	-9.000	-999.	69.	7.2	0.03	1.10	1.00	2.59	53.	10.0	282.6	10.0
19	01	01	1	20	-4.6	0.065	-9.000	-9.000	-999.	40.	5.3	0.03	1.10	1.00	1.92	93.	10.0	280.8	10.0
19	01	01	1	21	-2.7	0.050	-9.000	-9.000	-999.	27.	4.1	0.03	1.10	1.00	1.48	85.	10.0	278.6	10.0
19	01	01	1	22	-1.2	0.033	-9.000	-9.000	-999.	14.	2.7	0.03	1.10	1.00	0.98	82.	10.0	277.5	10.0
19	01	01	1	23	-4.0	0.061	-9.000	-9.000	-999.	36.	4.9	0.03	1.10	1.00	1.79	85.	10.0	276.5	10.0
19	01	01	1	24	-5.3	0.070	-9.000	-9.000	-999.	44.	5.7	0.03	1.10	1.00	2.06	100.	10.0	276.4	10.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
19	01	01	01	10.0	1	109.	1.07	279.9	99.0	-99.00	-99.00

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN SigA Data

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

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	13.75514 AT (502806.19, 3628829.69, 128.46, 128.46, 0.00)	DC		
	2ND HIGHEST VALUE IS	13.65040 AT (502796.74, 3628829.73, 128.44, 128.44, 0.00)	DC		
	3RD HIGHEST VALUE IS	13.43521 AT (502815.65, 3628829.65, 128.48, 128.48, 0.00)	DC		
	4TH HIGHEST VALUE IS	12.98880 AT (502808.50, 3628836.50, 128.30, 128.30, 0.00)	DC		
	5TH HIGHEST VALUE IS	12.97428 AT (502787.28, 3628829.77, 128.46, 128.46, 0.00)	DC		
	6TH HIGHEST VALUE IS	12.85776 AT (502825.10, 3628829.61, 128.49, 128.49, 0.00)	DC		
	7TH HIGHEST VALUE IS	12.53270 AT (502793.50, 3628836.50, 128.22, 128.22, 0.00)	DC		
	8TH HIGHEST VALUE IS	12.52426 AT (502823.50, 3628836.50, 128.40, 128.40, 0.00)	DC		
	9TH HIGHEST VALUE IS	12.16578 AT (502834.56, 3628829.56, 128.52, 128.52, 0.00)	DC		
	10TH HIGHEST VALUE IS	11.62606 AT (502838.50, 3628836.50, 128.53, 128.53, 0.00)	DC		

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN SigA Data

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

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

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	726.22136	ON 20121603: AT (502721.34, 3628762.86, 129.11, 129.11, 0.00)	DC		

```
 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 23132  ***   *** D:\Modeling Projects\8491_Ventasso\8491_Ventasso.isc                 ***       12/10/24
 *** AERMET - VERSION  22112 ***   ***                                                                    ***      12:22:06
                                                                                                                  PAGE   6

 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  SigA Data

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

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

 A Total of           0 Fatal Error Message(s)
 A Total of          11 Warning Message(s)
 A Total of       14954 Informational Message(s)

 A Total of       26304 Hours Were Processed

 A Total of        4177 Calm Hours Identified

 A Total of        1067 Missing Hours Identified (  4.06 Percent)


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


    ********   WARNING MESSAGES   ********
 SO W320      38        PPARM: Input Parameter May Be Out-of-Range for Parameter            VS
 MX W403     102       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
 MX W403       1       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
 MX W403       2       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
 MX W403       3       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
 MX W403       4       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
 MX W403       5       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
 MX W403       6       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
```

```
MX W403       7       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
MX W403       8       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
MX W403       9       PFLCNV: Turbulence data is being used w/o ADJ_U* option       SigA Data
```

HARP2 - HRACalc (dated 22118) 12/18/2024 2:25:43 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\8491 Ventasso\Risk\MEIRCancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\abernabe\Desktop\8491 Ventasso\Risk\MEIRNCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\abernabe\Desktop\8491 Ventasso\Risk\MEIRNCAcuteRisk.csv
HRA ran successfully

Figure 2: Facility Plot Plan