ENGINEERING EVALUATION
AUTHORITY TO CONSTRUCT

Facility Name:	Vista Woods Health Associates
Equipment Type:	[34H] California Certified Emergency Engine
Application #:	APCD2023-APP-007981
ID#:	APCD2005-SITE-05602
Equipment/Facility Address:	2000 Westwood Rd. Vista, CA 92083
Facility Contact:	Clay Gardner (Facility Contact) (760) 630-6673 cgardner@ensignservices.net Gerson Garcia Marquez (Application Preparer) (619) 756-1437 gersongm@bsdbuilders.com
Permit Engineer:	11/16/2023 X Austin Stein Austin Stein Jr. Air Pollution Control Engineer Signed by: E100885
Senior Engineer Signature:	2/5/2024 X Nicholas Horres Nicholas Horres Senior Air Pollution Control Engineer Signed by: NHorres

1.0 Background

1.1 Type of Application: New application for a NG/LPG 262 BHP certified emergency engine powering a 150 kW standby generator.

1.2 Permit History: This is the initial application for this equipment.

1.3 Facility Description: This is an emergency standby engine to support the Vista Woods Health Associates operations at this facility. This facility has one (1) active permit with the APCD (APCD2006-PTO-982980) for an emergency diesel engine. No other applications are open at this site.

1.4 Other Background Info: There are no hearing board actions, permit denials, legal settlements, NOV, NTC, or nuisance complaints. The site is not a Title V facility.

2.0 Process Description

2.1 Equipment Description.
Emergency Natural Gas/Propane Engine Generator
Manufacturer: Power Solutions International (PSI);
Model: 8.8L TCAC;
S/N: TBD;
Horsepower (maximum rated): 262;
Model Year: 2023;
Certified with a 3-way (NSCR) catalyst;
Engine Family (EPA): PPSIB8.80EMT;
Driving a 150 kW emergency standby generator;
4-inch diameter flapper-type exhaust, 7.4 ft above ground.

2.2 Process Description.
This is a dual fueled, natural gas and propane powered engine to be used in situations of emergency and for limited operations for maintenance and testing purposes for the Vista Woods Health Associates operation. The facility intends to use the engine for 0.5 hours per week for testing and maintenance. This facility has not indicated an initial commissioning period.

2.3 Emissions Controls.
This is an EPA certified natural gas and propane engine. It is equipped with a 3-way catalyst.

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 PTE for criteria pollutants

	Emission Factor	Hourly Emissions	Daily Emissions	Annual Emissions	
Compound	g/bhp-hr	lbs/hr	lbs/day	tons/year	lbs/yr
NOx	0.025	0.014	0.346	0.000375	0.749
CO	0.97	0.56	13.39	0.014503	29.006
NMHC	0.02	0.012	0.289	0.000313	0.626
PM	NA	0.039	0.944	0.001022	2.045
SOx	NA	0.0012	0.0286	0.000031	0.062

3.2 Estimated Emissions Assumptions

- Table 1 evaluates the emission unit at 24 hours per day and a total of 52 hours per year, assuming full load operations
- Highest emissions factors from each type of fuel (NG or LPG) are shown for each type of pollutant.
- Emissions highlighted in Cyan are from natural gas (NG) calculations, non-highlighted are from propane (LPG) calculations.

- Estimated emissions are calculated for maintenance and testing operations. Emergency use is not counted towards operation limits.
- EPA certified emissions for NOx, CO, VOC; San Diego APCD Method E19 (Engines, Natural Gas Fired, Rich Burn, with Non-Selective Catalytic Reduction) emission factors for PM, SOx and toxic air contaminants.
- Expected actual emissions same as PTE.
- Other standard assumptions as stated in calculation sheets

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 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.

Table 2: Prohibitory Rule Discussion				
Applicable Section	**Requirement**	**Engine Complies?**	**Explanation**	**Condition**
Rule 50	Visible Emissions not to exceed 20% opacity or Ringelmann 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(d)(1)	Emissions of sulfur compounds calculated as SO2 on a dry basis shall not exceed 0.05 % by volume on a dry basis.	Yes	Permit conditions will require use of natural gas with a maximum sulfur content of 10 grains per 100 dscf which will ensure compliance with this requirement.	C28587
Rule 53(d)(2)	Emissions of combustion particulates shall not exceed 0.10 grains per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas which is standardized to 12 percent of carbon dioxide (CO2) by volume.	Yes	Particulate emission from this engine is calculated at 0.004 grains per dry scft gas at 12% CO2 [NG], therefore complies with this requirement.	NA
Rule 62	Sulfur content of liquid fuel shall not exceed 0.5 % sulfur by weight.	Yes	Permit conditions will require use of natural gas with a maximum sulfur content of 10 grains per 100 dscf which will ensure compliance with this requirement.	C28587
Rule 69.4.1				
69.4.1(d)(1)(ii)(E)	Requires new or replacement emergency standby engines to meet the following emission standards: (Rich-burn engines using gaseous	Yes	This engine is rich burn engine using gaseous fuel. The engine complies with these emission standards with 1.7 ppmv NOx [NG], 109 ppmv CO [LPG], 4.1 ppmv VOC [LPG] at 15% oxygen.	

	fuel) NOx: 25 ppmv; VOC: 86 ppmv; CO: 540 ppmw			
69.4.1(e)(1)	Requires an owner or operator of an engine without add-on control equipment, except engines specified in Subsections (b)(3) or (b)(4), to monitor the operating parameters recommended by the engine manufacturer and any additional operating parameters identified by the Air Pollution Control Officer. Such operating parameters may include, but are not limited to: (i) engine air-to-fuel ratio; (ii) engine inlet manifold temperature and pressure; and (iii) oxygen content of the exhaust gas.	N/A	This engine has a manufacturer installed 3-way catalyst as the add-on control device, therefore (e)(2) applies instead of (e)(1).	N/A
69.4.1(e)(2)	Requires an owner or operator of an engine with add-on control equipment, except engines specified in Subsections (b)(3) or (b)(4), to install, operate and maintain in calibration, devices that continuously monitor the operational characteristics of the engine and any NOx emission reduction system as determined necessary to ensure compliance by the Air Pollution Control Officer. Such operational characteristics shall include, but are not limited to:	Yes	This engine has manufacturer installed three-way catalyst and is certified with this three-way catalyst as the add-on control device, therefore, the engine is exempt from this requirement as emergency engine per (b)(5).	N/A

	(i) engine air-to-fuel ratio; (ii) temperature of exhaust gas at the inlet and outlet of the add-on control equipment; (iii) oxygen content of exhaust gas at the inlet and outlet of the add-on control equipment; or *(iv) flow rate of NOx reducing agent added to the engine exhaust gas.*			
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.	C43938
69.4.1(e)(4)	Requires an owner or operator of a new or replacement non-emergency gaseous-fueled engine rated at 1,000 bhp or greater and permitted to operate more than 2,000 hours per calendar year to install, operate, and maintain a Continuous Emissions Monitoring System (CEMS) for NOx and CO.	N/A	This is an emergency engine, therefore is not subject to this requirement.	N/A
69.4.1(e)(5)	Rule 69.4.1(e)(5) requires an owner or operator of a non-emergency gaseous-fueled engine, except engines specified in Subsections (b)(3)(ii), (b)(4)(ii) or (e)(4), to have a trained operator use a portable analyzer to take NOx and CO emission readings.	N/A	This is an emergency engine, therefore is not subject to this requirement.	N/A
69.4.1(f)(1)	Requires an owner or operator of an engine subject to this rule, except engines specified in Subsections (b)(3), (b)(4), (e)(4) or	N/A	This is an emergency engine, therefore is not subject to this requirement per (b)(4)	N/A

	(e)(5), to conduct periodic inspections of the engine and any add-on control equipment, as applicable, to ensure that the engine and control equipment is operated in compliance with the provisions of this rule. Inspections shall be conducted at least once every 4,000 hours of operation, or every six months, whichever is less.			
69.4.1(f)(2)	The owner or operator must conduct periodic maintenance on the engine, 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.	C45281
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. Manual of recommended maintenance will be specified in permit conditions.	C43937
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 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	Yes	Compliance with this provision is expected and this requirement is specified in permit conditions.	C45288

	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.	C43938
69.4.1(g)(8)	Requires an owner or operator of an engine subject to the requirements of Subsection (e)(5) [portable analyzer requirements] to comply with specified recordkeeping.	N/A	This is an emergency engine, therefore is not subject to this requirement.	N/A
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.	C43941
69.4.1(g)(10)	Requires all records required by Subsection (g)(8) to be retained in electronic and/or hardcopy format on-site, or off-site in a central location, for at least three years and made available to the District upon request.	N/A	This is an emergency engine, therefore is not subject to this requirement.	N/A
69.4.1(h)	Specifies test methods for engines subject to testing.	N/A	This emergency engine is not subject to testing per Subsection (b)(4)(i).	N/A

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

4.2 New Source Review (NSR) Rule 20.1-20.4

This application is subject to District NSR rules. At the time of filing, this facility is not considered a 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 3: Classification of Major/PSD Source and Modification New Source Review (NSR) Requirements

	NOx	VOC	PM-10	PM-2.5	SOx	CO	Lead
Major Source Threshold (ton/year)	*50*	*50*	*100*	*100*	*100*	*100*	*100*
Major Source? (yes/no)	***No***	***No***	***No***	***No***	***No***	***No***	***No***
Major Modification Threshold (ton/year)	*25*	*25*	*15*	*10*	*40*	*100*	*0.6*
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**
Federal Major Modification Threshold (ton/year) (Severe non-attainment status)	*25*	*25*	*15*	*10*	*40*	*100*	*0.6*
Federal Major Modification?	***No***	***No***	***No***	***No***	***No***	***No***	***No***
Contemporaneous Net Calculations Performed	***No***	***No***	***No***	***No***	***No***	***No***	***No***
PSD Threshold (ton/year)	*250*	*250*	*250*	*--*	*250*	*250*	*--*
PSD Modification Threshold (ton/year)	*40*	*40*	*15*	*--*	*40*	*100*	*0.6*
PSD New or Modification?	**No**	**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 and sections 20.2(d)(1-2).

Table 4: New Source Review Discussion				
Rule/Requirement	**Requirement**	**Applicability**	**Discussion**	**Condition**
Applicability	Rule 20.2 applies to non-major stationary sources	Yes	This is a non-major stationary source, so Rule 20.2 applies.	NA
Type of application	New	Yes	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	Not triggered, no permit limit	The potential to emit for this pollutant is 0.014 lbs/day, which does not exceed this trigger level, so BACT is not 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 is 0.012 lbs/day, which 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 is 0.039 lbs/day, which 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 is 0.0012 lbs/day, which 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	Not Triggered	The increase in emissions of this air contaminant from this project does not	NA

	of 25 lbs/hr, 250 lbs/day or 40 ton/yr of SOx calculated as SO2		exceed any of these levels, so no AQIA is required.	
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	Emissions from this engine do not trigger PSD requirements.	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

20.2(d)(1) – BACT
No BACT limits were triggered by this engine, therefore no BACT analysis is required for this project.

20.2(d)(2) – AQIA
No AQIA limits were triggered by this engine, therefore no AQIA is required for this project.

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 5: Rule 1200 Applicable Requirements and Discussion

Question	Answer	Discussion
Does the application result in an increase in toxic emissions?	Yes	The application results in an increase in toxic emissions of specific trace heavy metals and organics (as shown in emission calculations section).
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?	De Minimis	Engine passed De Minimis. See calculations attached.
Is the Project Equipped with T-BACT?	Yes	This engine is equipped with a 3-way catalyst which is considered T-BACT for this equipment.
Cancer Risk increase (per one million)	1.2	Project meets standard of ten in one million (T-BACT).
Chronic HHI	0.2≤1	Meets standard of one.
Acute HHI	0.2≤1	Meets standard of one.
Passes Rule 1200?	Yes	Maintenance and testing (non-emergency operation) must be limited by permit conditions to 52 hours per calendar year

De Minimis results based on NG emissions as it resulted in higher risk factor than LPG. 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 (Casita Center for Science/Math/Technology), so public notice is required for this section. A copy of the public notice is attached to the file and when the notice is issued, this evaluation and relevant attachments will be made available on the District's website for review. If any comments are received, they will be reviewed, considered and responded to prior to taking action on the permit including revising any requirements as necessary in response to comments received

4.5 State and Federal Regulations.

This engine is subject to federal EPA issued National Emission Standards for Hazardous Air Pollutants (NESHAPs) and New Source Performance Standards (NSPS). This engine is not subject to ATCM.

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.

NESHAPs - 40 CFR Part 63 Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines (RICE)

§63.6590(c) requires that an affected source that is a new or reconstructed stationary RICE located at an area source to meet the requirements of 40 CFR part 60 Subpart IIII (NSPS), for compression ignition engines or 40 CFR Part 60 Subpart JJJJ (NSPS) for spark ignition engines. No further requirements apply for such engines under this part.
- *This engine is a new RICE located at an area source and must comply with the requirements of 40 CFR Part 60 Subpart JJJJ as shown below. Therefore, it is in compliance with NESHAP requirements.*

NSPS - 40 CFR Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

§ 60.4230(a)(3)(iv) states that the provisions of this subpart are applicable to emergency engines that are manufactured on or after January 1, 2009.
- *This emergency engine was manufactured in 2023, therefore it is subject to the requirement of this subpart.*

§ 60.4233 (c) requires owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are rich burn engines that use LPG or for

emergency stationary ICE with a maximum engine power greater than or equal to 130 HP to comply with the requirement of 40 CFR part 1048.

- *This engine complies with this requirement as per EPA certification for this engine.*

§ 60.4236 requires that after January 1, 2011, owners, and operators of emergency stationary SI ICE with a maximum power of greater than 19 KW (25 HP) to not install engines that do not meet the applicable emission standard requirements of § 60.4233.

- *This engine meets the emission standards requirements of § 60.4233 as shown above.*

§60.4243(a)(1) requires that operators of a certified SI ICE that maintain the engine and control device according to the manufacturer's emission-related written instructions to keep records of conducted maintenance to demonstrate compliance.

- *Records keeping requirements are included in permit conditions.*

§60.4243(b)(1) requires owners or operators of a stationary SI ICE that must comply with the emission standards of §60.4233 to purchase an engine certified for the same model year and demonstrating compliance according to the methods specified in this subpart.

- *This engine is certified for the same model year for engine family PPSIB8.80EMT.*

§60.4243(d) allows emergency stationary ICE to be operated for the purpose of maintenance checks and readiness testing recommended by federal, State or local government for up to 100 hours per year.

- *Permit conditions will allow for testing and maintenance operation of 52 hours per year.*

§60.4243(g) stated that it is expected that air to fuel ratio controllers be used with the operation of three-way catalyst/non-selective catalytic reduction. The air to fuel ratio controller must be maintained and operated appropriately to ensure proper operation of the engine and control device to minimize emissions at all times.

- *This engine is equipped with an internal electronic air to fuel ratio controller and permit conditions will ensure maintenance and operation compliance.*

§60.4245(a) requires that owners and operators of stationary SI ICE to keep records of all notifications, maintenance, certification, compliance with the emission standard requirements if the engine is not certified.

- *This engine is certified. Compliance with this requirement is verified for the engineering evaluation and is included in permit conditions.*

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

Condition BEC APCD2020-CON-001653 with a 52 hour/year limit for non-emergency/maintenance and testing.

All relevant attachments are uploaded to BCMS under the corresponding application number.