

ENGINEERING EVALUATION
AUTHORITY TO CONSTRUCT

Facility Name: US Border Protection Air & Marine
Equipment Type: 34H – Emergency Diesel Engine
Application #: APCD2023-APP-007687
ID#: APCD1987-SITE-07196
Equipment/Facility Address: 1802 Saturn Blvd
San Diego, CA 92154
Facility Contact: Patrick Tam, Consultant
(714) 893-7900
tam@proehs.com



Recoverable Signature

X 

John Lee
Air Pollution Control Engineer
Signed by: 188adb1f-5406-42f1-954c-0fac70705fb3

Permit Engineer:



Recoverable Signature

X Jim Swaney























Jim Swaney
Senior Air Pollution Control Engineer
Signed by: 4f6a3c69-5263-42b7-937d-4b3b524063e0

Senior Engineer Signature:

1.0 Background

1.1 Type of Application: New installation of emergency diesel engine

1.2 Permit History: This facility has one active permit for gas dispensing station.

		APCD1987-SITE-07196 --> [LUEG-APCD,Administrative,Site,NA] ; Status: Active
		<u>APCD2011-APP-001576 --> [LUEG-APCD,Permit App,Internal Combustion Engines,NA] ; Status: Void</u>
		<u>APCD2011-CER-000265 --> [LUEG-APCD,Certificate App,IC Engine Status,NA] ; Status: Approved</u>
		<u>APCD2011-PTO-000836 --> [LUEG-APCD,Administrative,Permit To Operate,NA] ; Status: Retired</u>
		<u>APCD2023-APP-007687 --> [LUEG-APCD,Permit App,Internal Combustion Engines,NA] ; Status: Open</u>
		<u>APCD1987-APP-870337 --> [LUEG-APCD,Permit App,Vapor Recovery,EVR Phase II OTC] ; Status: Approved</u>
		<u>APCD2001-PTO-870337 --> [LUEG-APCD,Administrative,Permit To Operate,NA] ; Status: Retired</u>
		<u>APCD1996-APP-950987 --> [LUEG-APCD,Permit App,Degreasers,Cold Solvent LSA < 5 sq ft] ; Status: Approved</u>
		<u>APCD2000-PTO-950987 --> [LUEG-APCD,Administrative,Permit To Operate,NA] ; Status: Retired</u>
		<u>APCD1998-APP-972325 --> [LUEG-APCD,Permit App,Vapor Recovery,EVR Phase II OTC] ; Status: Approved</u>
		APCD2006-PTO-972325 --> [LUEG-APCD,Administrative,Permit To Operate,NA] ; Status: Active

1.3 Facility Description: Office building.

1.4 Other Background Info: No hearing board actions, permit denials, legal settlements, NOV, or nuisance complaints. Not a Title V facility.

2.0 Process Description

2.1 Equipment Description.

Emergency Diesel Engine:
Manufacturer: John Deere,
Model 6135HFG75A,
S/N TBD,
Maximum Rated Horsepower: 755 bhp,
Model Year 2023,
EPA Certification: Tier 2,
Engine Family PJDXL13.5132,
driving a 500-kW emergency electrical generator.
Vertical exhaust with flapper-type raincap, 9.2 feet above ground.

2.2 Process Description.

This is a diesel powered generator to be used in situations of emergency and for limited operations for maintenance and testing purposes.

2.3 Emissions Controls.

This is a Tier 2 certified diesel engine.

2.4 Attachments.

Generator specification sheet

3.0 Emissions

3.1 Emissions estimate summary. Estimated emissions from the process are shown below.

Table 1: Estimated Post Project PTE for criteria pollutants

Compound	Emission Factor	Hourly Emissions	Daily Emissions	Annual Emissions	
	g/bhp-hr	lbs/hr	lbs/day	tons/year	lbs/yr
NO _x	4.18	7.0	167	0.2	348
CO	0.45	0.7	18	0.02	37
NMHC	0.09	0.1	3.6	0.004	7.5
PM	0.03	0.05	1.2	0.001	2.5
SO _x	-	0.008	0.18	0.0002	0.4

3.2 Estimated Emissions Assumptions.

- Emission factors were EPA certified emission factors
- Calculations assume full load operation, one hour per day and total of 50 hours per year
- 15 ppmw sulfur fuel
- Standard toxics emission factors for diesel engines (see method E15).
- Other standard assumptions as stated in calculation sheets
- Expected actual emissions same as PTE

3.3 Emissions Calculations.

Calculations were performed using the attached spreadsheets using standard calculation methods.

3.4 Attachments.

Emission Calculations.

4.0 Applicable Rules

4.1 District Prohibitory Rules

Emergency diesel engines at non-major sources are subject to the following District prohibitory rules: 50, 51, 53, 62 and 69.4.1. The proposed engine is expected to comply with all applicable requirements as shown in the table on the following page with standard permit conditions for this equipment type.

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Table 3: Prohibitory Rule Discussion

Applicable Section	Requirement	Engine Complies?	Explanation	Condition
Rule 50	Visible Emissions not to exceed 20% opacity or Ringlemann 1 for more than 3 minutes in a 60 minute period	Yes	Compliance with this requirement is achieved through the use of an EPA certified engine, and permit conditions will specify this requirement.	C28413
Rule 51	Cannot cause or contribute to a public nuisance	Yes	Due to the intermittent operation of an emergency engine that meets all emission requirements, it is anticipated that this will not cause a public nuisance. Permit conditions will prohibit this engine from causing a public nuisance.	C28414
Rule 53	Emissions of sulfur compounds calculated as SO ₂ on a dry basis shall not exceed 0.05 % by volume on a dry basis.	Yes	Permit conditions will require use of CARB diesel fuel (15 ppm Sulfur by weight), which will ensure compliance with this requirement.	C28412
Rule 62	Sulfur content of liquid fuel shall not exceed 0.5 % sulfur by weight.	Yes	Permit conditions will require use of CARB diesel fuel (15 ppm Sulfur by weight), which will ensure compliance with this requirement.	C28412
Rule 69.4.1				
69.4.1(d)(1)(ii)(E)	Emission standards for NO _x and CO emissions. For a new or replacement certified diesel engine, NO _x emissions shall not exceed: 3.5 g/bhp-hr if 50≤bhp<100; 3.0 g/bhp-hr if 100≤bhp<175; 3.0 g/bhp-hr if 175≤bhp<750; 4.8 g/bhp-hr if bhp≥750. For a new or replacement certified diesel engine, CO emissions shall not exceed: 3.7 g/bhp-hr if	Yes	Use of an EPA certified tier 3 engine (tier 2 for engines with a rated power in excess of 750 bhp) ensures that NO _x emissions comply with this requirement	NA

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	50≤bhp<100; 3.7 g/bhp-hr if 100≤bhp<175; 2.6 g/bhp-hr if 175≤bhp<750; 2.6 g/bhp-hr if bhp≥750.			
69.4.1(d)(2)	Engines operated on diesel fuel shall use only California Diesel Fuel.	Yes	Permit conditions will require use of CARB diesel fuel (15 ppm Sulfur by weight), which will ensure compliance with this requirement.	C28412
69.4.1(e)(3)	All engines must be equipped with a non-resettable totalizing fuel or hour meter which shall be replaced in accordance with subsection (g)(7) of this rule.	Yes	Permit conditions will require installation of a non-resettable hour meter and specify the requirements for replacement.	C28419
69.4.1(f)(2)	The owner or operator must conduct specific maintenance on the engine and control equipment, including oil change/analysis, and checking hoses and belts. Maintenance is required according to engine/control equipment manufacturer's instructions or other written procedure, at least once each calendar year.	Yes	Annual maintenance of engine according to written procedure will be required by permit conditions.	C43433
69.4.1(g)(1)	Specifies engine information that must be maintained on-site.	Yes	Manufacturer and model number, brake horsepower rating, combustion method and fuel type are contained in the permit application. Documentation of CARB diesel fuel certification and manual of recommended maintenance will be specified in permit conditions.	C45251
69.4.1(g)(2)	Requires keeping an operating log containing dates and times and purpose of each period of engine operation, cumulative operation of engine for each calendar year and maintenance records including	Yes	Compliance with this provision is expected and this requirement is specified in permit conditions.	C45252

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	dates maintenance is performed. Engines within 500 feet of schools must record the time of day when the engine is operated for testing and maintenance. Specific records for internal, external, and partial external power outages is required.			
69.4.1(g)(6)	Requires records of the dates and times when fuel is being combusted and cumulative operating time if claiming a commissioning exemption.	NA	The applicant has not claimed a commissioning period is needed.	NA
69.4.1(g)(7)	Requires notification to APCD within 10 calendar days of replacing an hour meter.	Yes	Compliance with this provision is expected and this requirement is specified in permit conditions.	C28419
69.4.1(g)(9)	Requires specified records to be maintained on-site for at least three years and made available to the District upon request.	Yes	Compliance with this provision is expected and this requirement is specified in permit conditions.	C43432
69.4.1(i)(1)	Requires periodic source testing to confirm compliance with applicable emission standards.	NA	This subsection does not apply to certified emergency engines.	NA

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4.2 New Source Review (NSR) Rule 20.1-20.4

This application is subject to District NSR rules. This site is considered a non-major stationary source, for each pollutant, as shown in the following table, and is therefore subject to District Rule 20.2. Calculation of emissions and determination of applicable requirements is performed in accordance with District Rule(s) 20.1 through 20.3.

Table 4: Classification of Major/PSD Source and Modification New Source Review (NSR) Requirements

	NOx	VOC	PM-10	PM-2.5	SOx	CO	Lead
<i>Major Source Threshold (ton/year)</i>	<i>50</i>	<i>50</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>
Major Source? (yes/no)	No	No	No	No	No	No	No
<i>Major Modification Threshold (ton/year)</i>	<i>25</i>	<i>25</i>	<i>15</i>	<i>10</i>	<i>40</i>	<i>100</i>	<i>0.6</i>
Major Modification at a Major Source?	No	No	No	No	No	No	No
Contemporaneous Calculations Performed?	No	No	No	No	No	No	No
Federal Major Stationary Source Threshold (ton/year) (Severe non-attainment status)	25	25	100	100	100	100	100
Federal Major Stationary Source?	No	No	No	No	No	No	No
<i>Federal Major Modification Threshold (ton/year)</i> (Severe non-attainment status)	<i>25</i>	<i>25</i>	<i>15</i>	<i>10</i>	<i>40</i>	<i>100</i>	<i>0.6</i>
Federal Major Modification?	No	No	No	No	No	No	No
Contemporaneous Net Calculations Performed	No	No	No	No	No	No	No
<i>PSD Threshold (ton/year)</i>	<i>250</i>	<i>250</i>	<i>250</i>	<i>--</i>	<i>250</i>	<i>250</i>	<i>--</i>
<i>PSD Modification Threshold (ton/year)</i>	<i>40</i>	<i>40</i>	<i>15</i>	<i>--</i>	<i>40</i>	<i>100</i>	<i>0.6</i>
PSD New or Modification?	No	No	No	No	No		No

District Rule 20.2 contains requirements for Best Available Control Technology (BACT), Air Quality Impact Assessment (AQIA), Prevention of Significant Deterioration (PSD) and public notification. No requirements of this rule apply as shown in the table on the following page.

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Table 5: New Source Review Discussion				
Rule/Requirement	Requirement	Applicability	Discussion	Condition
Applicability	Rule 20.2 applies to non-major sources	Yes	This is not a major source, so Rule 20.2 applies.	NA
Type of application	Replacement/Permit Modification	NA	NA	NA
Exemptions	No exemptions apply to this equipment	NA	NA	NA
20.2(d)(1) – BACT				
BACT - NOx	Installation of BACT is required if emissions of NOx exceed 10 lbs/day	Triggered, see discussion below	The potential to emit for this pollutant does exceed this trigger level, so BACT is required.	NA
BACT - VOC	Installation of BACT is required if emissions of VOC exceed 10 lbs/day	Not Triggered, no permit limit	The potential to emit for this pollutant does not exceed this trigger level, so BACT is not required.	NA
BACT - PM-10	Installation of BACT is required if emissions of PM-10 exceed 10 lbs/day	Not Triggered, no permit limit	The potential to emit for this pollutant does not exceed this trigger level, so BACT is not required.	NA
BACT - SOx	Installation of BACT is required if emissions of SOx exceed 10 lbs/day	Not Triggered, no permit limit	The potential to emit for this pollutant does not exceed this trigger level, so BACT is not required.	NA
20.2(d)(2) – AQIA				
AQIA - NOx	Required for project emission increases in excess of 25 lbs/hr, 250 lbs/day or 40 ton/yr of NOx calculated as NO2	Not Triggered	The increase in emissions of this air contaminant from this project does not exceed any of these levels, so no AQIA is required.	NA
AQIA - PM-10	Required for project emission increases in excess of 100 lbs/day or 15 ton/yr of PM-10	Not Triggered	The increase in emissions of this air contaminant from this project does not exceed any of these levels, so no AQIA is required.	NA
AQIA - SOx	Required for project emission increases in excess of 25 lbs/hr, 250 lbs/day or 40 ton/yr of SOx calculated as SO2	Not Triggered	The increase in emissions of this air contaminant from this project does not exceed any of these levels, so no AQIA is required.	NA

AQIA - CO	Required for project emission increases in excess of 100 lbs/hr, 550 lbs/day or 1000 ton/yr of CO	Not Triggered	The increase in emissions of this air contaminant from this project does not exceed any of these levels, so no AQIA is required.	NA
20.2(d)(3) - PSD	Applicable to source that may have a significant impact on a class I area	NA	This is not a PSD source and emissions are not expected to impact a class I area	NA
20.2(d)(4) - Public Notice	Requires 30 day public notice if an AQIA was required or if increase in VOC emissions from the project exceed 250 lbs/day or 40 ton/year	NA	AQIA was not required and VOC emission increase from this project does not exceed these levels.	NA

(*) BACT Analysis: A BACT Analysis for emergency engines greater than 750 hp was conducted for application APCD2021-APP-006981 and is presented below. As the proposed emergency engine is greater than 750 hp, this BACT evaluation is applicable to this application.

The PTE for NO_x for each engine is 24.5 lb/day, greater than the 10 lb/day threshold for BACT. Alternatives that were considered include natural gas and propane engines and Tier 4f engines including SCR and DPF. Gas-fueled engines are not feasible as backup power for operations that must occur if natural gas lines are damaged in the event of an emergency like an earthquake. An engine of this size would also likely require SCR for emissions control, a method which is not cost effective as described below. The cost-effectiveness evaluation did not take into account the likely short periods of operation of this engine for maintenance. In many maintenance situations, the engine is operated at low loads and for approximately 30 minutes, some of which the SCR catalyst has not reached appropriate temperature for effectively controlling emissions.

A Tier 4f engine, the lowest-emitting category of diesel engines, would not be cost-effective for this project. This emergency engine will only be allowed to run up to 50 hours per year for maintenance and testing, the maximum NO_x emissions are 1224.5 lb/year for this specific engine model. However, using the emission standard for a tier 2 engine of this size, maximum NO_x emissions would be 1468.4 lb/year. A representative from Hawthorne Cat estimated the cost of an EPA Tier 2 engine to be \$810,000 and the cost of an EPA Tier 4 final engine to be \$1,200,000. Assuming a control efficiency of 90%, the controlled NO_x emissions would be 146.8 lb/year, with overall emission reduction being 1321.56 lb/year. The cost effectiveness is \$48.03 per pound of NO_x reduced, exceeding the \$6.60/lb threshold. For emergency diesel engines over 750 bhp,

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Tier 2 is considered BACT as there is no cost-effective, feasible alternative. Therefore, this engine satisfies all BACT requirements.

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4.3 Toxic New Source Review – Rule 1200

District Rule 1200 applies to any application that is part of a project which results in an emission increase of toxic air contaminants. The rule limits the increase in acute and chronic health hazard index (HHI) to no more than one from the project and limits the increase in cancer risk from the project to no more than one in one million if the engine is not equipped with Toxics BACT (T-BACT) or no more than ten in one million if the project meets T-BACT requirements. The following table contains an in-depth review of Rule 1200 requirements. If a refined HRA was required, the HRA report is attached.

Table 6a: Rule 1200 Applicable Requirements and Discussion

Question	Answer	Discussion
Does the application result in an increase in toxic emissions?	Yes	The application does result in an increase in toxic emissions of specific trace heavy metals and organics (as shown in emission calculations section). See HRA for detail.
Do any special exemptions apply to this equipment?	No	No exemptions apply to this equipment
Are there any other applications that are part of the project?	No	NA
What type of HRA was used?	Refined HRA	
Is the Project Equipped with T-BACT?	No	NA
Cancer Risk increase (per one million)	<1	Meets standard of one.
Chronic HHI	<1	Meets standard of one.
Acute HHI	<1	Meets standard of one.
Passes Rule 1200?	Yes	Maintenance and testing (non-emergency operation) must be limited by permit conditions to 50 hours per calendar year.

Based on this analysis, the proposed engine complies with all applicable requirements of District Rule 1200.

4.4 AB3205

Requirements in the California Health and Safety Code in sections 42301.6 through 42301.9 (a.k.a. "AB3205 requirements") specify that prior to issuing an authority to construct for sources located within 1000 feet of a K-12 school, a 30-day public notification process must be conducted.

This project is located within 1000 feet of a school (SAITech at San Diego Job Corps), so public notice is required for this section.

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4.5 State and Federal Regulations.

This engine is subject to both the State Air Toxic Control Measure for Stationary Engines (Stationary ATCM) and federal EPA issued National Emission Standards for Hazardous Air Pollutants (NESHAPs) and New Source Performance Standards (NSPS).

Applicable requirements of the Stationary ATCM include purchasing an engine certified to EPA standards and meeting specified emission standards of the rule, installing an hour meter, conducting maintenance according to a written plan, restrictions on operating the engine for purposes other than emergency use and limited (50 hours/year) use for maintenance and testing, and maintaining records to substantiate compliance with these requirements. This engine is expected to comply with all these requirements as described in the detailed analysis shown in the table following the discussion of NESHAP/NSPS requirements.

The NESHAP (subpart ZZZZ) requires that all new emergency engines comply with the rule by complying with the NSPS (subpart IIII). Applicable requirements of the NSPS include purchasing a certified engine, operating it as directed by the manufacturer, and maintaining records to substantiate compliance. These requirements closely mirror the ATCM requirements, except that the NSPS is somewhat less stringent in regards to allowable PM emission rate and contains some allowance for other types of operation not allowed by the ATCM. This means the more stringent ATCM requirements apply. A detailed analysis of NESHAP and NSPS requirements is shown in the following table.

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Table 7a: State and Federal Requirement Discussion				
Applicable Section	Requirement	Engine Complies/Expect ed to Comply?	Explanation	Condition
Stationary ATCM				
93115.3	There are no exemptions that apply to this engine	NA	This engine is not one of the engines exempted from any applicable requirements	NA
93115.4	Definitions. Permit conditions ensure that the engine only operates in a manner allowed for engines designated as "Emergency Standby"	Yes	Permit conditions require that the engine operate only as an emergency engine	C40239
93115.5	Requires the use of CARB diesel as fuel.	Yes	Permit conditions will require use of CARB diesel fuel (15 ppm Sulfur by weight), which will ensure compliance with this requirement.	C28412
93115.6(a)(1)	Prohibits non-emergency operation of an emergency engine between 7:30 AM and 3:30 PM during school days if within 500 feet of school and during all school sponsored activities if located on school grounds	Yes	Permit conditions specify this requirement.	C28415
93115.6(a)(2)	Allows for engine to be started 30 minutes prior to rotating outage	Yes	Permit conditions specify this requirement.	C28560
93115.6(a)(3)(A)(1)(b)	Requires that all engines used for emergency purposes be certified to at least tier 3 standards (tier 2 for engines with a rated power in excess of 750 bhp) and have	Yes	Use of an EPA certified tier 3 engine (tier 2 for engines with a rated power in excess of 750 bhp) with PM emission below this level satisfies this requirement	NA

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	Diesel PM emissions less than 0.15 g/bhp-hr			
93115.6(a)(3)(A)(1)(c)	Restricts maintenance and testing operation to no more than 50 hours per calendar year	Yes	Permit conditions specify this requirement.	C28643
93115.6(c)	Does not allow emergency standby engines to operate as part of "demand response programs" unless additional requirements are met	Yes	Permit conditions specify this requirement.	C40907
93115.10(a)-(b)	Requires that specified information is submitted to the District as part of application package	Yes	The submitted application contained all of the required contact/location information, engine data, and emission information	NA
93115.10(d)	Requires installation of a non-resettable hour meter and for engines with DPFs, a backpressure monitor that alerts the operator when the backpressure limit of the engine is approached	Yes	Permit conditions require the installation and use of a non-resettable hour meter. Permit conditions require installation and use of a backpressure monitor between the engine and DPF.	C40721
93115.10(f)	Specifies that the owner or operator must keep records and prepare a monthly summary of hours of operation and purpose (emergency, maintenance and testing, emission testing, start-up testing, other, demand response) of each period of operation	Yes	Permit conditions require that these records be kept and the summary updated monthly	C43431
93115.10(f)	Requires records of CARB diesel fuel certification	Yes	Permit conditions require that documentation of the CARB diesel certification for all fuel used be maintained	C43434

93115.10(f)	States that records must be kept on-site for at least 24 months and off-site for an additional 12 months (total 36 months)	Yes	Compliance with this provision is expected and this requirement is specified in permit conditions.	C43432
93115.13(a)	Allows the use of certification data or other emission test data to demonstrate compliance with emission limits	Yes	The manufacturer's engine rating specific emission data was used to determine compliance and for emission calculations	NA
93115.13(f)	For engines equipped with DPFs, allows the use of an engine certified to a PM-10 emission level of no more than 0.15 g/bhp-hr and a verified DPF in lieu of source testing (or other alternative means as listed)	NA	Engine is not equipped with a DPF.	NA

Table 7a: State and Federal Requirement Discussion

Applicable Section	Requirement	Engine Complies/Expected to Comply?	Explanation	Condition
NESHAP ZZZZ				
40 CFR 63.6590(b)-(c)	Requires that new emergency engines comply with the NESHAP by complying with the applicable NSPS	Yes	See NSPS section below.	NA
NSPS IIII				
40 CFR 60.4205	Requires that engines meet emission limits equivalent to tier 3 levels (tier 2 for engines 750 bhp or higher)	Yes	Use of an EPA certified tier 3 engine (tier 2 for engines with a rated power in excess of 750 bhp) satisfies this requirement	NA
40 CFR 60.4207	Sets maximum fuel sulfur limits for fuel equivalent to CARB diesel requirements	Yes	Permit conditions will require use of CARB diesel fuel (15 ppm Sulfur by weight), which will ensure compliance with this requirement.	C28412

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40 CFR 60.4209	Requires installation of a non-resettable hour meter	Yes	Permit conditions require the installation and use of a non-resettable hour meter.	C28419
40 CFR 60.4211(a)	Requires that the engine be operated according to manufacturer's emission related instructions and that no changes are made to emission related settings unless allowed by manufacturer	Yes	Permit conditions specify this requirement.	C43433
40 CFR 60.4211(c)	Requires that the engine be certified under EPA regulations	Yes	Use of an EPA certified tier 3 engine (tier 2 for engines with a rated power in excess of 750 bhp)	NA
40 CFR 60.4211(e)	Restricts operation of emergency engines for non-emergency purposes	Yes	Compliance ensured by permit conditions for ATCM limiting operation for maintenance and testing to no more than 50 hours per calendar year and restricting non-emergency operation for only those uses allowed by the permit (maintenance and testing). ATCM requirements more stringent than NSPS.	C40239, C40907, C28643
40 CFR 60.4214(b)	Requires records of operation to show that engine is operated as an emergency engine	Yes	Compliance is expected and specified in permit conditions.	C43431
40 CFR 60.4214(c)	For engines with DPFs, requires records of corrective actions taken when the high backpressure limit is approached	NA	Engine is not equipped with a DPF.	NA
40 CFR 60.7(f)	Requires that all records be maintained for at least 2 years	Yes	Compliance with this provision is expected and this requirement is specified in permit conditions.	C43432

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4.6 Title V.

This is not a Title V facility therefore this requirement does not apply.

5.0 Recommendations

This equipment is expected to comply with all rules and regulations, and therefore it is recommended, pending completion of the AB3205 noticing and comment process, that an authority to construct be issued with the following conditions.

6.0 Recommended Conditions

Standard BEC APCD2020-CON-001647 with a 50 hour/year limit for non-emergency/maintenance and testing use.

Facility Name: US Border Protection Air & Marine
 Application Number: APCD2023-APP-007687
 Site ID Number: APCD1987-SITE-07196
 Equipment Address: 1802 Saturn Blvd
 San Diego, CA 92154
 Contact Name: Patrick Tam
 Contact Title: Consultant
 Contact Affiliation: US Border Protection Air & Marine
 Contact Number: (714) 893-7900
 Contact E-Mail: tam@proehs.com
 Project Engineer: John Lee

Make: John Deere
 Model: 6135HFG75A
 S/N: TBD
 Fuel Type: diesel
 BHP Rating: 755
 Model Year: 2023
 Tier Level: 2
 Engine Family Number: PJDXL13.5132
 Device Driven: 500 kW generator

NOx, g/BHP-hr:	4.18	5.60	g/kW-hr
CO, g/BHP-hr:	0.45	0.6	g/kW-hr
NMHC, g/BHP-hr:	0.09	0.12	g/kW-hr
PM10, g/BHP-hr:	0.03	0.04	g/kW-hr

Fuel Usage, gal/hr: 35.5
 Operating Schedule, hrs/day: 24
 Operating Schedule, hrs/yr: 50

Exhaust Flow Rate, cfm: 3433
 Exhaust Temperature, °F: 975
 Stack Height above ground, ft: 9.2
 Stack Diameter, ft: 0.63

Nearest School, ft:	40	
Residential Receptor, m:	163.07	535 ft
Occupational Receptor, m:	25.00	40 ft
Acute Receptor, m:	25.00	40 ft

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

APPLICATION INFORMATION:

Applicant:	US Border Protection Air & Marine	Application No.:	APCD2023-APP-007687	ID No.	APCD1987-SITE-07196
Equipment Address:	1802 Saturn Blvd San Diego, CA 92154	Engine Make:	John Deere	Model Year:	2023
Device Driven:	500 kW generator	Engine Model:	6135HFG75A	Tier Level:	2
		Serial Number:	TBD	Engine Family #:	PJDXL13.5132

EMISSION INFORMATION:

Engine Size:	755 BHP	Fuel Usage:	35.50 gal/hr	Heating Value:	137,000 Btu/gal
Operating Schedule:	24 hrs/day		days/wk		wks/yr
					days/yr
					50 hrs/yr

	Emission Factors					Control Equipment	
	g/bhp-hr	g/kW-hr	lbs/bhp-hr ²	lb/MMBtu ²		Efficiency	Equipment
NOx	4.18	5.60	2.4E-02	3.10	NOx		
CO	0.45	0.60	5.3E-03	0.81	CO		
NMHC	0.09	0.12	7.3E-04	0.10	NMHC		
PM10	0.03	0.04	7.0E-04	0.07	PM10		
SOx			4.0E-03	0.05	SOx		

- Notes: 1. g/bhp-hr and g/kW-hr guaranteed by engine manufacturer and/or EPA certification (1 lb = 453.6 g)
2. other emission factors are from AP-42
3. lb/hp-hr limit is based on power output; lb/MMBtu is based on heat input
4. this 5th edition version AP-42 was published in 1995 when the sulfur content CA diesel was 500 ppm (0.05% by weight), current sulfur content of CA diesel is 15 ppm; assume all sulfur in fuel is converted to SO₂

EMISSIONS CALCULATIONS:

NOx =	4.2E+00	g/BHP-hr	x	755	bhp	x	lb/453.6 g	=	6.95	lbs/hr
CO =	4.5E-01	g/BHP-hr	x	755	bhp	x	lb/453.6 g	=	0.75	lbs/hr
NMHC =	9.0E-02	g/BHP-hr	x	755	bhp	x	lb/453.6 g	=	0.15	lbs/hr
PM10 =	3.0E-02	g/BHP-hr	x	755	bhp	x	lb/453.6 g	=	0.05	lbs/hr
SOx =	4.0E-03	lbs/BHP-hr	x	755	bhp			=	3.02	lbs/hr

fuel usage: 250 lbs/hr (if not given, assume fuel consumption is 0.054 gal/BHP, diesel fuel density is 7.05 lb/gal)

exhaust flow rate = 2,637 dscfm (@ 15% O₂, assume 9190 dscf exhaust per MMBtu heat input)

NOx =		ppm	x	158222	scfh	x	46 lbs NO ₂ / 385 scf =	0.00	lbs/hr
CO =		ppm	x	158222	scfh	x	28 lbs CO / 385 scf =	0.00	lbs/hr
VOC =		ppm	x	158222	scfh	x	16 lbs CH ₄ / 385 scf =	0.00	lbs/hr

Assume all sulfur in fuel is released as SO₂

SO ₂ =	15	lb S/10 ⁶ lb fuel	x	7.05 lb fuel/gal	35.50	gal/hr	x	64 lb SO ₂ / 32 lb S =	0.008	lbs/hr
								=	0.00003	percent by volume
NOx =	6.95	lbs/hr	÷	158222	scfh	x	385 scf / 46 lbs NO ₂ =	367.8	ppm	
CO =	0.75	lbs/hr	÷	158222	scfh	x	385 scf / 28 lbs CO =	64.7	ppm	
NMHC =	0.15	lbs/hr	÷	158222	scfh	x	385 scf / 16 lbs CH ₄ =	22.7	ppm	

Grain Loading:

Calculated Fuel Usage: 250 lbs/hr (assume fuel consumption is 0.054 gal/BHP, diesel fuel density is 7.05 lb/gal)

exhaust flow rate = 158,222 dscfh (@ 12% CO₂, assume engine exhaust is 231 dscf/lb fuel)

grain loading = 0.0022 grains/dscf

EMISSIONS SUMMARY:

	lbs/hr	lbs/day	tons/yr	lbs/yr
NOx	7.0	167	0.2	348
CO	0.7	18	0.02	37
NMHC	0.1	3.6	0.004	7.5
PM10	0.05	1.2	0.001	2.5
SOx	0.008	0.18	0.0002	0.4

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

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

Facility Name: US Border Protection Air & Marine
Equipment Location: 1802 Saturn Blvd San Diego, CA 92154

Project Description: Emergency Diesel Engine
Control Equipment: None

Operating Schedule:	Hours per Day: 1	Weeks per Year: 50
	Days per Week: 1	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		
<input checked="" type="checkbox"/> Exhaust Stack or Duct	<input type="checkbox"/> Passive Ventilation	<input type="checkbox"/> Released through windows and/or roll-up doors	<input type="checkbox"/> Fugitive Emissions

Point Source

Parameter	Point Source #1	Point Source #2	Point Source #3
Height of release above ground (ft)	9.2		
Stack Diameter (or length x width) (ft)	0.63		
Exhaust Gas Temperature (°F) ¹	975		
Exhaust Gas Flow (ACFM)	3433		
Direction of Flow ²	vertical		
Flow Obstruction ³	no		
Distance to Nearest Property Line (+/- 10ft)	40.00		

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:	4/17/2023	Site ID:	APCD1987-SITE-07196
Project Engineer:	John Lee	Appl. Number(s):	APCD2023-APP-007687
Fees Collected:		PTO No. (if existing):	

Diesel IC Engine Screening Risk
San Diego Air Pollution Control District
Version 1.8 (Released June 9, 2020)

#####

Facility ID:	APCD1987-SITE-07196
Facility Name:	US Border Protection Air & Marine
Application	APCD2023-APP-007687
Permit	TBD
Project Engineer:	John Lee

Notes:

PARAMETER		RANGE REQUIRED FOR USE OF SCREENING TABLES
Does this project consist of a single engine?	yes	Yes
Is this application equipped with T-BACT?	No	
Maximum Rated Horsepower (bhp):	755	50 - 1500 bhp
Particulate Emission Factor (g/bhp-hr):	0.03	
Annual Usage (hours/year):	50	
Maximum Hourly Fuel Usage (gal/hr):	35.5	
Nearby Buildings Present?	Yes	Select Yes if within 100 Feet of Stack
Is the stack unobstructed and exhausts in a vertical direction?	Yes	Yes
Receptor Distances (meters)		
Residential ¹	163.07	25 meters or greater
Occupational ²	25.00	25 meters or greater
Acute ³	25.00	25 meters or greater

Risk Estimates:

Cancer Risk (Residential): 1.33 in one million
Cancer Risk (Occupational): 3.13 in one million
Acute HHI: 2.27

Please refer projects to the Toxics Section if:

1. Project consists of more than one engine.
2. Engine is not within the range required for this table, or
3. Risk estimates are greater than the allowable limits. For projects equipped with T-BACT, the allowable cancer risk is 10 in one million or less. For non-TBACT projects, the allowable cancer risk is one in one million or less. For all projects, the allowable acute HHI is one or less.

If the projects passes R1200, please e-mail the completed form to the Toxics Section.

Notes:

- 1) Residential receptor distance is the distance between the stack and the nearest residence.
- 2) Occupational receptor distance is the distance between the stack and the nearest business.
- 3) Acute receptor distance is the distance between the stack and the nearest off-site location where extended (i.e. one-hour) public access is possible.

Rule 1200 Health Risk Assessment

Facility Name: US Border Protection Air & Marine
Facility ID: APCD1987-SITE-07196
Application: APCD2023-APP-007687
Project Engineer: John Lee
Modeler: Bill Reeve
Toxics Risk Analyst: Andrew Bernabe
Date Completed by Toxics: 4/28/2023
HRA Tools Used: Lakes-AERMOD (Version 22112)/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)	0.29 in one million
Chronic Noncancer Health Hazard Index (Resident)	= 7.66E-05
8-Hour Noncancer Health Hazard Index (Worker)	= NA*
Acute Health Hazard Index (**PMI)	= 1.06E-01

*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.

Rule 1200 Health Risk Assessment Report

US Border, 07196

Application Number 007687

page 2 of 3

4/28/2023

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		2.48E+00
ACETALDEHYDE	2.78E-02	1.39E+00
ACROLEIN	1.20E-03	6.02E-02
ARSENIC COMPOUNDS	5.68E-05	2.84E-03
BENZENE	6.61E-03	3.31E-01
BUTADIENE, 1,3-	7.70E-03	3.85E-01
CADMIUM AND COMPOUNDS	5.33E-05	2.66E-03
CHLOROBENZENE	7.10E-06	3.55E-04
CHROMIUM (HEXAVALENT)	3.55E-06	1.78E-04
COPPER AND COMPOUNDS	1.46E-04	7.28E-03
ETHYL BENZENE	3.87E-04	1.93E-02
FORMALDEHYDE	6.13E-02	3.06E+00
HEXANE-N	9.55E-04	4.77E-02
HYDROCHLORIC ACID	6.61E-03	3.31E-01
LEAD & COMPOUNDS	2.95E-04	1.47E-02
MANGANESE AND COMPOUNDS	1.10E-04	5.50E-03
MERCURY AND COMPOUNDS	7.10E-05	3.55E-03
NAPHTHALENE	6.99E-04	3.50E-02
NICKEL AND NICKEL COMPOUNDS	1.38E-04	6.92E-03
POLYCYCLIC AROM. HC (PAH) [Treat as B(a)P for HRA]	1.29E-03	6.43E-02
PROPYLENE	1.66E-02	8.29E-01
SELENIUM AND COMPOUNDS	7.81E-05	3.91E-03
TOLUENE	3.74E-03	1.87E-01
XYLENES	1.51E-03	7.53E-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)	0.03
Engine horsepower (bhp)	755
Fuel Consumption (gal/hr)	35.5
Annual hours of operation	50

Release Parameters:

Exhaust Flow Rate, cfm:	3433
Exhaust Temperature, °F:	975
Stack Height above ground, ft:	9.2
Stack Diameter, ft:	0.63

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 Chula Vista 2010/2012 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.

Since there is no school within a 1 in one million residential cancer risk isopleth, a fraction of time (FAH) was applied to ages less than 16 years.

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

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	RISK_SUM	SCENARIO DETAILS	INH_RISK
1	Engine		9901	DieselExhF	0.000383	2.85E-07	30YrCance *	2.85E-07

Chronic

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	RESP
1	Engine		9901	DieselExhF	0.000383	NonCance	7.66E-05

Acute

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	EYE
1	Engine		9901	DieselExhF	0	NonCance	0.00E+00
2	Engine		75070	Acetaldehy	1.77	NonCance	3.77E-03
3	Engine		107028	Acrolein	0.0768	NonCance	3.07E-02
4	Engine		7440382	Arsenic	0.00362	NonCance	0.00E+00
5	Engine		71432	Benzene	0.422	NonCance	0.00E+00
6	Engine		106990	1,3-Butadi	0.491	NonCance	0.00E+00
7	Engine		7440439	Cadmium	0.0034	NonCance	0.00E+00
8	Engine		108907	Chloroben	0.000453	NonCance	0.00E+00
9	Engine		18540299	Cr(VI)	0.000226	NonCance	0.00E+00
10	Engine		7440508	Copper	0.00929	NonCance	0.00E+00
11	Engine		100414	Ethyl Benz	0.0247	NonCance	0.00E+00
12	Engine		50000	Formaldeh	3.91	NonCance	7.11E-02
13	Engine		110543	Hexane	0.0609	NonCance	0.00E+00
14	Engine		7647010	HCl	0.422	NonCance	2.01E-04
15	Engine		7439921	Lead	0.0188	NonCance	0.00E+00
16	Engine		7439965	Manganes	0.00702	NonCance	0.00E+00
17	Engine		7439976	Mercury	0.00453	NonCance	0.00E+00
18	Engine		91203	Naphthale	0.0446	NonCance	0.00E+00
19	Engine		7440020	Nickel	0.00883	NonCance	0.00E+00
20	Engine		1151	PAHs-w/o	0.082	NonCance	0.00E+00
21	Engine		115071	Propylene	1.06	NonCance	0.00E+00
22	Engine		7782492	Selenium	0.00498	NonCance	0.00E+00
23	Engine		108883	Toluene	0.239	NonCance	4.78E-05
24	Engine		1330207	Xylenes	0.096	NonCance	4.36E-06

1.06E-01



Imperial Beach
Border Patrol Station

PMI

145.53

279.86

401.53

506.25

497.21

413.26

339.51

198.83

450.54

499.07

366.65

FACILITY NAME: US Border Protection Air & Marine

Fuel Consumption (gal/hr): 35.50
 Diesel Particulate Emission Factor (g/hp-hr): 0.02984
 Brake Horsepower (hp): 755
 Annual Hours of Operation (hrs): 50

FACILITY ID: APCD1987-SITE-07196
 APPLICATION NO.: APCD2023-APP-007687
 ENGINEER: John Lee

RISK ANALYST ONLY

DISPERSION MODELING DATA

Annual Receptor Type: Resident
 ANNUAL DISPERSION FACTOR (µg/m³)/(g/s): 10.7
 Distance (m):
 Hourly Receptor Type: PMI
 HOURLY DISPERSION FACTOR (µg/m³)/(g/s): 506.3
 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/m ³	Annual GLC µg/m ³
DIESEL PARTICULATE			2.48E+00		3.57E-05		3.83E-04
ACETALDEHYDE	7.83E-01	2.78E-02	1.39E+00	3.50E-03		1.77E+00	
ACROLEIN	3.39E-02	1.20E-03	6.02E-02	1.52E-04		7.68E-02	
ARSENIC COMPOUNDS	1.60E-03	5.68E-05	2.84E-03	7.16E-06		3.62E-03	
BENZENE	1.86E-01	6.61E-03	3.31E-01	8.33E-04		4.22E-01	
BUTADIENE, 1,3-	2.17E-01	7.70E-03	3.85E-01	9.71E-04		0.491436	
CADMIUM AND COMPOUNDS	1.50E-03	5.33E-05	2.66E-03	6.71E-06		3.40E-03	
CHLOROBENZENE	2.00E-04	7.10E-06	3.55E-04	8.95E-07		4.53E-04	
CHROMIUM (HEXAVALENT)	1.00E-04	3.55E-06	1.78E-04	4.47E-07		2.26E-04	
COPPER AND COMPOUNDS	4.10E-03	1.46E-04	7.28E-03	1.83E-05		9.29E-03	
ETHYL BENZENE	1.09E-02	3.87E-04	1.93E-02	4.88E-05		2.47E-02	
FORMALDEHYDE	1.73E+00	6.13E-02	3.06E+00	7.72E-03		3.91E+00	
HEXANE-N	2.69E-02	9.55E-04	4.77E-02	1.20E-04		6.09E-02	
HYDROCHLORIC ACID	1.86E-01	6.61E-03	3.31E-01	8.33E-04		4.22E-01	
LEAD & COMPOUNDS	8.30E-03	2.95E-04	1.47E-02	3.71E-05		1.88E-02	
MANGANESE AND COMPOUNDS	3.10E-03	1.10E-04	5.50E-03	1.39E-05		7.02E-03	
MERCURY AND COMPOUNDS (INORGANIC)	2.00E-03	7.10E-05	3.55E-03	8.95E-06		4.53E-03	
NAPHTHALENE	1.97E-02	6.99E-04	3.50E-02	8.81E-05		4.46E-02	
NICKEL AND NICKEL COMPOUNDS	3.90E-03	1.38E-04	6.92E-03	1.74E-05		8.83E-03	
POLYCYCLIC AROM. HC (PAH) [Treat as B(a)P for	3.62E-02	1.29E-03	6.43E-02	1.62E-04		8.20E-02	
PROPYLENE	4.67E-01	1.66E-02	8.29E-01	2.09E-03		1.06E+00	
SELENIUM AND COMPOUNDS	2.20E-03	7.81E-05	3.91E-03	9.84E-06		4.98E-03	
TOLUENE	1.05E-01	3.74E-03	1.87E-01	4.71E-04		2.39E-01	
XYLENES	4.24E-02	1.51E-03	7.53E-02	1.90E-04		9.60E-02	

Facility Name: US Border Protection Air & Marine
Application Number: APCD2023-APP-007687
Site ID Number: APCD1987-SITE-07196
Equipment Address: 1802 Saturn Blvd
San Diego, CA 92154
Contact Name: Patrick Tam
Contact Title: Consultant
Contact Affiliation: US Border Protection Air & Marine
Contact Number: (714) 893-7900
Contact E-Mail: tam@proehs.com
Project Engineer: John Lee

Make: John Deere
Model: 6135HFG75A
S/N: TBD
Fuel Type: diesel
BHP Rating: 755
Model Year: 2023
Tier Level: 2
Engine Family Number: PJDXL13.5132
Device Driven: 500 kW generator

NOx, g/BHP-hr:	4.18	5.60	g/kW-hr
CO, g/BHP-hr:	0.45	0.6	g/kW-hr
NMHC, g/BHP-hr:	0.09	0.12	g/kW-hr
PM10, g/BHP-hr:	0.03	0.04	g/kW-hr

NOx, g/BHP-hr: + NMHC, g/BHP-hr: 4.27

Fuel Usage, gal/hr: 35.5
Operating Schedule, hrs/day: 1
Operating Schedule, hrs/yr: 50

Exhaust Flow Rate, cfm: 3433
Exhaust Temperature, °F: 975
Stack Height above ground, ft: 9.2
Stack Diameter, ft: 0.63

Nearest School, ft: 40
Residential Receptor, m: 163.07 535 ft
Occupational Receptor, m: 25.00 40 ft
Acute Receptor, m: 25.00 40 ft

Vertical Exhaust? (yes/no): yes
Flapper Valve? (flapper/raincap): 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: US Border Protection Air & Marine
Equipment Location: 1802 Saturn Blvd San Diego, CA 92154

Project Description: Emergency Diesel Engine

Control Equipment: None

Operating Schedule:	Hours per Day:	1	Weeks per Year:	50
	Days per Week:	1	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
<input checked="" type="checkbox"/> Exhaust Stack or Duct	<input type="checkbox"/> Passive Ventilation <input type="checkbox"/> Released through windows and/or roll-up doors <input type="checkbox"/> Fugitive Emissions

Point Source

Parameter	Point Source #1	Point Source #2	Point Source #3
Height of release above ground (ft)	9.2		
Stack Diameter (or length x width) (ft)	0.63		
Exhaust Gas Temperature (°F) ¹	975		
Exhaust Gas Flow (ACFM)	3433		
Direction of Flow ²	vertical		
Flow Obstruction ³	no		
Distance to Nearest Property Line (+/- 10ft)	40.00		

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:	4/17/2023	Site ID:	APCD1987-SITE-07196
Project Engineer:	John Lee	Appl. Number(s):	APCD2023-APP-007687
Fees Collected:		PTO No. (if existing):	

*** MODELOPTs: RegDEFAULT CONC ELEV RURAL SigA Data

*** MODEL SETUP OPTIONS SUMMARY ***

SO STARTING

** Source Location **

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

LOCATION STCK1 POINT 490479.000 3603264.650 12.120

** Source Parameters **

SRCPARAM STCK1 1.0 2.804 797.039 55.945624513482 0.192024

** 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 RURAL Dispersion Only.
- * CCVR_Sub - Meteorological data includes CCVR substitutions
- * TEMP_Sub - Meteorological data includes TEMP substitutions
- * 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 17928 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.


```
**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) =    53.00 ; 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: 7687_Border.err
**File for Summary of Results: 7687_Border.sum

```

```

*** AERMOD - VERSION 22112 ***
*** AERMET - VERSION 22112 ***

```

04/27/23
16:41:46
PAGE 2

```
*** MODELOPTs:      RegDFAULT  CONC  ELEV  RURAL  SigA  Data
```

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

[illegible]

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,
*** AERMOD - VERSION 22112 *** *** C:\Users\breeve\OneDrive - County of San Diego\HDrive\Modeling Proje ***
*** AERMET - VERSION 22112 *** *** ***

```

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16:41:46
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL SigA Data

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

Surface file: ..\..\..\Meteorology Documents\AERMET Files\AERMET 22112 PROJECTS\CVA\CVA_2010_2 Met Version: 22112
Profile file: ..\..\..\Meteorology Documents\AERMET Files\AERMET 22112 PROJECTS\CVA\CVA_2010_2
Surface format: FREE
Profile format: FREE
Surface station no.: 23188 Upper air station no.: 3190
Name: SAN_DIEGO/LINDBERGH_FIELD Name: UNKNOWN
Year: 2010 Year: 2010

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
10	01	01	1	01	-1.0	0.031	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	48.	10.0	283.1	10.0	
10	01	01	1	02	-1.0	0.030	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	62.	10.0	283.1	10.0	
10	01	01	1	03	-1.0	0.031	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	45.	10.0	282.5	10.0	
10	01	01	1	04	-1.0	0.030	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	79.	10.0	281.9	10.0	
10	01	01	1	05	-0.2	0.015	-9.000	-9.000	-999.	4.	1.3	0.03	0.98	1.00	0.44	356.	10.0	280.8	10.0	
10	01	01	1	06	-1.0	0.031	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	45.	10.0	280.8	10.0	
10	01	01	1	07	-0.8	0.031	-9.000	-9.000	-999.	13.	3.3	0.03	0.98	1.00	0.89	47.	10.0	281.9	10.0	
10	01	01	1	08	-0.6	0.030	-9.000	-9.000	-999.	13.	4.3	0.03	0.98	0.49	0.89	78.	10.0	282.5	10.0	
10	01	01	1	09	19.1	0.086	0.293	0.014	47.	61.	-3.1	0.03	0.98	0.30	0.89	24.	10.0	286.4	10.0	
10	01	01	1	10	60.3	0.098	0.561	0.010	106.	73.	-1.4	0.03	0.98	0.23	0.89	351.	10.0	288.1	10.0	
10	01	01	1	11	59.0	0.158	0.715	0.009	224.	150.	-6.0	0.03	0.98	0.21	1.78	311.	10.0	290.8	10.0	
10	01	01	1	12	67.1	0.189	0.858	0.008	341.	197.	-9.1	0.03	0.98	0.20	2.23	313.	10.0	292.5	10.0	
10	01	01	1	13	66.4	0.159	0.922	0.008	427.	153.	-5.5	0.03	0.98	0.20	1.78	305.	10.0	293.6	10.0	
10	01	01	1	14	57.3	0.187	0.919	0.008	490.	193.	-10.2	0.03	0.98	0.21	2.23	278.	10.0	294.8	10.0	
10	01	01	1	15	38.8	0.237	0.827	0.008	526.	277.	-31.0	0.03	0.98	0.24	3.12	289.	10.0	293.1	10.0	
10	01	01	1	16	20.7	0.173	0.678	0.008	543.	174.	-22.7	0.03	0.98	0.33	2.23	296.	10.0	291.4	10.0	
10	01	01	1	17	-1.5	0.046	-9.000	-9.000	-999.	46.	5.7	0.03	0.98	0.60	1.34	337.	10.0	291.4	10.0	
10	01	01	1	18	-1.6	0.046	-9.000	-9.000	-999.	23.	5.4	0.03	0.98	1.00	1.34	337.	10.0	290.3	10.0	
10	01	01	1	19	-0.2	0.015	-9.000	-9.000	-999.	5.	1.8	0.03	0.98	1.00	0.44	252.	10.0	288.6	10.0	
10	01	01	1	20	-0.2	0.015	-9.000	-9.000	-999.	4.	1.8	0.03	0.98	1.00	0.44	113.	10.0	287.5	10.0	
10	01	01	1	21	-0.8	0.030	-9.000	-9.000	-999.	13.	3.3	0.03	0.98	1.00	0.89	122.	10.0	286.9	10.0	
10	01	01	1	22	-2.1	0.046	-9.000	-9.000	-999.	23.	4.0	0.03	0.98	1.00	1.34	99.	10.0	286.4	10.0	
10	01	01	1	23	-1.0	0.030	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	331.	10.0	285.3	10.0	
10	01	01	1	24	-1.0	0.031	-9.000	-9.000	-999.	13.	2.6	0.03	0.98	1.00	0.89	40.	10.0	285.3	10.0	

First hour of profile data
YR MO DY HR HEIGHT F WDIR WSPD AMB_TMP sigmaA sigmaW sigmaV
10 01 01 01 10.0 1 48. 0.89 283.2 30.0 -99.00 0.41

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

▲ *** AERMOD - VERSION 22112 *** C:\Users\breeve\OneDrive - County of San Diego\HDrive\Modeling Proje ***
*** AERMET - VERSION 22112 ***

*** MODELOPTs: RegDFAULT CONC ELEV RURAL SigA Data

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16:41:46
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*** 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	12.17883 AT (490553.35, 3603277.52,	12.15, 12.15,	0.00)	DC
	2ND HIGHEST VALUE IS	12.04146 AT (490563.24, 3603277.55,	12.21, 12.21,	0.00)	DC
	3RD HIGHEST VALUE IS	11.98428 AT (490543.46, 3603277.49,	12.12, 12.12,	0.00)	DC
	4TH HIGHEST VALUE IS	11.69664 AT (490573.13, 3603277.58,	12.29, 12.29,	0.00)	DC
	5TH HIGHEST VALUE IS	11.26197 AT (490533.57, 3603277.46,	12.10, 12.10,	0.00)	DC
	6TH HIGHEST VALUE IS	11.22084 AT (490583.02, 3603277.61,	12.35, 12.35,	0.00)	DC
	7TH HIGHEST VALUE IS	10.72391 AT (490562.50, 3603288.50,	12.63, 12.63,	0.00)	DC
	8TH HIGHEST VALUE IS	10.66759 AT (490592.91, 3603277.64,	12.40, 12.40,	0.00)	DC
	9TH HIGHEST VALUE IS	10.57546 AT (490577.50, 3603288.50,	12.68, 12.68,	0.00)	DC
	10TH HIGHEST VALUE IS	10.20861 AT (490547.50, 3603288.50,	12.52, 12.52,	0.00)	DC

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

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*** MODELOPTs: RegDFAULT CONC ELEV RURAL 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	506.25175 ON 12092623:	AT (490509.05, 3603170.84,	12.16, 12.16,	0.00) DC

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

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*** MODELOPTs: RegDFAULT CONC ELEV RURAL SigA Data

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 456 Informational Message(s)

A Total of 26304 Hours Were Processed

A Total of 161 Calm Hours Identified

A Total of 295 Missing Hours Identified (1.12 Percent)

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

***** WARNING MESSAGES *****
SO W320 37 PPARM: Input Parameter May Be Out-of-Range for Parameter VS
MX W403 99 PFLCNV: Turbulence data is being used w/o ADJ_U* option SigA Data

HARP2 - HRACalc (dated 22118) 4/28/2023 4:28:13 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

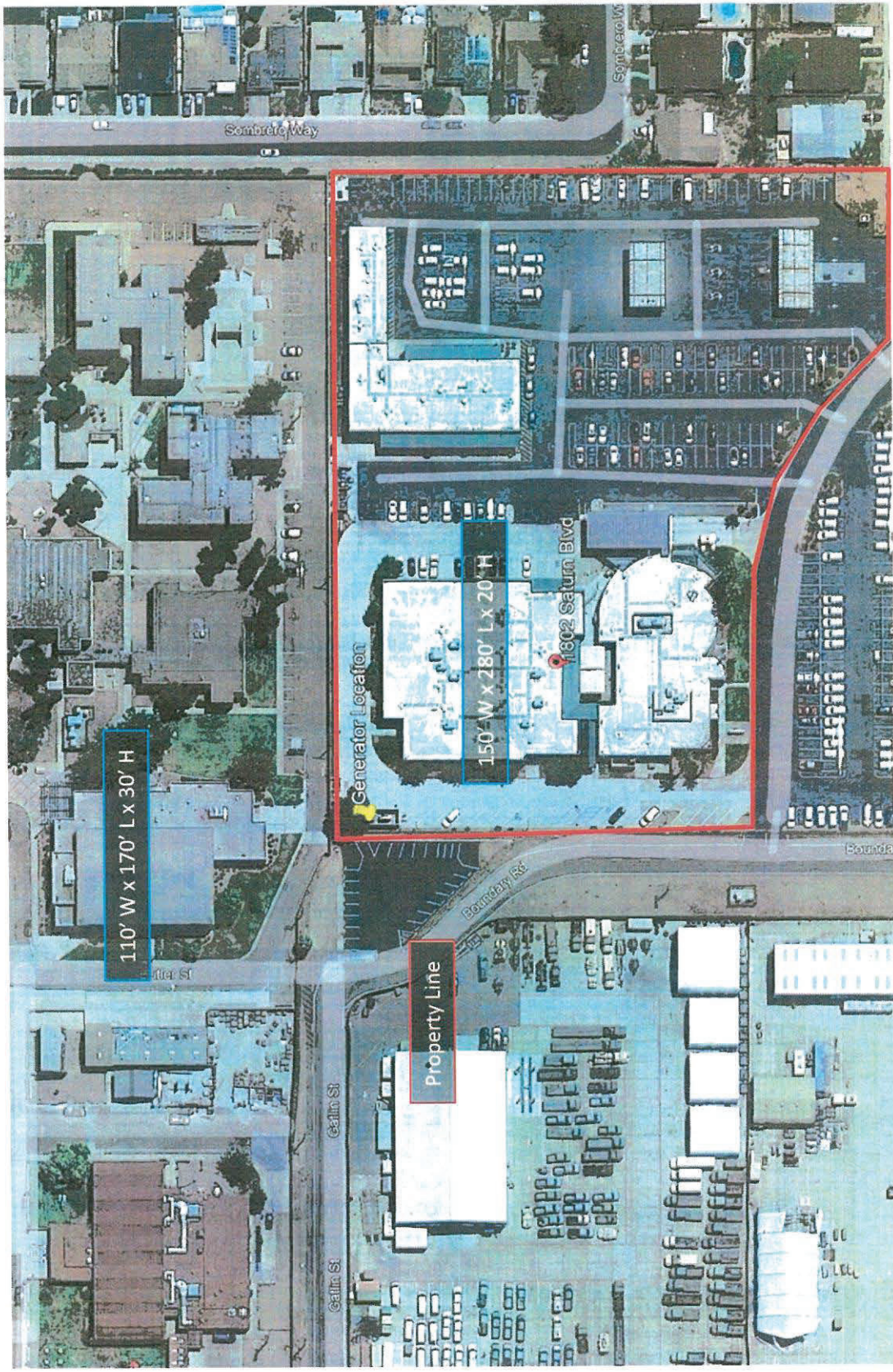
Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
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\7687 US Border\Risk\ResidentCancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\abernabe\Desktop\7687 US Border\Risk\ResidentNCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\abernabe\Desktop\7687 US Border\Risk\ResidentNCAcuteRisk.csv
HRA ran successfully



ProActive
Consulting Group

Consulting Group

Bernabe, Andrew

From: Swaney, Jim
Sent: Thursday, April 27, 2023 4:53 PM
To: Bernabe, Andrew
Cc: Lee, John
Subject: FW: HRA request: APCD2023-APP-007687
Attachments: propertyLine_buildingDimension.pdf; APCD2023-APP-007687_Calculations.xlsm

Andrew, this has been assigned to you.

From: Reeve, Bill <Bill.Reeve@sdapcd.org>
Sent: Thursday, April 27, 2023 4:48 PM
To: Amberg, Stephen <Stephen.Amberg@sdapcd.org>; Bernabe, Andrew <Andrew.Bernabe@sdapcd.org>; Canter, Adam <Adam.Canter@sdapcd.org>; DiFulvio, Jaime <Jaime.DiFulvio@sdapcd.org>; Nguyen, Tony <Tony.Nguyen2@sdapcd.org>; Ossowski, Peter <Peter.Ossowski@sdapcd.org>; Swaney, Jim <Jim.Swaney@sdapcd.org>; Wong, Benjamin <Benjamin.Wong@sdapcd.org>
Cc: Lee, John <John.Lee@sdapcd.org>
Subject: FW: HRA request: APCD2023-APP-007687

I have completed the modeling for US Border. The modeling zip file is in [7687 US Border](#)

-Bill

Bill Reeve
Associate Meteorologist
San Diego County Air Pollution Control District
Bill.Reeve@sdapcd.org
O 858-586-2773 M 858-945-3732
<http://www.sdapcd.org>
10124 Old Grove Rd, San Diego CA, 92131

From: Lee, John <John.Lee@sdapcd.org>
Sent: Monday, April 17, 2023 1:19 PM
To: Reeve, Bill <Bill.Reeve@sdapcd.org>; Nguyen, Tony <Tony.Nguyen2@sdapcd.org>
Cc: Canter, Adam <Adam.Canter@sdapcd.org>; DiFulvio, Jaime <Jaime.DiFulvio@sdapcd.org>; Swaney, Jim <Jim.Swaney@sdapcd.org>
Subject: HRA request: APCD2023-APP-007687

Hello Bill and Tony,

Here is an HRA request. Please have the modeler post the results in [7687 US Border](#).

Let me know if you need more information.

Thank you,

John L.