Construction Permit
Source Analysis & Technical Review

Company	**PowerSecure, Inc.**	Permit Number	**177578**
City	**Stafford**	Project Number	**379992**
County	**Fort Bend**	Regulated Entity Number	**RN111722674**
Project Type	**Initial**	Customer Reference Number	**CN604772343**
Project Reviewer	**Muna Khalidi**	Received Date	**September 17, 2024**
Site Name	**Target Store 2911**		

Project Overview

PowerSecure currently operates a generator set system at Target Store #2911 located in Stafford, Fort Bend County, Texas for emergency purposes only via unregistered Permit by Rule (PBR) 30 Texas Administrative Code (TAC) 106.511. The generator set is powered by one diesel fuel-fired compression ignition reciprocating internal combustion engine (CI RICE).

PowerSecure proposes to install and operate the generator set system onsite under this New Source Review (NSR) Permit 177578 for both emergency and non-emergency purposes. PBR 30 TAC 106.472 will be incorporated by reference, and the site will no longer utilize PBR 30 TAC 106.511.

Emission Summary

Air Contaminant	Proposed Allowable Emission Rates (tpy)
PM	0.01
PM_{10}	0.01
$PM_{2.5}$	0.01
VOC	0.07
NO_X	0.25
CO	1.32
SO_2	0.01
HAPs	0.01
NH_3	0.01
H_2SO_4	0.01

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	September 24, 2024
Site rating & classification: Permit reviewer checked Compliance History in BOE and confirmed accuracy	Unclassified
Company rating & classification:	0.55 / Satisfactory
Has the permit changed on the basis of the compliance history or rating?	No
Did the Regional Office have any comments? If so, explain.	No

Public Notice Information

Requirement	Date
Legislator letters mailed	09/27/2024
Date 1st notice published	10/23/2024
Publication Name: **The Fort Bend Star**	
Pollutants: carbon monoxide, hazardous air pollutants, nitrogen oxides, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfur dioxide and sulfuric acid	
Date 1st notice Alternate Language published	10/24/2024
Publication Name (Alternate Language): **El Perico**	
1st public notice tearsheet(s) received	10/31/2024
1st public notice affidavit(s) received	10/31/2024
1st public notice certification of sign posting/application availability received	11/25/2024
SB709 Notification mailed	12/18/2024
Date 2nd notice published	
Publication Name:	
Pollutants: PM, PM10, PM2.5, VOC, NOX, CO, SO2, H2SO4, HAPs	
Date 2nd notice published (Alternate Language)	
Publication Name (Alternate Language):	
2nd public notice tearsheet(s) received	
2nd public notice affidavit(s) received	
2nd public notice certification of sign posting/application availability received	

Public Interest

Number of comments received	0
Number of meeting requests received	0
Number of hearing requests received	0
Date meeting held	N/A
Date response to comments filed with OCC	N/A
Date of SOAH hearing	N/A

Federal Rules Applicability

Requirement	
Subject to NSPS?	**Yes**
Subparts **A** & **IIII**	
Subject to NESHAP?	**No**
Subject to NESHAP (MACT) for source categories?	**Yes**
Subparts **A** & **ZZZZ**	

Nonattainment review applicability: The site is in Fort Bend County, which is an area currently designated as severe nonattainment for ozone. The proposed emissions for this greenfield site do not exceed the major source thresholds of 25 tpy NOx or VOC, therefore, nonattainment review is not applicable.

Nonattainment Review Applicability	Ozone as VOC	Ozone as NOx
Proposed Project Emissions (tpy)	0.07	0.25
Nonattainment Threshold (tpy)	25	25
Further review triggered for regulated pollutants?	No	No

PSD review applicability: The site is currently a minor unnamed source with respect to PSD and will remain a minor source after this project. The proposed emission rates of all pollutants are less than their respective PSD thresholds; therefore, PSD review is not applicable.

PSD Review Applicability	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	H_2SO_4	Ozone as VOC
Proposed Project Emissions	0.01	0.01	0.01	1.32	0.25	0.01	0.01	0.07
PSD Minor Source Threshold	250	250	250	250	250	250	250	250
Further review triggered for regulated pollutants?	No	No	No	No	No	No	No	No

Title V Applicability - 30 TAC Chapter 122 Rules

Requirement
Title V applicability: The site is not a Title V major source under 30 TAC Chapter 122

Periodic Monitoring (PM) applicability: The site is not subject to PM under 30 TAC Chapter 122. However, monitoring for the permit is required as follows:

Emission Source	SC No.	PM Condition Summary
Diesel Generator Engine (EPN: EG-1)	10	Visible emissions shall be determined by a standard of no visible emissions exceeding 30 seconds in duration in any six-minute period.
	5, 6	The engine be equipped with a non-resettable run-time meter that records the hours of operation, with a limit of 500 hours per rolling 12-month average.
	12B, 12C	Records to demonstrate the use of ultra-low sulfur diesel and exhaust fluid

Compliance Assurance Monitoring (CAM) applicability: CAM is not applicable since the site is not a major source under Title V.

Process Description

PowerSecure operates a generator set driven by an ultra-low sulfur diesel (ULSD) fuel-fired compression ignition reciprocating internal combustion engine (CI RICE) at Target Store #2911 located in Stafford, Fort Bend County, Texas. The generator set is used for emergency purposes only and authorized via unregistered Permit by Rule (PBR) 30 Texas Administrative Code (TAC) 106.511. The engine providing power to the generator is a Volvo Model TWD1673GE Tier 4 Final engine rated at 931 brake horsepower and equipped with selective catalytic reduction (SCR) to control NOx.

Project Scope

PowerSecure requests authorization under this New Source Review (NSR) Permit 177578 to install the generator set system onsite and operate up to a total of 500 hours per year for both non-emergency situations and emergency situations. Planned maintenance, startup and shutdown emissions (MSS) are included within the proposed emissions rates.

The engine will be equipped with a diesel exhaust fluid (DEF) tank and receive fuel from a sub-base 1,300-gallon ultra-low sulfur diesel (ULSD) storage tank that is authorized through 30 TAC §106.472. The DEF tank is not considered as an emission source as per TCEQ's 1996 Memo *"When should a compound be considered an air contaminant"* due to the low vapor pressure of DEF at <0.01 mm Hg at 104°F. PBR 30 TAC §106.472 for the diesel storage tank will be incorporated by reference.

Best Available Control Technology

Source Name	EPN	Best Available Control Technology Description
Volvo Diesel Engine	EG-1	The diesel engine meets the requirements in NSPS IIII, including the applicable NOx emission limits in 40 CFR 1039.101 as referenced in NSPS IIII for the engine model year and horsepower rating. PowerSecure will limit engine operating hours to 500 hours per rolling 12-month period for emergency and non-emergency situations. The engine is fired with ultra-low sulfur diesel fuel (no more than 15 ppmv of sulfur by weight) to reduce SO_2, particulate matter, and H_2SO_4 emissions. NOx emissions will be controlled using an SCR system. Ammonia slip is limited to 10 ppmvd at 3% O_2. Good combustion practices are used to reduce CO, NOx, VOC, particulate matter, SO_2, and H_2SO_4 emissions. Maintenance of engine and controls are performed per manufacturer recommendations. The duration and occurrences of MSS activities are minimized to the extent practicable. This meets Tier I BACT for generator sets operated for emergency and non-emergency purposes.

Represented Emission Factors compared to Tier Standards from 40 CFR 1039.101

Pollutant	Tier 4 final for Generator Sets, hp > 751	Basis for Applicant's Emission Calculations, EPN EG-1	Tier Standards Met?
	g/bhp-hr	g/bhp-hr	
PM, PM_{10}, $PM_{2.5}$	0.022	0.022	Yes
NO_x	0.50	0.50	Yes
VOC as non- methane hydrocarbon	0.14	0.14	Yes
CO	2.6	2.6	Yes

1 bhp = 0.746 kW

Permits Incorporation

Permit by Rule (PBR) / Standard Permit / Permit Nos.	Description (include affected EPNs)	Action (Reference / Consolidate / Void)
106.472	**Storage, Loading, and Unloading of Organic and Inorganic Liquids for ultra-low sulfur diesel storage tanks**	**Reference**

Impacts Evaluation

Was modeling conducted? **Yes** Type of Modeling: **AERMOD version 23132**

Is the site within 3,000 feet of any school? **No**

Additional site/land use information: N/A

The air quality analysis is acceptable for all review types and pollutants. TCEQ ADMT audited their analysis (ADMT Project No. 9538) and provided a memo dated December 12, 2024, stating that the analysis was found acceptable. The modeling results are summarized below.

Table 1. Site-Wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax[1] (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr	0.6	1021
H_2SO_4	1-hr	0.2	50
H_2SO_4	24-hr	0.06	15

Table 2. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)

SO_2	1-hr	0.04	7.8
SO_2	3-hr	0.5	25
PM_{10}	24-hr	1.2	5
$PM_{2.5}$	24-hr	1.15	1.2
$PM_{2.5}$	Annual	0.01	0.13
NO_2	1-hr	3.95	7.5
NO_2	Annual	0.3	1
CO	1-hr	361	2000
CO	8-hr	227	500

The GLCmax are the maximum predicted concentrations associated with one year of meteorological data.

The primary standards for 24-hr and annual SO_2 have been revoked for Fort Bend County and are not reported above.

EPA intermittent guidance was relied on for the 1-hr SO_2 and 1-hr NO_2 De Minimis analyses. Refer to the Modeling Emissions Inventory section for details.

The justification for selecting EPA's interim 1-hr NO_2 and 1-hr SO_2 De Minimis levels was based on the assumptions underlying EPA's development of the 1-hr NO_2 and 1-hr SO_2 De Minimis levels. As explained in EPA guidance memoranda[2,3], EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 and 1-hr SO_2 National Ambient Air Quality Standards (NAAQS).

The $PM_{2.5}$ De Minimis levels are EPA recommended De Minimis levels. The use of EPA recommended De Minimis levels is sufficient to conclude that a proposed source will not cause or contribute to a violation of a $PM_{2.5}$ NAAQS based on the analyses documented in EPA guidance and policy memorandums[4].

To evaluate secondary $PM_{2.5}$ impacts, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with EPA's Guideline on Air Quality Models. Specifically, the applicant used a Tier 1 demonstration tool developed by EPA referred to as Modeled Emission Rates for Precursors (MERPs). The basic idea behind MERPs is to use technically credible air quality modeling to relate precursor emissions and peak secondary pollutants impacts from a source. Using data associated with worst-case Texas source, the applicant

estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.00012 µg/m^3 and 0.00001 µg/m^3, respectively. When these estimates are added to the GLCmax listed in the table above, the results are less than the De Minimis levels.

The applicant provided a health effects review as specified in the TCEQ's Modelling and Effects Review Applicability (MERA) guidance (APDG 5874) for project emission increases of non-criteria pollutants. The project emissions of non-criteria pollutants listed below satisfy the MERA and are protective of human health and the environment.

Table 4. Minor NSR Project-Related Results for Health Effects

Pollutant & CAS #	Averaging Time	GLCmax (µg/m^3)	ESL (µg/m^3)	Modeling and Effects Review Applicability (MERA) Step in Which Pollutant Screened Out
Ammonia 7664-41-7	1-hr	3	180	Step 2 – De minimis increase of less than or equal to 0.04 lb/hr
	Annual	N/A	92	Step 0 – long term ESL ≥ 10% of short-term ESL

Table 5. Minor NSR Site-Wide Modeling Results for Health Effects

Pollutant	CAS#[5]	Averaging Time	GLCmax (µg/m^3)	GLCmax Location	ESL[6] (µg/m^3)
Diesel engine exhaust	NA	1-hr	3	169m ENE	19

*Diesel fuel exhaust emissions represent the PM/PM_{10}/$PM_{2.5}$ engine exhaust emissions that are used to evaluate against the ESLs for "diesel engine exhaust" as listed in the TCEQ Toxicology Division's Texas Air Monitoring Information System (TAMIS) database in accordance with the memo from Jong-Song Lee dated December 2, 2015. As stated in this memo, particulate matter emissions are compared to the short-term and annual ESLs of 19 µg/m^3 and 0.15 µg/m^3, respectively, with the basis given in the memo as the follows: "short-term ESLs will replace previous respective interim ESLs for both diesel fuel combustion product particulate matter (DPM) and diesel fuel combustion product vapor until DE/DPM undergoes formal ESL development under RG-442 (TCEQ 2015)". Therefore, evaluating particulate matter emissions against the diesel engine exhaust ESLs addresses all engine exhaust emissions including speciated VOC for MERA demonstration purposes.

Project Reviewer	Date	Team Leader	Date
Muna Khalidi		Britany Gilman	