



DES
DEPARTMENT OF ENVIRONMENT
AND SUSTAINABILITY



air quality



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PROGRAM



sustainability

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MINOR SOURCE TECHNICAL SUPPORT DOCUMENT

Source Name: Verizon Las Vegas Belmont
Source ID: 18218

SOURCE LOCATION:
2650 Belmont Street
North Las Vegas, Nevada 89030

Company Name: Verizon Wireless

APPLICATION PREPARED BY:
Verizon Wireless

CURRENT ACTION: New

Application Received: January 23, 2024

TSD Date: March 13, 2024

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ACRONYMS AND ABBREVIATIONS

(These terms may be seen in the technical support document)

AQR	Clark County Air Quality Regulation
bhp	brake horsepower
CARB	California Air Resources Board
CE	control efficiency
CF	control factor
CFR	Code of Federal Regulations
CO	carbon monoxide
DAQ	Division of Air Quality
DOM	date of manufacture
EF	emission factor
EPA	U.S. Environmental Protection Agency
EU	emission unit
g/kW-hr	grams per kilowatt-hour
gr/dscf	grains per dry standard cubic foot
GDO	gasoline dispensing operation
gpm	gallons per minute
HAP	hazardous air pollutant
H ₂ S	hydrogen sulfide
HHV	high heating value
HVLP	high volume, low pressure
kW	kilowatt
mg/dscm	milligrams per dry standard cubic meter
MMBtu	British thermal units (in millions)
NAICS	North American Industry Classification System
NO _x	nitrogen oxide
Pb	lead
PM _{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RACT	reasonably available control technology
RICE	reciprocating internal combustion engine
SCC	Source Classification Codes
scf	standard cubic feet
SIC	Standard Industrial Classification
SO ₂	sulfur dioxide
TDS	total dissolved solids
TSD	Technical Support Document
UTM	Universal Transverse Mercator
VAEL	Voluntarily Accepted Emission Limit
VMT	vehicle miles traveled
VOC	volatile organic compound

Technical Support Document

This TSD establishes the methodology related to the terms and conditions of its Minor Source Permit issued pursuant to Clark County Department of Air Quality Regulations (AQR) Section 12.1. The TSD shall not serve as the operating authority.

Source Description

Verizon Las Vegas Belmont is a mobile switching center located in Hydrographic Area 212, the Las Vegas Valley. This source category falls under SIC code 4812, "Radiotelephone Communication," and NAICS code 517112, "Wireless Telecommunications Carriers (except Satellite)." This is a minor source of regulated air pollutants. It consists of diesel-powered emergency generators. This source is subject to 40 CFR Part 60, Subpart IIII, and 40 CFR Part 63, Subpart ZZZZ. However, the source will meet the federal requirements of Subpart ZZZZ by adhering to the federal requirements of 40 CFR Part 60, Subpart IIII.

Permitting Action

This source is a new minor source, as defined in AQR 12.1.1(b), that is submitting this application to obtain a minor source permit. An applicability determination and status evaluation have been performed.

Emission Units

Table 1 lists the emission units at this stationary source.

Table 1. Emission Units List

EU	Rating	Type	Manufacturer	Model No.	Serial No.	SCC
A01	3,000 kW	Genset - Emergency	Cummins	C3000 D6e	37291536	20300101
	4,309 hp	Engine – Diesel Engine DOM: 04/2022		QSK95-G12	J230280443	
A02	3,000 kW	Genset - Emergency	Cummins	C3000 D6e	37291535	20300101
	4,309 hp	Engine – Diesel Engine DOM: 04/2022		QSK95-G12	J230280307	
A03	500 kW	Genset – Emergency	Cummins	DFEK	80578167	20300101
	755 hp	Engine – Diesel Engine DOM: 04/2022		QSK15-G9	J230280587	

Note: DOM = date of manufacture; hp = horsepower; kW = kilowatt

Calculation of Emissions

Applicability

AQR 12.1.0 permitting applicability is determined by calculating the emissions for all proposed emission units using 8,760 hours of operation (except for emergency generators or fire pumps, which use 500 hours), any inherent controls, any inherent throughput limitations, and the emission factors provided by the manufacturer, by source test results, by EPA AP-42, or by other approved methods.

Applicability emissions include emissions from insignificant emission units and activities, but do not include fugitive emissions (except for categorical sources listed in AQR 12.2.2(j) or any other stationary source category that, as of August 7, 1980, is being regulated under Sections 111 or 112 of the Act). The permittee has asked to use the manufacturer’s guaranteed emission factors to calculate emissions for criteria pollutants.

Table 2 shows the thresholds for AQR 12.1.1(d) applicability.

Table 2. AQR 12.1.1(d) Applicability Emissions Evaluation (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb	HAP ¹
Applicability thresholds	5	5	5	25	25	5	1	0.3	N/A
Major source thresholds	100	100	100	100	100	100	N/A	100	10/25
Nonattainment NSR thresholds	100	100	100	100	100	100	N/A	100	N/A
PSD thresholds	250	250	250	250	250	250	N/A	250	N/A
Applicability emissions total	0.15	0.15	26.58	1.16	0.03	0.40	0.00	0.00	0.03

¹10 tons for any single HAP, or 25 tons for any combination of HAP pollutants.

AQR 12.1 is applicable to any stationary source located in Clark County that has the potential to emit (PTE) a regulated air pollutant equal to or greater than the thresholds listed in AQR 12.1.1(d), as shown in Table 2, but less than the major source thresholds listed in AQRs 12.2.2(ff) or 12.3.2(r).

AQR 12.1 is also applicable to any Part 70 source that is exempt from the requirement to obtain a Part 70 operating permit and has a PTE that equals or exceeds the thresholds listed in AQR 12.1.1(d), or to any source that takes a voluntarily accepted emission limit or standard pursuant to AQR 12.1.7 to avoid obtaining a Part 70 operating permit. See the attachment for calculations.

This source exceeds the applicability limit for NO_x, so it is required to obtain an air quality permit, as shown in Table 2.

As Table 2 shows, Applicability Emissions are below major source thresholds for all pollutants, which qualifies this source as a true minor. (A synthetic minor source is one that has taken a limit to avoid becoming a major source; an SM80 source is a synthetic minor source that has a PTE for one or more pollutants at or above 80% of the major source threshold. The calculations are included as an attachment.)

HAP is a regulated air pollutant. DAQ has determined that the calculated or estimated HAP emissions from this source fall below the AQR 12.1 permitting threshold. As a true minor source of HAPs, a specific PTE will not be included in the permit; however, any NESHAP (or MACT) requirements applicable to the source will be included.

PTE

PTE is calculated to include any controls or limits, whether voluntarily proposed by the source or required. PTE does not include insignificant emission units and activities, but does include fugitive emissions.

Table 3 shows the PTE associated with this source; PTE calculations are included in the attachments.

Table 3. PTE (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb
PTE	0.15	0.15	26.58	1.16	0.03	0.40	0.00	0.00

Table 4. Emissions Increase Calculation and Significance Evaluation (tons per year)

Affected EU	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb
Proposed PTE	0.15	0.15	26.58	1.16	0.03	0.40	0	0
Permitted PTE	0	0	0	0	0	0	0	0
Δ Emissions	0.15	0.15	26.58	1.16	0.03	0.40	0	0
Significance threshold	7.5	7.5	20	35	40	20	5	0.6
RACT analysis required	No	No	Yes	No	No	No	NA	NA

Table 4 shows that the emission increase of NO_x associated with the engines is above the thresholds for significance; therefore, the source is required to submit a RACT analysis for this permitting action.

Emissions Statement

Any stationary source that actually emits a total of 25 tons or more of NO_x and/or 25 tons or more of VOCs is required to submit an annual emissions statement for both pollutants. The statement must provide actual annual NO_x and VOC emissions from all activities, including emission units, insignificant activities, and exempt activities, and will be separate from the emissions inventory (i.e., calculated annual emissions) report permittees submit each year. This requirement shall be a permit condition for any minor source with the potential to emit at least 20 tons of NO_x and/or VOCs, since those sources are the most likely to trigger it.

Control Technology

As shown in Table 4, the NO_x emissions exceed the AQR 12.1.1(j) significance threshold. As a result, a RACT analysis is required.

The permittee proposed that all the emergency generators (EUs: A01-A03) will meet RACT requirements by using ultra-low sulfur diesel fuel. ULSD fuel has a maximum sulfur content of 15 ppm which leads to cleaner fuel and lower emissions.

The permittee also proposed they would meet RACT by complying with EPA Tier 2 emission standards. A record search of the RACT/BACT/LAER (RBLCL) Clearing House shows that multiple BACT selections for emergency generators are “compliant with NSPS Subpart III regulations and Tier 2 certification.” Since BACT is equally as stringent as, if not more stringent

than, RACT, Verizon proposes that installing emergency generators that comply with EPA Tier 2 emission standards is consistent with other RACT determinations for emergency engines.

All emergency engines (EUs: A01-A03) are also equipped with aftercoolers and turbochargers which reduce fuel consumption and emissions.

Emission Limits

Engine(s)

The permittee shall comply with the emissions standards in 40 CFR Part 1039, Appendix I for the applicable compression ignition engine(s) for the same model year and maximum engine power, provided in Table 5.

Table 5. Emission Standards for Emergency Diesel Generator(s)

EU	Power	NMHC + NO _x	CO (g/kW-hr)	PM (g/kW-hr)
A01	kW > 560	6.4	3.5	0.20
A02	kW > 560	6.4	3.5	0.20
A03	450 ≤ kW ≤ 560	6.4	3.5	0.20

The emission units (EUs: A01 - A03) are powered by a constant-speed compression-ignition engine, and are therefore exempt from the requirements of 40 CFR 1039.105 that are referenced in 40 CFR Part 60, Subpart IIII.

Operational Limits

Engine(s)

Emergency engines shall be limited to operating 100 hours per year for testing and maintenance purposes, including nonemergency limitations. On May 1, 2015, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision to vacate provisions in 40 CFR Part 60, Subpart IIII; 40 CFR Part 60, Subpart JJJJ; and 40 CFR Part 63, Subpart ZZZZ that allowed emergency engines to operate for demand response and when there is a deviation of voltage or frequency.

DAQ prohibited sources from operating emergency generators for those activities, consistent with the court decision and EPA's April 15, 2016, implementation memo. On August 10, 2022, EPA published a notice in the *Federal Register* (87 FR 48603) formally promulgating changes to the three CFR subparts listed above. Now, except as provided in 40 CFR Part 60.4211(f)(3)(i), and/or 40 CFR Part 60.4243(d)(3)(i), and/or 40 CFR Parts 63.6640(f)(4)(i) and (ii), the 50 hours per year for nonemergency use cannot be used for peak shavings or nonemergency demand response, or to generate income for a facility by supplying power to an electric grid or to otherwise supply power as part of a financial arrangement with another entity (EUs: A01 - A03).

Review of Applicable Regulations

Engine(s)

The emergency engines (EUs: A01 – A03) are existing stationary internal combustion engine (ICE) manufactured in the year 2022, located at an area source and operated according to the definition of an emergency stationary ICE under 40 CFR Part 60.4219. The emergency generator shall be limited to the operating provisions specified in 40 CFR Part 60.4211(f), Subpart. The engine(s) at this source are also subject to 40 CFR Part 63, Subpart ZZZZ. The source will meet the requirements of Subpart ZZZZ by meeting the requirements of Subpart IIII (EUs: A01 – A03).

The engines at this source are subject to 40 CFR Part 60, Subpart IIII, and 40 CFR Part 63, Subpart ZZZZ, so must meet the fuel requirements referenced therein from 40 CFR Part 1090.305 (in Subpart D). The source must purchase diesel fuel that meets the per-gallon standard of 15 ppm maximum sulfur content, a minimum cetane index of 40, or a maximum aromatic content of 35 volume percent. This permit requires the permittee to monitor or keep records of the sulfur content, cetane index, or aromatic content of the diesel fuel used in the engines. (EUs: A01 - A03)

Monitoring

The permittee is required to sign and adhere to *Visual Emissions Check Guidebook*, and conduct a visual emission check at least quarterly on each diesel-fired emergency generator (EUs: A01 – A03).

The permittee shall monitor the sulfur content of the diesel fuel burned by retaining a copy of vendor fuel specifications as well as operate the emergency generator engines with a nonresettable hour meter and monitor each one during testing, maintenance, and nonemergency operations (EUs: A01 – A03).

Performance Testing

No performance testing requirements have been identified.

Increment Analysis

DAQ modeled the source using AERMOD to track the increment consumption. Stack data submitted by the applicant were supplemented with information available for similar emission units. Five years (2011 to 2015) of meteorological data from the McCarran Station were used in the model. U.S. Geological Survey National Elevation Dataset terrain data were used to calculate elevations. Table 6 shows the location of the maximum impact and the potential PSD increment consumed by the source at that location. The impacts are below the PSD increment limits.

Table 6: PSD Increment Consumption

Pollutant	Averaging Period	Source's PSD Increment Consumption ($\mu\text{g}/\text{m}^3$)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO ₂	3-hour	1.68 ¹	670337	4008730
SO ₂	24-hour	0.91 ¹	670337	4008730
SO ₂	Annual	0.18	670337	4008730
NO _x	Annual	8.72	670337	4008730

¹ Highest Second High Concentration.

Public Participation

The source does meet the criteria requiring public participation under AQR 12.1.5.3(a)(1).

Attachments

See the following attachments for calculations.

A-1. Source Permit Applicability Calculations (tons per year)

EU	Rating	Conditions	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb
A01	4,309 hp	500 hr/yr	0.07	0.07	12.37	0.50	0.01	0.17	0.00	0.00
A02	4,309 hp	500 hr/yr	0.07	0.07	12.37	0.50	0.01	0.17	0.00	0.00
A03	755 hp	500 hr/yr	0.01	0.01	1.84	0.16	0.01	0.06	0.00	0.00
Permit applicability emissions			0.15	0.15	26.58	1.16	0.03	0.40	0.00	0.00

A-2. PTE Calculations (tons per year)

EU	Rating	Conditions	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb
A01	4,309 hp	500 hr/yr	0.07	0.07	12.37	0.50	0.01	0.17	0.00	0.00
A02	4,309 hp	500 hr/yr	0.07	0.07	12.37	0.50	0.01	0.17	0.00	0.00
A03	755 hp	500 hr/yr	0.01	0.01	1.84	0.16	0.01	0.06	0.00	0.00
PTE			0.15	0.15	26.58	1.16	0.03	0.40	0.00	0.00

EU#	A01 and A02	Horsepower:	4,309		Emission Factor (lb/hp-hr)	Control Efficiency	Potential Emissions			
Make:	Cummins	Hours/Day:	24.0				lb/hr	lb/day	ton/yr	
Model:	QSK95-G12	Hours/Year	500		PM10	6.61E-05	0.00%	0.28	6.84	0.07
S/N:					NOx	1.15E-02	0.00%	49.49	1187.85	12.37
Manufacturer Guarantees					CO	4.63E-04	0.00%	1.99	47.88	0.50
PM10	0.03	g/hp-hr ▼			SO₂	1.21E-05	0.00%	0.05	1.25	0.01
NOx	5.21	g/hp-hr ▼			VOC	1.54E-04	0.00%	0.66	15.96	0.17
CO	0.21	g/hp-hr ▼			HAP	1.10E-05	0.00%	0.05	1.14	0.01
SO₂		lb/hp-hr ▼								
VOC	0.07	g/hp-hr ▼								
Engine Type:	Diesel ▼				Diesel Fuel Sulfur Content is 15 ppm (0.0015%)					

EU#	A03	Horsepower:	755		Emission Factor (lb/hp-hr)	Control Efficiency	Potential Emissions			
Make:	Cummins	Hours/Day:	24.0				lb/hr	lb/day	ton/yr	
Model:	QSX15-G9	Hours/Year	500		PM10	4.41E-05	0.00%	0.03	0.80	0.01
S/N:	J230280587				NOx	9.77E-03	0.00%	7.37	176.97	1.84
Manufacturer Guarantees					CO	8.60E-04	0.00%	0.65	15.58	0.16
PM10	0.02	g/hp-hr ▼			SO₂	1.21E-05	0.00%	0.01	0.22	0.01
NOx	4.43	g/hp-hr ▼			VOC	3.09E-04	0.00%	0.23	5.59	0.06
CO	0.4	g/hp-hr ▼			HAP	1.10E-05	0.00%	0.01	0.20	0.01
SO₂		g/hp-hr ▼								
VOC	0.14	g/hp-hr ▼								
Engine Type:	Diesel ▼				Diesel Fuel Sulfur Content is 15 ppm (0.0015%)					