



NOV 13 2013

Jordan Cammack
Prologis
17284 W. Commerce Way
Tracy, CA 95377

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-8881
Project Number: N-1133306

Dear Mr. Cammack:

Enclosed for your review and comment is the District's analysis of Prologis's application for an Authority to Construct for a 1,194 bhp MTU/Detroit Diesel Model 12V2000 G85 R123-8A37 Tier 2 certified diesel-fired emergency standby IC engine powering an electric generator, at 1555 N. Chrisman Road in Tracy, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Kai Chan of Permit Services at (209) 557- 6451.

Sincerely,

David Warner
Director of Permit Services

DW:kc

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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**Authority to Construct
Application Review**
Diesel Fired Emergency Standby I.C. Engine

Date: October 29, 2013

Facility Name: Prologis
Mailing Address: 17284 W. Commerce Way
Tracy, CA 95377

Contact Person: Jordan Cammack (Contractor)
Phone Number: (801) 913-6761
Email: Jordan.cammack@big-d.com

Project Engineer: Kai Chan
Lead Engineer: Nick Peirce
Project Number: N-1133306
Permit Numbers: N-8881-3-0

Deemed Complete: October 17, 2013

I. Proposal

Prologis is proposing to install a 1,194 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410 Prevention of Significant Deterioration (6/16/11, Effective 11/26/12)
Rule 2520 Federally Mandated Operating Permits (06/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4701 Internal Combustion Engines – Phase 1 (08/21/03)
Rule 4702 Internal Combustion Engines – Phase 2 (8/18/11)
Rule 4801 Sulfur Compounds (12/17/92)
California Health & Safety Code 41700 - Health Risk Assessment
California Health & Safety Code 42301.6 - School Notice
Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387
CEQA Guidelines

III. Project Location

The equipment will be located at 1555 N. Chrisman Road in Tracy, CA. This facility and its associated equipment are not located within 1,000 feet of a K-12 School. Therefore, the public noticing requirement of California Health and Safety Code 42301.6 is not required for this project

IV. Process Description

The emergency standby engine powers an electric generator. Other than emergency operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

V. Equipment Listing

N-8881-3-0:

1,194 bhp (intermittent) MTU/Detroit Diesel Model 12V2000 G85 R123-8A37 Tier 2 certified diesel-fired emergency standby I.C. engine powering an electrical generator.

VI. Emission Control Technology Evaluation

The applicant has proposed to install a Tier 2 certified diesel-fired IC engine that will be fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

NO_x, CO, VOC, and PM₁₀:

The proposed engine does not meet the latest published Tier Certification requirements; however, compliance with both BACT and CARB's stationary ATCM requirements will be met as described below (see Appendix D for a copy of the emissions data sheet).

Although interim Tier 4 requirements for this category of engine went into effect in 2011, CARB regulations and District policy allows for the availability of interim Tier 4 units to be accounted for. CARB's Stationary ATCM exemption §93115.3(u) states, "If the Executive Officer or District finds, based on verifiable information from the engine manufacturer, distributor or dealer, that current model year engines meeting the current emission standards are not available or not available in sufficient numbers or in a sufficient range of makes, models and horsepower ratings, then the Executive Officer or the District may allow the sale, purchase or installation of a new stock engine meeting the emission standards from the previous model year to meet the new stationary diesel-fueled engine emission standards pursuant to title 13 of the California Code of Regulations or 40 CFR part 89." The District has thoroughly investigated, with each of the common engine manufacturers, the availability of interim Tier 4 units in this size range and has found them to be currently unavailable. Since interim Tier 4 units are not available, as described above, the installation of a Tier 2 unit is acceptable, as Tier 2 is the prior published Tier in this engine's size range.

SOx:

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO_x emissions by over 99% from standard diesel fuel.

VII. General Calculations

A. Assumptions

Emergency Operating Schedule: 24 hours/day
Non-Emergency Operating Schedule: 50 hours/year
Density of diesel fuel: 7.1 lb/gal
Fuel Consumption Rate: 58.0 gal/hr @ 100% load
Sulfur Content of Fuel: 0.0015% by weight

B. Emission Factors

Emission factors for the combustion of diesel fuel from the I.C. engine for NO_x, VOC, CO, and PM₁₀ emissions will be based on emission factors from the equipment manufacturer. The SO_x emission factor will be determined using mass balance with a maximum sulfur content of 0.0015% by weight.

$$\begin{aligned} EF_{SO_x} &= 0.000015 \text{ lbm S/lbm fuel} \times 7.1 \text{ lbm fuel/gal fuel} \times 453.6 \text{ g/lbm} \\ &\quad \times 2 \text{ lbm SO}_2 \text{ exhaust/1 lbm S in fuel} \times 58.0 \text{ gal/hr} \times 1/1,194 \text{ bhp} \\ &= \mathbf{0.0047 \text{ g/bhp-hr}} \end{aligned}$$

Pollutant	Emission Factors (EF)
NO _x	4.16 g/bhp-hr
CO	1.42 g/bhp-hr
VOC	0.19 g/bhp-hr
PM ₁₀	0.12 g/bhp-hr
SO _x	0.0047 g/bhp-hr

C. Potential to Emit Calculations (PE)

1. Pre-Project Potential Emissions (PE1):

Since is a new permit unit, the daily and annual pre-project potential to emit (PE1) for the emission units associated with this permit unit are equal to zero.

2. Post-Project Potential to Emit (PE2):

A. Daily PE2:

The daily potential to emit for the emergency IC engine is based on the maximum proposed operating limit of 24 hours per day. Therefore:

$$\begin{aligned} \text{Daily PE2}_{N-8881-3-0} &= \text{Emission Factor (g/bhp-hr)} \times 1,194 \text{ bhp} \times 24 \text{ hr/day} \\ &\quad \times 1 \text{ lbm/453.6 g} \end{aligned}$$

Pollutant	Emission Factor (g/bhp-hr)	Daily PE2 _{N-8881-3-0} (lb/day)
NOx	4.16	262.8
CO	1.42	89.7
VOC	0.19	12.0
PM ₁₀	0.12	7.6
SOx	0.0047	0.3

B. Annual PE2:

The Annual PE2 for the emergency IC engine is based on the maximum operating limit of the engine for 50 hours per year (maximum non-emergency use for an emergency standby engine powering an electric generator). Therefore:

$$\text{Annual PE2}_{N-8881-3-0} = \text{Emission Factor (g/bhp-hr)} \times 1,194 \text{ bhp} \times 50 \text{ hr/year} \times 1 \text{ lbm/453.6g}$$

Pollutant	Emission Factor (g/bhp-hr)	Annual PE2 _{N-8881-3-0} (lb/year)
NOx	4.16	548
CO	1.42	187
VOC	0.19	25
PM ₁₀	0.12	16
SOx	0.0047	1 (0.6)

D. Increase in Permitted Emissions (IPE)

1. Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The following calculation is representative of the QNEC calculations for all criteria pollutants:

$$\text{QNEC}_{N-8881-3-0} = \text{Annual PE2}_{N-8881-3-0} \div 4 \text{ Quarters/year}$$

Pollutant	Annual PE2 (lb/year)	1 st Quarter (lb/quarter)	2 nd Quarter (lb/quarter)	3 rd Quarter (lb/quarter)	4 th Quarter (lb/quarter)
NOx	548	137	137	137	137
CO	187	46	47	47	47
VOC	25	6	6	6	7
PM ₁₀	16	4	4	4	4
SOx	1	0	0	0	1

2. Adjusted Increase in Permitted Emissions (AIPE)

The AIPE is used to determine if BACT is required for emissions units that are being modified. The proposed diesel fired I.C. engine is a new emissions unit. Therefore, the BACT requirements are based on the daily PE2 values calculated above and AIPE calculations are not necessary (Ref. Rule 2201, Section 4.1).

E. Facility Emissions

1. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

SSPE1 (lb/year) ⁽¹⁾					
Permit Number	NOx	CO	VOC	SOx	PM10
N-8881-1-0	1,034	116	109	1	34
N-8881-2-0	120	28	3	0	4
Total Annual PE	1,154	144	112	1	38
ERC	0	0	0	0	0
Total SSPE1	1,154	144	112	1	38

2. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)					
Permit Number	NOx	CO	VOC	SOx	PM10
N-8881-1-0	1,034	116	109	1	34
N-8881-2-0	120	28	3	0	4
<i>N-8881-3-0 (ATC Permit)</i>	<i>548</i>	<i>187</i>	<i>25</i>	<i>1</i>	<i>16</i>
Total Annual PE	1,702	331	137	2	54
ERC	0	0	0	0	0
Total SSPE2	1,702	331	137	2	54

3. Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

¹ Unless otherwise noted, the SSPE1 was obtained from project #N-1131728.

Major Source Determination (lb/year)					
	NOx	CO	VOC	SOx	PM ₁₀
SSPE2	1,702	331	137	2	54
Major Source Determination SSPE2	1,702	331	137	2	54
Major Source Threshold	20,000	200,000	20,000	140,000	140,000
Major Source	NO	NO	NO	NO	NO

As shown above, this facility is not a Major Source for any criteria pollutant.

4. Rule 2410 Major Source Determination

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀	CO _{2e}
Estimated Facility PE before Project Increase ⁽²⁾	0.85	0.07	0.001	0.17	0.027	0.027	82.8
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source	NO	NO	NO	NO	NO	NO	NO

As shown above, the facility is not an existing major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

5. Baseline Emissions

There are no Baseline Emissions (BE) for the new emissions unit associated with this project. Therefore, BE is equal to zero for all criteria pollutants.

6. Stationary Source Increase in Permitted Emissions (SSIPE)

SSIPE is used to determine if a project triggers public notification (District Rule 2201, Section 5.4.5). District practice is to define this as follows:

$$\text{SSIPE (for any one pollutant)} = \text{SSPE2} - \text{SSPE1}$$

SSIPE			
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)
NOx	1,702	1,154	548
CO	331	144	187
VOC	137	112	25
PM ₁₀	54	38	16
SOx	2	1	1

² The estimated facility annual PE for NO₂ (calculated as NOx), VOC, SO₂ (calculated as SOx), CO, PM (assumed to be equal to PM₁₀), and PM₁₀ are based on the SSPE1 totals as determined above. The facility annual PE for CO_{2e} is calculated in Appendix B.

F. SB-288 Major Modification:

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

As determined in Section VII.E.3 above, this facility is not a major source for any of the pollutants addressed in this project; therefore, the project does not constitute a SB 288 Major Modification.

G. Federal Major Modification:

District Rule 2201, Section 3.18 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (200,000 lb/year).

H. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source. As determined in Section VII.E.3.b. above in this document, the facility is NOT an existing PSD Major Source.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds:

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold, and if total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

Project PSD Major Source Determination (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Total PE from New and Modified Units ⁽³⁾	0.27	0.013	0.0005	0.094	0.008	0.008	33.0
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source	NO	NO	NO	NO	NO	NO	NO

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

VIII. Compliance

Rule 2201 - New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless exempted pursuant to Section 4.2, BACT is required for the following actions: (1) Any new emissions unit with a potential to emit exceeding 2.0 pounds in any one day, (2) The relocation of an existing emissions unit from one stationary source to another with a potential to emit exceeding 2.0 pounds in any one day, (3) Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding 2.0 pounds in any one day, and (4) Any new or modified emissions unit, in a stationary source project, which results in an SB-288 Major Modification or Federal Major Modification as defined in this rule. If the post project Stationary Source Potential to Emit (SSPE2) for Carbon Monoxide is less than 200,000 pounds per year, BACT is not required for Carbon Monoxide.

Best Available Control Technology (BACT) for Permit Units N-474-16-0:

1. Applicability:

As discussed in Section I, the facility is proposing to install a new emergency standby IC engine. Additionally, as determined in Sections VII.F. and VII.G. this project does not result in an SB288 Major Modification or a Federal Major Modification, respectively. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

The daily emissions from the new engine are compared to the BACT threshold levels in the following table:

³ The estimated project annual PE are based on the Annual PE2 totals as determined above in Section VII.C.2.B. The project annual PE for CO2e is calculated in Appendix B.

New Emissions Unit BACT Applicability				
Pollutant	Daily PE2 _{N-8881-3-0} (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/year)	BACT Triggered?
NO _x	262.8	> 2.0	n/a	Yes
SO _x	0.3	> 2.0	n/a	No
PM ₁₀	7.6	> 2.0	n/a	Yes
CO	89.7	> 2.0 and SSPE2 ≥ 200,000 lb/year	331	No
VOC	12.0	> 2.0	n/a	Yes

As shown above, BACT will only be triggered for NO_x, VOC, and PM₁₀ emissions from the engine for this project.

2. BACT Guidance:

BACT Guideline 3.1.1, which appears in Appendix C of this document, covers diesel-fired emergency IC engines.

3. Top Down BACT Analysis:

Per District Policy APR 1305, Section IX, "A top-down BACT analysis shall be performed as a part of the Application Review for each application subject to the BACT requirements pursuant to the District's NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis."

Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix D of this document, BACT is satisfied with:

- NO_x: Tier 2 certified engine.
- VOC: Tier 2 certified engine.
- PM₁₀: 0.15 g/bhp-hr or less.

B. Offsets

Offset Applicability

Since emergency internal combustion engines are exempt from the offset requirements of District Rule 2201 (Section 4.6.2), offsets are not required for this engine. Therefore, offset calculations are not necessary and will not be performed for this project.

C. Public Notification

1. Applicability

District Rule 2201, section 5.4, requires a public notification for the affected pollutants from the following types of projects:

- a. New Major Sources.
- b. SB 288 and Federal Major Modifications.

- c. New emission units with a PE > 100 lb/day of any one pollutant (IPE Notifications).
- d. Modifications with SSPE1 below an offset threshold and SSPE2 above an offset threshold on a pollutant by pollutant basis (Existing Facility Offset Threshold Exceedance Notification).
- e. New stationary sources with SSPE2 exceeding offset thresholds (New Facility Offset Threshold Exceedance Notification).
- f. Any permitting action with a SSIPE exceeding 20,000 lb/yr for any one pollutant (SSIPE Notice).

a. New Major Source

A New Major Source is a new facility, which is also a major source. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. SB-288 and Federal Major Modifications

As determined in Sections VII.F. and VII.G., this project does not trigger an SB-288 or Federal Major Modification; therefore, public noticing for SB-288 or Federal Major Modification purposes are not required.

c. PE > 100 lb/day

As determined in Section VII.C.2.A., the proposed project will result in the installation of a new emissions unit with a Potential to Emit (PE) > 100 lb/day for NOx. Therefore, public noticing will be required for PE > 100 lb/day purposes.

d. Existing Facility - Offset Threshold Notification

The following table compares the SSPE2 to the offset thresholds in order to determine if any offset thresholds have been reached or surpassed with this project.

Pollutant	SSPE1 (lb/year)	Offset Threshold (lb/year)	Public Notice Required?
NOx	1,702	20,000	No
CO	331	200,000	No
VOC	137	20,000	No
PM ₁₀	54	29,200	No
SOx	2	54,750	No

As shown in the table above, the SSPE2 is below the offset threshold levels for all criteria pollutants. Therefore, public noticing is not required for this project for reaching or surpassing the offset thresholds.

e. New Facility – Offset Threshold Notification

This is an existing facility. Therefore, this section does not require a public notification.

f. SSIPE > 20,000 lb/year

A notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/yr of any affected pollutant. As shown in Section VII.E.6. of this document, the SSIPE for all affected pollutants will be less than 20,000 pounds per year. Therefore, a SSIPE notification is not required.

2. Public Notice Action

As demonstrated above, the public noticing requirements are triggered for this project for PE > 100 lb/day. Therefore, public notification and publication requirements as indicated in Section 5.5 of this rule will be required for this project.

D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. Therefore, the following conditions will be listed on the ATC permit to ensure compliance:

- *Emissions from this IC engine shall not exceed any of the following limits: 4.16 g-NOx/bhp-hr, 1.42 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]*
- *Emissions from this IC engine shall not exceed 0.12 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]*

In addition, the DEL for SO_x is established by the sulfur content of the fuel being combusted in the engine. Therefore, the following condition will be listed on the ATC permit to ensure compliance:

- *Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]*

E. Compliance Assurance

The following measures shall be taken to ensure continued compliance with District Rules.

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required for emergency IC engines powering an electric generator.

2. Monitoring

There are no monitoring requirements for emergency standby IC engines powering an electric generator.

3. Record Keeping

Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

4. Reporting

There are no reporting requirements for emergency standby IC engines powering an electric generator.

F. Ambient Air Quality Analysis

Section 4.14.1 of Rule 2201 requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of a State or National ambient air quality standard (AAQS). An AAQA will be performed for all New Source Review (NSR) public notice projects. As previously discussed this project requires that a public notice be performed prior to the issuance of an ATC. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix F of this document for the AAQA summary sheet.

The results from Criteria Pollutant Modeling are as follows:

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	NA ¹	X	NA ¹	X	X
NOx	NA ¹	X	X	X	Pass
SOx	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	X	X	X	NA ¹	Pass ²
PM _{2.5}	X	X	X	NA ¹	Pass ²

1. The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e. 1-hour, 3-hour, 8-hour, and 24-hour) standards are not required.

2. The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

The Criteria Pollutant Modeling runs indicate that the emissions from the proposed equipment will not cause or significantly contribute to a violation of the State or National AAQS.

Rule 2410 – Prevention of Significant Deterioration

As determined above in Section VII.E.4., this facility is not an existing major source for PSD for any one pollutant. In addition, as determined above in Section VII.H., the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore, Rule 2410 is not applicable and no further discussion is required.

Rule 2520 - Federally Mandated Operating Permits

Since this facility's potential to emit does not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4001 - New Source Performance Standards (NSPS)

40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Pursuant to § 60.4200 of Subpart IIII, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of this regulation. The applicant will be so notified in a condition permit condition.

Rule 4002 - National Emission Standards for Hazardous Air Pollutants

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)

Pursuant to §63.6585 of Subpart ZZZZ, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of 40 CFR 63 Subpart ZZZZ for non-Part 70 sources (Major Sources). The applicant will be so notified in a permit condition.

Rule 4101 - Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following condition will be listed on the ATC to ensure compliance:

- *{15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]*

Rule 4102 - Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations, provided the equipment is properly maintained. Therefore, the following condition will be listed on each ATC permit to ensure compliance:

- *{98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]*

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 - Risk Management Policy for Permitting New and Modified Sources (dated 3/2/01) specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. Therefore, a risk management review (RMR) was performed for this project. The RMR results are summarized in the following table, and can be seen in detail in Appendix F.

RMR Results				
Unit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required?
N-8881-3-0	N/A	N/A	0.809 in a million	No

To ensure that human health risks will not exceed District allowance levels; the following conditions will be listed on the ATC permit to ensure compliance with the RMR:

- *The PM₁₀ emissions rate shall not exceed 0.12 g/hp·hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]*
- *The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper is acceptable), roof overhang, or other obstruction. [District Rule 4102]*
- *This engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations or to supply power while maintenance is performed or repairs are made to the primary power supply. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rule 4702 and 17 CCR 93115]*

Rule 4201 - Particulate Matter Concentration

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM₁₀ emission factor of 0.4 g-PM₁₀/bhp-hr.

$$0.1 \frac{\text{grain-PM}}{\text{dscf}} \times \frac{\text{g}}{15.43 \text{ grain}} \times \frac{1 \text{ Btu}_{in}}{0.35 \text{ Btu}_{out}} \times \frac{9,051 \text{ dscf}}{10^6 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{1 \text{ bhp-hr}} \times \frac{0.96 \text{ g-PM}_{10}}{1 \text{ g-PM}} = 0.4 \frac{\text{g-PM}_{10}}{\text{bhp-hr}}$$

The new engines have PM₁₀ emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on each ATC permit to ensure compliance:

- *{14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]*

Rule 4701 - Internal Combustion Engines – Phase 1

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp that requires a PTO.

The proposed engine is subject to District Rule 4702, Internal Combustion Engines. Since emissions limits of District Rule 4702 and all other requirements are equivalent or more stringent than District Rule 4701 requirements, compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

Rule 4702 - Internal Combustion Engines – Phase 2

The following table demonstrates how the proposed engine(s) will comply with the requirements of District Rule 4702.

District Rule 4702 Requirements Emergency Standby IC Engines	Proposed Method of Compliance with District Rule 4702 Requirements
<p>Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter.</p>	<p>The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine maintenance and testing to 50 hours/year. Thus, compliance is expected.</p>
<p>Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rules 4701 and 4702] • This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rules 4701 and 4702]
<p>The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
<p>The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
<p>Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rules 4701 and 4702, and 17 CCR 93115]

	<ul style="list-style-type: none"> • The permittee shall maintain monthly records of the type of fuel purchased. [District Rules 4701 and 4702, and 17 CCR 93115] • All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 4701 and 4702, and 17 CCR 93115]
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Rule 4801 - Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = (n \times R \times T) + P$$

$$n = \text{moles SO}_2$$

$$T (\text{standard temperature}) = 60 \text{ }^\circ\text{F or } 520 \text{ }^\circ\text{R}$$

$$R (\text{universal gas constant}) = \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{ }^\circ\text{R}}$$

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb}}{\text{gal}} \times \frac{64 \text{ lb-SO}_2}{32 \text{ lb-S}} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} \times \frac{\text{lb-mol}}{64 \text{ lb-SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb-mol} \cdot \text{ }^\circ\text{R}} \times \frac{520 \text{ }^\circ\text{R}}{14.7 \text{ psi}} \times 1,000,000 = 1.0 \text{ ppmv}$$

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition (previously stated in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines

The following table demonstrates how the proposed engine(s) will comply with the requirements of Title 17 CCR Section 93115.

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel.	The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, was included earlier in this evaluation under Rules 2201 and 4801.

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
The engine(s) must emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr as specified in § 93115.6 (a)(3)(A) Table 1, Emissions Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines..	The applicant has proposed the use of an engine that is certified to the latest EPA Tier Certification level for the applicable horsepower range at the time of manufacture. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
The engine may not be operated more than 50 hours per year for maintenance and testing purposes.	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> This engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rules 4701 and 4702, and 17 CCR 93115]
New stationary emergency standby diesel-fueled CI engines (> 50 bhp) must meet the standards as specified in § 93115.6 (a)(3)(A) Table 1, Emissions Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines.	The applicant has proposed the use of an engine that is CARB certified to comply with the applicable engine horsepower range standards for the model year as specified in § 93115.6 (a)(3)(A) Table 1, which satisfies the ATCM.
Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM	The District has verified that the engine is not located within 500 feet of a K-12 school. Therefore, conditions prohibiting non-emergency usage of the engine during school hours will not be required on these permits.
An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.	Permit conditions enforcing these requirements were shown earlier in this evaluation under Rule 4702.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.

- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Consistent with California Environmental Quality Act (CEQA) and CEQA Guidelines requirements, the San Joaquin Valley Air Pollution Control District (District) has adopted procedures and guidelines for implementing CEQA. The District's Environmental Review Guidelines (ERG) establishes procedures for avoiding unnecessary delay during the District's permitting process while ensuring that significant environmental impacts are thoroughly and consistently addressed. The ERG includes policies and procedures to be followed when processing permits for projects that are exempt under CEQA.

The State Legislature granted a number of exemptions from CEQA, including projects that require only ministerial approval. Based upon analysis of its own laws and consideration of CEQA provisions, the District has identified a limited number of District permitting activities considered to be ministerial approvals. As set forth in §4.2.1 of the ERG, projects permitted consistent with the District's *Guidelines for Expedited Application Review* (GEAR) are standard application reviews in which little or no discretion is used in issuing Authority to Construct (ATC) documents.

For the proposed project, the District performed an Engineering Evaluation (this document) and determined that the project qualifies for processing under the procedures set forth in the District's Permit Services Procedures Manual in the Guidelines for Expedited Application Review (GEAR). Thus, as discussed above, this issuance of such ATC is a ministerial approval for the District and is not subject to CEQA provisions.

On December 17, 2009, the District's Governing Board adopted the first comprehensive regional policy and guidance on addressing and mitigating GHG emission impacts caused by industrial, commercial, and residential development in the San Joaquin Valley. The adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* applies to projects for which the District has discretionary approval authority over the project and serves as the lead agency for CEQA purposes. The policy relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA.

Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. However, consistent with the District's objective to achieve the GHG emission reduction targets established pursuant to AB 32, BPS will be incorporated into the District's GEAR application review process. In the interim, projects meeting the existing GEAR requirements will continue to be processed as ministerial approvals.

IX. Recommendation:

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permit N-8881-3-0 subject to the permit conditions on the attached draft Authority to Construct permit in Appendix A.

X. Billing Information:

ATC Permit Number	Fee Schedule	Fee Description	Previous Fee Schedule
N-8881-3-0	3020-10-F	1,194 bhp IC Engine	None

XI. Appendices:

- Appendix A: Draft ATC Permit N-8881-3-0
- Appendix B: Facility and Project Annual PE for CO₂e Emissions
- Appendix C: District BACT Clearinghouse Guideline 3.1.1 for Emergency Diesel IC Engine
- Appendix D: Top Down BACT Analysis for ATC Permit N-8881-3-0
- Appendix E: I.C. Engine Emissions Data Sheet
- Appendix F: RMR & AAQA Results Summary

APPENDIX A
Draft ATC Permit N-8881-3-0

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-8881-3-0

LEGAL OWNER OR OPERATOR: PROLOGIS
MAILING ADDRESS: 17284 N COMMERCE WAY
TRACY, CA 95377

LOCATION: 1555 N CHRISMAN RD
TRACY, CA

EQUIPMENT DESCRIPTION:

1,194 BHP (INTERMITTENT) MTU/DETROIT DIESEL MODEL 12V2000 G85 R123-8A37 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRIC GENERATOR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rules 4701 and 4702 and 17 CCR 93115]
7. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
8. Emissions from this IC engine shall not exceed any of the following limits: 4.16 g-NOx/bhp-hr, 1.42 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
9. Emissions from this IC engine shall not exceed 0.12 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services
N-8881-3-0 Oct 29 2013 11:23AM - CHANK Joint Inspection NOT Required

10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
11. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations or to supply power while maintenance is performed or repairs are made to the primary power supply. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 4701 and 4702, and 17 CCR 93115]
12. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rules 4701 and 4702]
13. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rules 4701 and 4702]
14. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rules 4701 and 4702, and 17 CCR 93115]
15. The permittee shall maintain monthly records of the type of fuel purchased. [District Rules 4701 and 4702, and 17 CCR 93115]
16. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 4701 and 4702, and 17 CCR 93115]
17. U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002]

DRAFT

APPENDIX B
Facility and Project Annual PE for CO₂e Emissions

Facility Annual PE for CO₂e Emissions Determination:

The following table lists all sources of CO₂e emission sources at this facility along with the potential annual diesel fuel combustion rates before this proposed project.

Facility CO ₂ e Emission Sources	
Permit Unit	Fuel Usage Rates
N-8881-1-0 (2,346 bhp Mitsubishi Diesel-Fired Emergency Standby IC Engine powering an Electric Generator)	6,400 gal/year ⁽⁴⁾
N-8881-2-0 (385 bhp Caterpillar Diesel-Fired Emergency Standby IC Engine powering an Electric Generator)	880 gal/year ⁽⁵⁾
Total Diesel Fuel Usage Rate	7,280 gal/year

Project Annual PE for CO₂e Emissions Determination:

The following table lists the proposed CO₂e emissions from the proposed 1,194 bhp diesel IC engine along with the potential annual diesel fuel usage rate.

Project CO ₂ e Emission Sources	
ATC Permit Unit	Fuel Usage Rate
N-8881-3-0 (1,194 bhp MTU/Detroit Diesel Diesel-Fired Emergency Standby IC Engine powering an Electric Generator)	2,900 gal/year ⁽⁶⁾
Total Diesel Fuel Usage Rate	2,135 gal/year

CO₂ Equivalent (CO₂e) Emission Factor:

The following emission factors and global warming potentials for diesel fuel are taken from the California Climate Change Action Registry (CCAR), Version 3.1, January, 2009 (Appendix C, Tables C.1, C.3, and C.8):

GHG Emission Factors (EF) and Global Warming Potentials (GWP)		
GHG Pollutant	EF _{Diesel} CO ₂ e	Global Warming Potential
CO ₂	22.3 lb/gal	1 lb-CO ₂ E/lb-CO ₂
CH ₄	0.006 lb/gal	23 lb-CO ₂ E/lb-CH ₄
N ₂ O	0.001 lb/gal	296 lb-CO ₂ E/lb-N ₂ O

The CO₂E emission factor is calculated below, using the GHG pollutant emission factors and the global warming potentials.

$$\begin{aligned}
 \text{EF}_{\text{Diesel}} \text{ CO}_2\text{e} &= 22.3 \text{ lb-CO}_2/\text{gal} \times 1 \text{ lb-CO}_2\text{E}/\text{lb-CO}_2 + 0.006 \text{ lb/gal} \times 23 \text{ lb-CO}_2\text{E}/\text{lb-CH}_4 \\
 &\quad + 0.001 \text{ lb/gal} \times 296 \text{ lb-CO}_2\text{E}/\text{lb-N}_2\text{O} \\
 &= \mathbf{22.734 \text{ lb-CO}_2\text{e}/\text{gallon}}
 \end{aligned}$$

⁴ Annual IC Engine Diesel Fuel Usage Rate = 128.0 gal/hr × 50 hr/year = 6,400 gal/year

⁵ Annual IC Engine Diesel Fuel Usage Rate = 17.6 gal/hr × 50 hr/year = 880 gal/year

⁶ Annual IC Engine Diesel Fuel Usage Rate = 58.0 gal/hr × 50 hr/year = 2,900 gal/year

Facility GHG Emission Calculations:

$$\begin{aligned}\text{Facility Annual PE}_{\text{Diesel}} &= 7,280 \text{ gal/year} \times 22.734 \text{ lb-CO}_2\text{e/gallon} \times 1 \text{ ton}/2,000 \text{ lb} \\ &= \mathbf{82.8 \text{ short ton-CO}_2\text{E/year}}\end{aligned}$$

Project GHG Emission Calculations:

$$\begin{aligned}\text{Facility Annual PE}_{\text{Diesel}} &= 2,900 \text{ gal/year} \times 22.734 \text{ lb-CO}_2\text{e/gal} \times 1 \text{ ton}/2,000 \text{ lb} \\ &= \mathbf{33.0 \text{ short ton-CO}_2\text{E/year}}\end{aligned}$$

APPENDIX C

BACT Clearinghouse Guideline 3.1.1 for Emergency Diesel IC Engine

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1*

Last Update 8/10/2013

Emergency Diesel IC engine

Pollutant	Achieved In Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
NOX	Latest EPA Tier Certification level for applicable horsepower range*		
CO	Latest EPA Tier Certification level for applicable horsepower range*		
PM10	0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	Latest EPA Tier Certification level for applicable horsepower range*		

*Note: for emergency engines 50 <= bhp < 75, Tier 4 Interim certification is the requirement; for emergency engines 75 <= bhp < 750, Tier 3 certification is the requirement; for emergency engines >= 750 bhp, Tier 2 certification is the requirement.

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

APPENDIX D
Top-Down BACT Analysis for ATC Permit N-8881-3-0

Top-Down BACT Analysis for the Emergency IC Engine

BACT Guideline 3.1.1 (July 10, 2009) applies to emergency diesel IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

1. BACT analysis for NO_x and VOC emissions:

a. Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following EPA and state regulations were consulted:

- 40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR Part 89 – Control of Emissions from New and In-Use Nonroad Compression – Ignition Engines
- 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines
- Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the proposed emergency engine does not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 and 40 CFR Part 60 Subpart IIII apply directly to the proposed emergency engine.

Title 17 CCR, Section 93115.6(a)(3)(A) (CARB stationary diesel engine ATCM) applies to emergency standby diesel-fired engines and requires that such engines be certified to the emission levels in Table 1 (below). Please note that these levels are at least as stringent or more stringent than the emission levels in 40 CFR Subpart IIII.

Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NO _x	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
100 ≤ HP < 175 (75 ≤ kW < 130)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			

Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NOx	CO
600 ≤ HP ≤ 750 (450 ≤ kW ≤ 560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP > 750 (kW > 560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
		2008+			

Additionally, 40 CFR Subpart IIII establishes emission standards for emergency diesel IC engines. These emission standards are the same as those specified in the CARB ATCM, except for engines rated greater than or equal to 50 and less than 75 hp. For such IC engines, the CARB ATCM is more stringent.

Therefore, the most stringent applicable emission standards are those listed in the CARB ATCM (Table 1).

Also, please note that neither the state ATCM nor the Code of Federal Regulations require the installation of IC engines meeting a higher Tier standard than those listed above for emergency applications, due to concerns regarding the effectiveness of the exhaust emissions controls during periods of short-term operation (such as testing operational readiness of an emergency engine).

The proposed engine is rated at 1,194 bhp. Therefore, the applicable control technology option is EPA Tier 2 certification.

b. Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

c. Step 3 - Rank remaining options by control effectiveness

Ranking is not necessary since there is only one control option listed in Step 1.

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NOx and VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, the District's BACT requirements will be satisfied.

2. BACT Analysis for PM₁₀ Emissions:

a. Step 1 – Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)*

The latest EPA Tier Certification level for an engine of the proposed model year and horsepower rating is Tier 2. Refer to the Top-Down BACT analysis for NO_x for a discussion regarding the determination of the EPA Tier level to be considered.

Please note Tier 2 or 3 IC engines do not have a PM emission standard that is more stringent than 0.15 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr for all new emergency diesel IC engines.

Therefore, a PM/PM₁₀ emission standard of 0.15 g/hp-hr is required as BACT.

b. Step 2 – Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

c. Step 3 – Rank remaining options by control effectiveness

Ranking is not necessary since there is only one control option listed in Step 1.

d. Step 4 – Cost Effectiveness Analysis

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

e. Step 5 – Select BACT

BACT for PM₁₀ is emissions of 0.15 g/hp-hr or less. The applicant is proposing an engine that meets this requirement. Therefore, BACT will be satisfied.

APPENDIX E
I.C. Engine Emissions Data Sheet

KOHLER. POWER SYSTEMS

800REOZDE

60 HZ. DIESEL INDUSTRIAL GENERATOR SET EMISSION DATA SHEET

ENGINE INFORMATION		
Model:	MTU 12V2000 G85	Bore Stroke: 133mm (5.24 in.)
Nameplate BPH @ 1800 RPM:	1194	Stroke: 168mm (8.61 in.)
Type:	4-Cycle, 12-V Cylinder	Displacement: 23.9 L (1458 cu.in.)
Aspiration:	Turbocharged, Intercooled	EPA Family: DMDDL35.8GRR
Compression Ratio	16.0:1	EPA Certificate DMDDL35.8G44-002
Emission Control Device	Direct Diesel Injection, Engine Control Module, Turbocharger, Charge Air Cooler	

PERFORMANCE DATA:	Table 1			
	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine kW @ Stated Load	222.50	445.00	687.50	890.00
Fuel Consumption (g/kWh)	232.00	213.00	210.00	209.00
Exhaust Gas Flow (m ³ /s)				2.90
Exhaust Temperature (°C)				580.00

EXHAUST EMISSION DATA:	Table 2 EPA Certificate Data		
	HC (Total Unburned Hydrocarbons)	0.25	0.19
NOx (Oxides of Nitrogen as NO2)	5.58	4.16	"
CO (Carbon Monoxide)	1.90	1.42	"
PM (Particulate Matter)	0.16	0.12	"

Values are in g/kWh

TEST METHODS AND CONDITIONS
<p>Test Methods:</p> <p>Steady-State emissions recorded per EPA CFR 40 Part 89, and ISO8178-1 during operation at rated engine speed (+/- 2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rated stabilized.</p> <p>Fuel Specification:</p> <p>40-48 Cetane Number, 0.05 Wt.% max. Sulfur; Reference ISO8178-5, 40CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.</p> <p>Reference Conditions:</p> <p>25 °C (77 °F) Air Inlet Temperature, 40 °C (104 °F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure; 10.7 g/kg (75 grains H2O/lb) of dry air Humidity (required for NOx correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back pressure set to maximum allowable limit.</p>

Data and specifications subject to change without notice
 For further information, please contact Alan Pittel MTU Detroit Diesel, Inc., 248-560-8624

APPENDIX F
RMR & AAQA Results Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Kai Chan - Permit Services
 From: Cheryl Lawler - Permit Services
 Date: October 23, 2013
 Facility Name: Prologis
 Location: 1555 N. Chrisman Road, Tracy
 Application #(s): N-8881-3-0
 Project #: N-1133306

A. RMR SUMMARY

RMR Summary			
Categories	Emergency Diesel ICE (Unit 3-0)	Project Totals	Facility Totals
Prioritization Score	N/A ¹	N/A ¹	>1
Acute Hazard Index	N/A ²	N/A ²	0.00
Chronic Hazard Index	N/A ²	N/A ²	0.00
Maximum Individual Cancer Risk	8.09E-07	8.09E-07	7.45E-06
T-BACT Required?	No		
Special Permit Conditions?	Yes		

- 1 Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.
- 2 Acute and Chronic Hazard indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit 3-0

1. The PM10 emissions rate shall not exceed 0.12 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

B. RMR REPORT

I. Project Description

Technical Services received a request on October 16, 2013, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for a 1194 bhp emergency diesel IC engine powering an electrical generator.

II. Analysis

Diesel exhaust emissions from the engine were calculated using the District approved DICE spreadsheet. Because the RMR request form indicates the stack is fitted with a rain cap, Technical Services performed a refined health risk assessment. AERMOD was used, with point source parameters outlined below, and concatenated 5-year meteorological data from Tracy to determine maximum dispersion factors at the nearest residential and business receptors. These dispersion factors were input into the HARP model to calculate the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters			
PM ₁₀ g/hp-hr	0.12	Source Type	Point
BHP	1194	Stack Diameter (m)	0.25
Closest Receptor (m)	112	Stack Height (m)	3.51
Max Hours per Year	50	Stack Gas Temp. (K)	853
Location Type	Rural	Stack Gas Velocity (m/s)	57.23*

*The RMR form submitted by the processing engineer indicated that the exhaust stack is fitted with a rain cap, and was designated as such in AERMOD's Source Pathway Module during the refined modeling process per District policy.

Technical Services also performed modeling for criteria pollutants NO_x, SO_x, PM₁₀, and PM_{2.5}; as well as the RMR. The emission rates used for criteria pollutant modeling were 408 lb/yr NO_x, 0.5 lb/yr SO_x, 6 lb/yr PM₁₀, and 6 lb/yr PM_{2.5}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA ¹	X	NA ¹	X	X
NO _x	NA ¹	X	X	X	Pass
SO _x	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	X	X	X	NA ¹	Pass ²
PM _{2.5}	X	X	X	NA ¹	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour, and 24-hour) standards is not required.

²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusions

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

The Cancer Risk associated with the operation of the proposed diesel IC engine is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for the proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

Attachments

RMR Request Form & Related Documents
DICE Spreadsheet
Risk Results
AAQA Results
Facility Summary