TECHNICAL REVIEW AND EVALUATION OF APPLICATION FOR AIR QUALITY PERMIT No. 83915

I. INTRODUCTION

This Class II synthetic minor permit is issued to APS Distributed Energy Resources, the Permittee, for the continued operation of a 25-MW military microgrid, consisting of 40 diesel-fired internal combustion engines in Yuma. The microgrid provides backup power to the U.S. Marine Corps Air Station (MCAS) whenever the grid goes down. Permit No. 83915 renews and supersedes Permit No. 63129.

A. Company Information

Facility Name:	Arizona Public Service (APS) – MCAS
Mailing Address:	400 N. 5th Street, MS9303
	Phoenix, AZ 85004
Facility Location:	3672 S. Maronate Ave, Box 99110
	Yuma, AZ 85369

B. Attainment Classification

APS – MCAS is located in an area that is classified as non-attainment for PM_{10}, but as attainment for all other criteria pollutants.

II. PROCESS DESCRIPTION

A. Process Equipment

APS – MCAS has 40 diesel-fired internal combustion engines and 10 PowerBlocks. There are 4 diesel-fired internal combustion engines per PowerBlock. The maximum capacity of each individual engine is 625 kW. In addition, the facility has 10 diesel belly tanks with a maximum capacity of 4,000 gallons each. The microgrid supports the military station by providing backup power during microgrid outage. APS - MCAS may also operate the internal combustion engines for supplying power to the grid for peak shaving.

B. Control Devices

The internal combustion engines are equipped with selective catalytic reduction technology (SCR). The SCR technology treats exhaust gases with an additive before they pass through the catalytic converter. The additive causes nitrogen oxides to be converted into nitrogen gas and steam. In addition, diesel oxidation catalysts change carbon monoxide to carbon dioxide and water.

III. LEARNING SITE EVALUATION

ADEQ has established the Learning Site Policy to ensure that children at learning sites are protected from adverse air impacts. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board.

This permit renewal does not increase emissions and thus, the facility is exempt from this evaluation.

IV. COMPLIANCE HISTORY

Since the issuance of Permit No. 63129, the facility has had two (2) full physical inspections. In addition, six (6) semiannual compliance certifications have been reviewed by the Department. There were no excess emissions or permit deviation reports during this permit term.

V. EMISSIONS

The facility's potential-to-emit (PTE) was calculated using AP-42 emission factors. PTE was based on 850 hours of operation per year per engine as provided below:

Table 1: PTE (tpy)

Pollutant	Emissions
NO_X	15.68
PM_{10}	0.70
$PM_{2.5}$	0.70
CO	81.9
SO_2	0.04
VOC	9.36
HAPs	0.19
GHG (as CO_2e)	163.61

VI. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS

This permit renewal contains the following voluntary operation limitation:

A. Internal Combustion Engines

The facility accepted a voluntary operation limitation of not operating any engine for more than 850 hours, based on a 12-month rolling total. The limitation was incorporated into Permit No. 63129 which was issued back in 2016.

VII. APPLICABLE REGULATIONS

Table 2 identifies applicable regulations along with verifications as to why each standard applies.

Table 2: Applicable Regulations

Unit (Year)	Control Device	Rule	Discussion
Internal Combustion Engines (2016)	Selective Catalytic Reduction	40 CFR 60 Subpart IIII	The internal combustion engines were manufactured in 2016 and thus, they are subject to New Source Performance Standards (NSPS) under 40 CFR 60 Subpart IIII. As per 40 CFR 63.6590, the engines comply with National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR 63 Subpart ZZZZ by complying with NSPS standards under 40 CFR 60 Subpart IIII.
Fugitive Dust	Water Trucks, Dust Suppressants	A.A.C. R18-2-Article 6 A.A.C. R18-2-702	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	Wet Blasting; Dust Collecting Equipment; Other Approved Methods	A.A.C. R-18-2-702 A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operations.
Spray Painting	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	These standards are applicable to any spray painting operation.
Demolition/Renovation	N/A	A.A.C.R18-2-1101.A.12	This standard is applicable to any asbestos related demolitions or renovations.

VIII. PREVIOUS PERMIT REVISIONS AND CONDITIONS

A. Previous Permit Revisions

Table 3 provides a description of the permit revisions made to Permit No. 63129 during the permit term.

Table 3: Permit Revisions to Permit No. 63129

Permit Revision No.	Permit Revision	Brief Description
65564	Minor Permit Revision (MPR)	This MPR removed opacity requirements for fugitive dust sources due to no unpaved surfaces at the facility.

B. Changes to Current Renewal

Table 4 addresses the changes that were made to the sections and conditions from Permit No. 63129:

Table 4: Previous Permit Conditions

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "A"		X		General Provisions – Revised to represent the most recent template language.
Att. "B", Section II		X		Facility-Wide Requirements – Added reporting requirements for permit deviations.
Att. "B", Section III		X		Requirement for Stationary Compression Ignition (CI) Internal Combustion Engines – Added an applicability statement and recordkeeping fuel requirements. Modified emission standards for the engines. Reorganized compliance requirements subsection. Further clarified performance testing requirements.
Att. "B", Section IV			X	Diesel Tank – Removed section given diesel tank was never installed at the facility during construction.
Att. "B", Section VI			X	Mobile Source Requirements – Removed section given the facility is not subject to A.A.C. R18-2-Article 8.
Att. "C"		X		Equipment List – Revised section to include missing equipment details. Added serial numbers and manufacturing dates for each engine. Removed diesel tank given it was never installed at the facility during construction.

IX. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 5 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with Permit No. 83915.

Table 5: Permit No. 83915

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Internal Combustion Engines		850 hours per engine based on a 12-month rolling total	Install and operate non-resettable hour meters on all engines to monitor hours of operation for each engine.	Maintain records of the hours of operation for each engine based on the non-resettable hour meter.	Calculate and record monthly hours of operation, and 12-month rolling total hours of operation for each engine at the end of each month.
		Sulfur content: 15 ppm maximum; and a minimum cetane index of 40, or a maximum aromatic content of 35 volume percent		Keep records of fuel supplier specifications: name of fuel supplier, sulfur content, and either the cetane index or aromatic content in the fuel.	
	Smoke	20% Opacity (Acceleration Mode); 15% Opacity (Lugging Mode); 50% Opacity (Peak Mode)	Operate and maintain the engines according to the manufacturer's emission-related written instructions.	Purchase engines certified to the emission standards.	

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
	PM	0.03 g/kW-hr			
	VOC	0.19 g/kW-hr			
	CO	3.5 g/kW-hr			
	NO_x	0.67 g/kW-hr			
Fugitive Dust	PM	40% Opacity		Record the dates and types of dust control measures employed.	
Abrasive Blasting	PM	20% Opacity		Record the date, duration and pollution control measures of any abrasive blasting project.	
Spray Painting	VOC	20% Opacity; Control 96% of Overspray		Maintain records of the date, duration, quantity of paint used, any applicable SDS, and pollution control measures of any spray painting project.	
Demolition/ Renovation	Asbestos			Maintain records of all asbestos related demolitions or renovations including the "NESHAP Notification for Renovation and Demolition Activities"	

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				form and all supporting documents.	

X. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
AQD ..... Air Quality Division
A.R.S. ..... Arizona Revised Statutes
CFR ..... Code of Federal Regulations
CO ..... Carbon Monoxide
CO_2 ..... Carbon Dioxide
CO_2e ..... CO_2 Equivalent Basis
EPA ..... Environmental Protection Agency
ft ..... Feet
g ..... Gram
GHG ..... Greenhouse Gases
HAP ..... Hazardous Air Pollutant
hp ..... Horsepower
hr ..... Hour
IC ..... Internal Combustion
kW ..... Kilowatt
MW ..... Megawatts
NAAQS ..... National Ambient Air Quality Standard
NO_X ..... Nitrogen Oxides
NO_2 ..... Nitrogen Dioxide
NSPS ..... New Source Performance Standards
O_3 ..... Ozone
Pb ..... Lead
PM ..... Particulate Matter
PM10 ..... Particulate Matter less than 10 µm Nominal Aerodynamic Diameter
PM2.5 ..... Particulate Matter less than 2.5 µm Nominal Aerodynamic Diameter
PTE ..... Potential to Emit
sec ..... Seconds
SO_2 ..... Sulfur Dioxide
tpy ..... Tons per Year
VOC ..... Volatile Organic Compound
yr ..... Year