State of Utah

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Department of
Environmental Quality

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DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN104140016-25

February 21, 2025

Bryan Mansell
Central Valley Water Reclamation Facility
800 West Central Valley Road
Salt Lake City, UT 84119-3379
MansellB@cvwrf.org

Dear Mr. Mansell:

Re: Approval Order: Modification to Approval Order DAQE-AN104140015-21 to Update Engines
Project Number: N104140016

The attached Approval Order (AO) is issued pursuant to the Notice of Intent (NOI) received on May 4, 2023. Central Valley Water Reclamation Facility must comply with the requirements of this AO, all applicable state requirements (R307), and Federal Standards.

The project engineer for this action is **John Persons**, who can be contacted at (385) 306-6503 or jpersons@utah.gov. Future correspondence on this AO should include the engineer's name as well as the DAQE number shown on the upper right-hand corner of this letter. No public comments were received on this action.

Sincerely,

Bryce C. Bird
Director

BCB:JP:jg

cc: Salt Lake County Health Department
EPA Region 8

STATE OF UTAH
Department of Environmental Quality
Division of Air Quality

APPROVAL ORDER
DAQE-AN104140016-25
Modification to Approval Order DAQE-AN104140015-21 to Update Engines

Prepared By
John Persons, Engineer
(385) 306-6503
jpersons@utah.gov

Issued to
Central Valley Water Reclamation Facility - Wastewater Treatment Plant

Issued On
February 21, 2025

Issued By

Bryce C. Bird
Director
Division of Air Quality

TABLE OF CONTENTS

GENERAL INFORMATION

CONTACT/LOCATION INFORMATION

Owner Name
Central Valley Water Reclamation Facility

Source Name
Central Valley Water Reclamation Facility - Wastewater Treatment Plant

Mailing Address
800 West Central Valley Road
Salt Lake City, UT 84119-3379

Physical Address
800 West Central Valley Road
Salt Lake City, UT 84119-3379

Source Contact
Name: Bryan Mansell
Phone: (801) 973-9100
Email: MansellB@cvwrf.org

UTM Coordinates
422600 m Easting
4506500 m Northing
Datum NAD27
UTM Zone 12

SIC code 4952 (Sewerage Systems)

SOURCE INFORMATION

General Description
Central Valley Water Reclamation Facility (CVWRF) employs primary sedimentation tanks, trickling filters, aeration tanks, secondary sedimentation tanks, and ultraviolet light disinfection. The treated water is then discharged into Mill Creek. CVWRF also treats the waste materials removed from the water using anaerobic digesters, which reduces the solids by converting them to water, methane gas, and a residual called bio-solids. The water is pressed out of the biosolids and returned to the liquid portion of the plant for treatment. The biosolids are taken and applied to the ground for beneficial agricultural use or composting. The methane gas is used to fuel engine generators to power the plant. Equipment at the site consists of digester gas/natural gas-fired engines, emergency generator engines, digester gas flares, small boilers, and waste oil heaters.

NSR Classification
Minor Modification at Major Source

Source Classification
Located in Northern Wasatch Front O3 NAA, Salt Lake City UT $PM_{2.5}$ NAA, Salt Lake County SO_2 NAA
Salt Lake County
Airs Source Size: A

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal

Combustion Engines
NSPS (Part 60), JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
MACT (Part 63), A: General Provisions
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
Title V (Part 70) Major Source

Project Description
CVWRF requested a modification for:

1- The addition of three (3) 2-MW diesel-fired emergency engines to ensure adequate back-up power in the event of a power outage.
2- The removal of Waukesha 5 engine, off-site since 2021.
3- Addition of previously permitted Waste Oil Heater emissions.

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
Ammonia	0	0.17
CO_2 Equivalent	621.82	50831.13
Carbon Monoxide	-1.81	248.65
Nitrogen Oxides	4.47	68.29
Particulate Matter - PM_{10}	0.20	3.68
Particulate Matter - $PM_{2.5}$	0.20	2.71
Sulfur Oxides	0.20	0.42
Volatile Organic Compounds	-4.49	30.06

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Acetaldehyde (CAS #75070)	0	5140
Acrolein (CAS #107028)	0	3160
Benzene (Including Benzene From Gasoline) (CAS #71432)	0	280
Formaldehyde (CAS #50000)	0	32500
Generic HAPs (CAS #GHAPS)	60	1200
Hexane (CAS #110543)	0	880
Methanol (CAS #67561)	0	1540
	Change (TPY)	**Total (TPY)**
Total HAPs	0.03	22.35

SECTION I: GENERAL PROVISIONS

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the five-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of five (5) years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]
I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]
I.8	The owner/operator shall submit documentation of the status of construction or modification of Emergency Engines #9-#11 to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO, if construction is discontinued for 18 months or more, or if construction extends beyond the anticipated schedule. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18]

SECTION II: PERMITTED EQUIPMENT

II.A THE APPROVED EQUIPMENT

II.A.1	**CVWRF** Source Wide
II.A.2	**JMS Engines #1 and #2** Two (2) GE Jenbacher Model JMS 612-F28F02 generator engines Rating: 2,509 hp (each) Fuel Type: Natural Gas/Digester Gas NSPS Applicability: 40 CFR 60 Subpart JJJJ MACT Applicability: 40 CFR 63 Subpart ZZZZ

II.A.3	**JMS Engines #3 and #4** Two (2) GE Jenbacher Model JMS 612-F28F02 generator engines Rating: 2,509 hp (each) Fuel Type: Natural Gas/Digester Gas NSPS Applicability: 40 CFR 60 Subpart JJJJ MACT Applicability: 40 CFR 63 Subpart ZZZZ
II.A.4	**H_2S Removal Vessel** H_2S removal vessel upstream of the engines used to treat digester gas.
II.A.5	**Emergency Generator Engines #2 and #3** Rating: 896 hp each Quantity: 2 Fuel: Diesel NSPS Applicability: None MACT Applicability: 40 CFR 63 Subpart ZZZZ
II.A.6	**Emergency Generator Engine #4** Rating: 349 hp Quantity: 1 Fuel: Diesel NSPS Applicability: None MACT Applicability: 40 CFR 63 Subpart ZZZZ
II.A.7	**Emergency Generator Engines #5 and #6** Rating: 800 hp each Quantity: 2 Fuel: Diesel Manufacture Date: 2016 NSPS Applicability: 40 CFR 60 Subpart IIII MACT Applicability: 40 CFR 63 Subpart ZZZZ
II.A.8	**Emergency Generator Engines #7 and #8** Rating: 1,341 hp each Quantity: 2 Fuel: Diesel Manufacture Date: 2015 NSPS Applicability: 40 CFR 60 Subpart IIII MACT Applicability: 40 CFR 63 Subpart ZZZZ
II.A.9	**Three (3) Waste Oil Heaters** Rating: 0.28, 0.33, and 0.35 MMBtu/hr each Fuel: Used Oil
II.A.10	**Two (2) Digester Gas Flares** Fuel Type: Digester Gas
II.A.11	**Boiler #1** Rating: 6.05 MMBtu/hr Fuel: Natural Gas NSPS Applicability: None MACT Applicability: None

II.A.12	**Boiler #2** Rating: 6.28 MMBtu/hr Fuel: Natural Gas NSPS Applicability: None MACT Applicability: None
II.A.13	**Emergency Engines #9, #10, and #11 (NEW)** Fuel: Diesel Rating: 2,680 hp or 6,000 kW Each NSPS Applicability: Subpart IIII MACT Applicability: Subpart ZZZZ

SECTION II: SPECIAL PROVISIONS

II.B REQUIREMENTS AND LIMITATIONS

II.B.1	**Site Wide Requirements**
II.B.1.a	Visible emissions from the following emission points shall not exceed the following values: A. Digester Gas/Natural Gas Engines - 10% opacity B. Diesel Generators - 20% opacity C. Boilers - 10% opacity D. Fugitive Emissions - 15% opacity E. Digester Gas Flare - 10% opacity. [R307-401-8]
II.B.1.a.1	Opacity observations of emissions shall be conducted according to 40 CFR 60, Appendix A, Method 9. [R307-401-8]
II.B.1.b	The owner/operator shall not allow the NO_x emissions from the operation of all non-emergency engines at the plant to exceed 0.648 tons per day. [R307-401-8, SIP Section IX.H.2]
II.B.1.b.1	The owner/operator shall demonstrate compliance with the emission limitation by summing the emissions from all the non-emergency engines. [R307-401-8, SIP Section IX.H.2]
II.B.2	**Waukesha Digester Gas/Natural Gas Engines Requirements**
II.B.2.a	The owner/operator shall use only natural gas and/or digester gas as fuel in all Waukesha and JMS generator engines. [R307-401-8]
II.B.2.b	The owner/operator shall limit emissions from all Waukesha and JMS generator engines to 53 tons of NO_x per rolling 12-month period. [R307-401-8]

II.B.2.b.1	The owner/operator shall determine compliance with a rolling 12-month total by calculating a new 12-month total using data from the previous 12 months. Monthly calculations shall be made no later than 20 days after the end of each calendar month. The owner/operator shall demonstrate compliance with the rolling 12-month limit by using the following equation for each engine and the appropriate conversion factors: NO_x = [Emission rate of engine] x [Hours of operation of engine] [R307-401-8]
II.B.2.b.2	Records of hours of operation shall be kept for all periods when the engines are in operation. Continuous recording is required. Records shall be kept on a daily basis. [R307-401-8]
II.B.2.b.3	The owner/operator shall use the most recent stack test data as the emission rates for the rolling 12-month total calculations. Emission rates for the JMS engines shall be measured as required in II.B.3.a. The most recent stack test data shall be used to determine compliance with the rolling 12-month NO_x limit. For the period between installation and the initial stack test, the NO_x emission limit in II.B.3.a shall be used. A stack test of the Waukesha engine shall be conducted on an annual basis for as long as the engine remains in operation. Testing shall be performed in accordance with the requirements in II.B.3.a.2 through II.B.3.a.5 and II.B.3.a.8 through II.B.3.a.11 of this AO. The source may be tested at any time if directed by the Director. [R307-401-8]
II.B.3	**JMS Digester Gas/Natural Gas Engines Requirements**
II.B.3.a	Emissions to the atmosphere from each of the natural gas/digester gas fired engines shall not exceed the following rates: Source: Digester Gas/Natural Gas Engines (Each Stack) **Pollutant** **Limit (g/bhp-hr)** NO_x 0.55 CO 2.50 VOCs (NMHC) 0.3 [R307-401-8]

II.B.3.a.1	Frequency **Emission Point** / **Pollutant** / **Status** / **Test Frequency** JMS Engine #1 / NO_x / * / + CO / * / + VOC / * / + JMS Engine #2 / NO_x / * / + CO / * / + VOC / * / + JMS Engine #3 / NO_x / * / + CO / * / + VOC / * / + JMS Engine #4 / NO_x / * / + CO / * / + VOC / * / + * Initial compliance testing was required and completed. + Test every three (3) years. The Director may require testing at any time. [R307-401-8]
II.B.3.a.2	Notification The Director shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Director. The source test protocol shall be approved by the Director prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack(s) to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Director. [R307-401-8]
II.B.3.a.3	Sample Location The sampling location shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by EPA and acceptable to the Director. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location. [R307-401-8]
II.B.3.a.4	Volumetric Flow Rate Test Methods 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing methods acceptable to the Director. [R307-401-8]
II.B.3.a.5	NO_x Test Methods 40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other EPA-approved testing methods acceptable to the Director. [R307-401-8]
II.B.3.a.6	CO Test Methods 40 CFR 60, Appendix A, Method 10, or other EPA-approved testing methods acceptable to the Director. [R307-401-8]
II.B.3.a.7	VOC Test Method 40 CFR 60, Appendix A, Method 18, or other EPA-approved testing methods acceptable to the Director. [R307-401-8]

II.B.3.a.8	Calculations To determine mass emission rates (lb./hr., etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Director, to give the results in the specified units of the emission limitation. [R307-401-8]
II.B.3.a.9	New Source Operation For a new source/emission point, the production rate during all compliance testing shall be no less than 90% of the production rate listed in this AO. If the maximum AO allowable production rate has not been achieved at the time of the test, the following procedure shall be followed: 1) Testing shall be at no less than 90% of the production rate achieved to date 2) If the test is passed, the new maximum allowable production rate shall be 110% of the tested achieved rate, but not more than the maximum allowable production rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate 3) The owner/operator shall request a higher production rate when necessary. Testing at no less than 90% of the higher rate shall be conducted. A new maximum production rate (110% of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum AO production rate is achieved. [R307-401-8]
II.B.3.a.10	Existing Source Operation For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years. [R307-401-8]
II.B.3.a.11	The results of stack testing shall be submitted to the Director within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. [R307-401-8]
II.B.4	**Emergency Generator Engines Requirements**
II.B.4.a	The owner/operator shall not test Emergency #9 - #11 concurrently or when any other emergency engine is being tested. [R307-401-8, R307-410-4]
II.B.4.b	The owner/operator shall not exceed 52 tests per engine for Emergency Engines #9 - #11 per rolling 12-month period. [R307-401-8, R307-410-4]
II.B.4.c	Each emergency generator engine shall not exceed 100 hours of operation for testing and maintenance per rolling 12-month period. The 100 hours of operation for testing and maintenance purposes may include up to 50 hours per calendar year for operation in nonemergency situations as provided in 40 CFR 60.4211(f). [R307-401-8]
II.B.4.c.1	Compliance with the limit of the hours of operation shall be determined by installation of an hour meter on the emergency generator engine. Records documenting the operation of the emergency generator engine shall be kept in a log and shall include the following: A. The date the emergency generator engine was used; B. The duration of operation each day in hours; and C. The reason for the emergency generator engine usage. [R307-401-8]

II.B.4.c.2	To determine compliance with the rolling 12-month total, the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. [R307-401-8]
II.B.4.c.3	Records of hours of operation shall be determined by installing a non-resettable hour meter for the emergency generator engine. [40 CFR 63 Subpart ZZZZ]
II.B.5	**Fuel Requirements**
II.B.5.a	The owner/operator shall only use diesel fuel (fuel oil #1, #2, or diesel fuel oil additives) in the emergency generator engines. All diesel burned shall meet the definition of ultra-low sulfur diesel (ULSD), and contain no more than 15 ppm sulfur. [R307-401-8]
II.B.5.a.1	To demonstrate compliance with the diesel fuel requirements for any diesel fuel purchased, the owner/operator shall keep and maintain fuel purchase invoices. The fuel purchase invoices shall indicate that the diesel fuel meets the ULSD requirements, or the owner/operator shall obtain certification of sulfur content from the fuel supplier. [R307-401-8]

PERMIT HISTORY

This Approval Order shall supersede (if a modification) or will be based on the following documents:

Supersedes	AO DAQE-AN104140015-21 dated July 2, 2021
Is Derived From	NOI dated May 4, 2023
Incorporates	Additional Information dated July 7, 2023
Incorporates	Additional Information dated January 4, 2024
Incorporates	Additional Information dated June 13, 2024

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by Environmental Protection Agency to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - Title 40 of the Code of Federal Regulations Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal Division of Air Quality use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - Title 40 of the Code of Federal Regulations 52.21 (b)(49)(i)
GWP	Global Warming Potential - Title 40 of the Code of Federal Regulations Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds