State of Utah

SPENCER J. COX
Governor

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Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN159390004-22

September 9, 2022

Mike Welch
Aligned Energy Data Centers (SLC), LLC
2800 Summit Avenue
Plano, TX 75074
michael.welch@alignedenergy.com

Dear Mr. Welch:

Re: Approval Order:
Modification to Approval Order DAQE-AN159390003-20 to Add and Remove Equipment
Project Number: N159390004

The attached Approval Order (AO) is issued pursuant to the Notice of Intent (NOI) received on April 27, 2022. Aligned Energy Data Centers (SLC), LLC must comply with the requirements of this AO, all applicable state requirements (R307), and Federal Standards.

The project engineer for this action is **Jake Ries**, who can be contacted at (385) 306-6530 or jries@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:JR:jg

cc: Salt Lake County Health Department

STATE OF UTAH
Department of Environmental Quality
Division of Air Quality

APPROVAL ORDER
DAQE-AN159390004-22
Modification to Approval Order DAQE-AN159390003-20 to Add and Remove Equipment

Prepared By
Jake Ries, Engineer
(385) 306-6530
jries@utah.gov

Issued to
Aligned Energy Data Centers (SLC), LLC - West Jordan Data Center

Issued On
September 9, 2022

Issued By



Bryce C. Bird
Director
Division of Air Quality

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GENERAL INFORMATION

CONTACT/LOCATION INFORMATION

Owner Name
Aligned Energy Data Centers (SLC), LLC

Source Name
Aligned Energy Data Centers (SLC), LLC - West Jordan Data Center

Mailing Address
2800 Summit Avenue
Plano, TX 75074

Physical Address
3333 West 9000 South
West Jordan, UT 84088

Source Contact
Name Mike Welch
Phone (203) 981-6922
Email michael.welch@alignedenergy.com

UTM Coordinates
417,920 m Easting
4,493,258 m Northing
Datum NAD83
UTM Zone 12

SIC code 7376 (Computer Facilities Management Services)

SOURCE INFORMATION

General Description
Aligned Energy Data Centers (SLC), LLC (Aligned Energy) is a data center that houses servers to store, manage, and disseminate data. The servers require backup power contingencies to preserve services for customers in the case that local power is interrupted. On-site emissions are from the operation of emergency generator engines. Aligned Energy employs ultra-low sulfur diesel (ULSD) and selective catalytic reduction (SCR).

NSR Classification
Minor Modification at Minor 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: B

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

Project Description
Aligned Energy has requested to add nineteen diesel-fired 3,000 kW emergency generator engines (six in Building C and thirteen in Building B), forty-two diesel-fired 3,100 kW emergency generator engines, and sixty-one diesel storage tanks. Aligned Energy has also requested to remove twenty-nine diesel-fired 2,500 kW emergency generator engines and twenty-nine diesel storage tanks. Facility-wide PTE were re-evaluated as part of this modification based on updated equipment list and operations. The following updates were made to the AO:

1) Added nineteen 3,000 kW and forty-two 3,100 kW emergency generator engines to equipment list and PTE.
2) Added sixty-one diesel storage tanks to equipment list and PTE.
3) Removed twenty-nine emergency generator engines from equipment list and PTE previously listed as II.A.4 and II.A.5.
4) Removed twenty-nine diesel storage tanks from equipment list and PTE previously listed as II.A.6.

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)
CO_2 Equivalent	8760	22920.00
Carbon Monoxide	10.06	29.80
Nitrogen Oxides	23.13	41.13
Particulate Matter - PM_{10}	0.52	2.26
Particulate Matter - $PM_{2.5}$	0.52	2.26
Sulfur Dioxide	0.10	0.25
Volatile Organic Compounds	-0.61	3.83

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Benzene (Including Benzene From Gasoline) (CAS #71432)	82	202
Formaldehyde (CAS #50000)	9	23
Generic HAPs (CAS #GHAPS)	5	29
Hexane (CAS #110543)	0	46
Naphthalene (CAS #91203)	14	34
PAH, Total (CAS #234)	0	33
Propylene[1-Propene] (CAS #115071)	494	494
Toluene (CAS #108883)	30	74
Xylenes (Isomers And Mixture) (CAS #1330207)	35	66
	Change (TPY)	**Total (TPY)**
Total HAPs	0.33	0.50

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 two-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 two (2) 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 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 or if construction is discontinued for 18 months or more. 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	**Aligned Energy Data Center**
II.A.2	**Forty-eight Emergency Generator Engines** Max Power Output: 699 kW each Max Engine Rating: 937 HP each Model Year: Post 2014 Fuel: ultra-low sulfur diesel (ULSD) Control: Selective Catalytic Reduction (SCR) Location: Building A NSPS/MACT Applicability: 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ

II.A.3	**Twelve Emergency Generator Engines** Max Power Output: 2,500 kW each Maximum Rating: 3,673 HP Model Year: Post 2014 Fuel: ULSD Control: SCR Location: Building A NSPS/MACT Applicability: 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ
II.A.4	**Eleven Emergency Generator Engines** Max Power Output: 2,500 kW each Maximum Rating: 3,673 HP Model Year: Post 2014 Fuel: ULSD Control: SCR Location: Building B NSPS/MACT Applicability: 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ
II.A.5	**Thirteen Emergency Generator Engines (NEW)** Max Power Output: 3,000 kW each Maximum Rating: 4,393 HP Model Year: Post 2014 Fuel: ULSD Control: SCR Location: Building B NSPS/MACT Applicability: 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ
II.A.6	**Six Emergency Generator Engines (NEW)** Max Power Output: 3,000 kW each Maximum Rating: 4,393 HP each Model Year: Post 2014 Fuel: ULSD Control: SCR Location: Building C NSPS/MACT Applicability: 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ
II.A.7	**Forty-Two Emergency Generator Engines (NEW)** Max Power Output: 3,100 kW each Maximum Rating: 4,376 HP each Model Year: Post 2014 Fuel: ULSD Control: SCR Location: Building C NSPS/MACT Applicability: 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ
II.A.8	**Ninety-six Storage Tanks (Belly Tanks)** Contents: ULSD Capacity (gallons): Sixty-five 5,000 (each) (sixty-one NEW) Six 4,000 (each) Two 2,000 (each) Twenty-three 4,860 (each)
II.A.9	**Miscellaneous Combustion Equipment** Various heaters and boilers Rating: <5 MMBtu/hr each Fuel: Natural Gas

SECTION II: SPECIAL PROVISIONS

II.B REQUIREMENTS AND LIMITATIONS

II.B.1	**Emergency Generator Engine Requirements**
II.B.1.a	The owner/operator shall not operate each emergency generator engine on site for more than 100 hours per rolling 12-month period during non-emergency situations. There is no time limit on the use of the engine during emergencies. [40 CFR 60 Subpart IIII, R307-401-8]
II.B.1.a.1	To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records documenting the operation of each emergency engine shall be kept in a daily log and shall include the following: A. The date the emergency engine was used B. The duration of operation in hours C. The reason for the emergency engine usage. [40 CFR 60 Subpart IIII, R307-401-8]
II.B.1.a.2	To determine the duration of operation, the owner/operator shall install a non-resettable hour meter on each emergency generator engine on site. [40 CFR 60 Subpart IIII, R307-401-8]
II.B.1.b	The sulfur content of any fuel oil or diesel burned in any emergency generator engine shall not exceed 15 ppm by weight. [40 CFR 60 Subpart IIII, R307-401-8]
II.B.1.b.1	The sulfur content shall be determined by ASTM Method D2880-71, D4294-89, or approved equivalent. Certification of fuels shall be either the owner/operator's own testing, or test reports from the fuel marketer. [R307-203-1]
II.B.1.c	The owner/operator shall certify that each emergency generator engine installed on site has a controlled (i.e., accounting for SCR) NO_x emission rate of no greater than the specified NO_x emission rate for that engine model at the exhaust point: Emission Source — Emission Rate 699 kW Output Emergency Generator Engine — 0.48 lb/hr 2,500 kW Output Emergency Generator Engine — 4.34 lb/hr 3,000 kW Output Emergency Generator Engine — 4.84 lb/hr 3,100 kW Output Emergency Generator Engine — 4.82 lb/hr. [R307-401-8]

II.B.1.c.1	To demonstrate compliance with the above condition, the owner/operator shall either: A. Purchase a stationary internal combustion engine which has obtained certification as defined in 40 CFR 1039.801; or B. Conduct an initial performance test according to 40 CFR part 1039 C. Maintain the manufacturer's emissions guarantee for the installed engine model. [R307-401-8]
II.B.1.c.2	For each emergency generator engine on site, the owner/operator shall maintain records of engine certification, the initial performance test, or the manufacturer's emissions guarantee. [R307-401-8]
II.B.1.d	The owner/operator shall operate the SCRs in accordance with manufacturer specifications and recommendations to minimize ammonia slip and maximize NO_x reductions. [R307-401-8]
II.B.1.e	The owner/operator shall test and replace the SCR catalyst in accordance with the manufacturer's recommendations. [R307-401-8]
II.B.1.e.1	The owner/operator shall maintain records of catalyst testing and replacement for each SCR. The records shall be kept for the life of the equipment. [R307-401-8]
II.B.1.f	The owner/operator shall perform maintenance and testing of the emergency generator engines in accordance with the following: A. The owner/operator shall not operate the engines for maintenance and testing operations before 5:00 AM or after 8:00 PM each day; B. The owner/operator shall not operate more than five emergency generator engines of capacity 699 kW (937 HP) at any one-time during maintenance and testing operations; C. The owner/operator shall not operate more than two 2,500 kW, 3,000 kW, or 3,100 kW output generator engines at any one-time during maintenance and testing operations; D. The owner/operator shall not operate the emergency generator engines of capacity 699 kW and the 2,500 kW, 3,000 kW, or 3,100 kW output generator engines at the same time during maintenance and testing operations; and E. The owner/operator shall not test each generator more than once per month. [R307-410]
II.B.1.f.1	To determine compliance with the maintenance and testing requirements, the owner/operator shall record the date and the time of the day that the maintenance and testing was performed, and the generator cluster that was maintained and tested. The owner/operator shall maintain records of the maintenance and testing on a daily basis. [R307-401-8]

PERMIT HISTORY

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

Supersedes	AO DAQE-AN159390003-20 dated April 8, 2020
Is Derived From	NOI dated April 27, 2022
Incorporates	Additional Information dated May 27, 2022
Incorporates	Additional Information dated June 13, 2022
Incorporates	DAQE-MN159390004-22 dated July 8, 2022
Incorporates	Additional Information dated July 19, 2022

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