State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Cheryl Heying
Director

DAQE-AN0125140001-10

March 22, 2010

Lee Bauerle
Kern River Gas Transmission Company
2755 E Cottonwood Parkway, Suite 300
PO Box 71400
Salt Lake City, UT 84171-0400

Dear Mr. Bauerle:

Re: Approval Order: Modification to DAQE-129-02, to Add a New Turbine Compressor Engine
Project Number: N012514-0001

The attached document is the Approval Order for the above-referenced project. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is Tad Anderson, who may be reached at (801) 536-4456.

Sincerely,

M. Cheryl Heying, Executive Secretary
Utah Air Quality Board

MCH:TA:sa

cc: Utah County Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: Modification to DAQE-129-02 to Add a New Turbine Compressor Engine

Prepared By: Tad Anderson, Engineer
Phone: (801) 536-4456
Email: tdanderson@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN0125140001-10

Date: March 22, 2010

Kern River Gas Transmission Company
Elberta Compressor Station
Source Contact:
Mr. Lee Bauerle
Phone: (801) 937-6353

M. Cheryl Heying
Executive Secretary
Utah Air Quality Board

Abstract

Kern River Gas Transmission Company (Kern River) has requested to modify the existing Elberta Compressor Station located in Utah County. The Elberta Compressor Station will consist of the following equipment: two natural gas turbine compressors, a natural gas emergency generator, a natural gas heater and auxiliary equipment. The Elberta Compressor Station is designed to pressurize natural gas in a natural gas transmission pipeline that runs from Wyoming to California.

Utah County is a nonattainment area for PM_{10}, but is an attainment for all other NAAQS criteria pollutants. With the addition of the new turbine in a nonattainment area, Kern River was required to offset 31.7 tons per year of pollutants. NSPS regulations 40 CFR 60 Subpart KKKK--Standards of Performance for Stationary Combustion Turbines and 40 CFR 60 Subpart GG-Standards of Performance for Stationary Combustion Turbines applies to this source. Title V of the 1990 Clean Air Act does not apply to this source. The Elberta Compressor Station is classified as a minor area source and does not require a Title V operating permit. While this source is located in an area currently designated as nonattainment for $PM_{2.5}$, the preparation of this document was completed prior to the effective date of that designation. EPA policy states that projects with complete permit applications submitted prior to the implementation date of a new requirement, will be grandfathered from meeting the new requirement. The emission increases for the new turbine engine, in tons per year, are as follows: PM_{10} = 3.2, $PM_{2.5}$= 3.2, SO_2 = 1.65, NO_x = 26.8, CO = 27.2, VOC = 3.1, HAPs = 0.5. The total site wide emissions from the Elberta Compressor Station will be as follows: PM_{10} = 6.1, $PM_{2.5}$= 6.1, SO_2 = 3.1, NO_x = 72, CO = 82, VOC = 17, HAPs = 0.91.

This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order. This AO is issued to, and applies to the following:

Name of Permittee:

Kern River Gas Transmission Company
2755 E Cottonwood Parkway, Suite 300
PO Box 71400
Salt Lake City, UT 84171-0400

Permitted Location:

Elberta Compressor Station
SE1/4 SW1/4 Sect 7, T10S, R1
W;39-57-13 Lat, 111-59-10 W Lo
Elberta, UT 84626

UTM coordinates: 255,290 m Easting, 4,136,810 m Northing, UTM Zone 12
SIC code: 4922 (Natural Gas Transmission)

Section I: GENERAL PROVISIONS

I.1 The owner/operator shall comply with UAC R307-107. General Requirements: Unavoidable Breakdowns. [R307-107]

I.2 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.3 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]

I.4 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.5 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 Executive Secretary or Executive Secretary'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.6 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 Executive Secretary 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.7 The owner/operator shall comply with UAC R307-150 Series. Inventories, Testing and Monitoring. [R307-150]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

II.A.1 **Site Wide**
Natural Gas Turbine Compressor Station

II.A.2 **T-1**
Natural Gas Turbine Compressor (Subject to NSPS GG)

Size:	15,000 hp
Control:	SoLoNOX burners
Site rated hp:	10,559 hp**
Stack height:	46 feet from ground**

II.A.3 **T-2**
Natural Gas Turbine Compressor (Subject to NSPS KKKK)

Size:	16,000 hp
Control:	SoLoNOX burners
Site rated hp:	13,933 hp**

II.A.4 **B-1**
Boiler

Capacity:	3.85 MMBTU/hour

II.A.5 **EBG**
Emergency Backup generator

Fuel Type:	Natural Gas
Capacity:	1,072 hp

** These are listed for informational purposes only

II.B Requirements and Limitations

II.B.1 Site Wide Requirements

II.B.1.a Visible emissions from any stationary point or fugitive emission source associated with the source or with the control facilities shall not exceed 10% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-401]

II.B.1.b Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utility is interrupted, or for regular maintenance of the generators. Records documenting generator usage shall be kept in a log and they shall show the date the generator was used, the duration in hours of the generator usage, and the reason for each generator usage. [R307-401]

II.B.1.c Kern River shall notify the Executive Secretary in writing when the installation of the new turbine compressor is completed and is operational. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section. If the construction and/or installation is not complete within 18 months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO. [R307-401]

II.B.2 Requirements on Turbine subject to 40 CFR 60 Subpart GG

II.B.2.a Emissions to the atmosphere at all times from the indicated emission point shall not exceed the following rates and concentrations:

Source: Turbine Compressor Engine (old, subject to 40 CFR 60 Subpart GG)

Pollutant: NO_x
lb/hr: 9.19

Pollutant: CO
lb/hr: 11.19
[R307-401]

II.B.2.b Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

A. Testing

Emissions Points: Turbine Compression Engine Exhaust Stack

Testing Pollutants: NO_x and CO

Frequency: Test every five years using method 10 and 20 or every two years with a portable testing monitor. If a portable testing monitor is to be used, a correlation must be established during the initial test between the portable testing monitor and Method 10 and 20. The Executive Secretary may require testing at any time

B. Notification
The Executive Secretary 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 Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

C. Sample Location
The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

D. Volumetric Flow Rate
40 CFR 60, Appendix A, Method 2 or other testing methods approved by the Executive Secretary.

E. NO_x
40 CFR 60, Appendix A, Method 3A, 7, 7A, 7B, 7C, 7D, 7E, 20 or other testing methods approved by the Executive Secretary.

F. CO
40 CFR 60, Appendix A, Method 10, or other testing methods approved by the Executive Secretary.

G. 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 Executive Secretary, to give the results in the specified units of the emission limitation.

H. New Source Operation
For a new source/emission point, the production rate during all method-testing shall be no less than 90% of the production rate listed in this AO. If the production rate listed in this AO has not been achieved at the time of the test, then method-testing shall be conducted at no less than 90% of the maximum production rate achieved as of the date of the test.

I. 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]

II.B.3 **Requirements on Turbine subject to 40 CFR 60 Subpart KKKK (new)**

II.B.3.a Emissions to the atmosphere at all times from the indicated emission point shall not exceed the following rates and concentrations:

Source: Turbine Compressor Engine

Pollutant: NO_x
lb/hr: 6.53*
ppmdv (15% O_2 dry): 15.00

Pollutant: CO
lb/hr: 6.62*
ppmdv (15% O_2 dry):25.00

Pollutant: VOC
lb/hr: 0.758*
ppmdv (15% O_2 dry): 25.00

*Emission rates based on turbine operation at 0º F. [R307-401]

II.B.3.b Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

A. Testing

Emissions Points: Turbine Compression Engine Exhaust Stack

Testing Pollutants: NO_x, CO, and VOC

Test Status: Initial compliance testing is required. The initial test shall be performed as soon as possible and in no case later than 180 days after the start up of a new emission source. A compliance test is required on the emission point that has an emission rate limit.

Frequency: Compliance test as per 40 CFR 60.4340 (a) or (b), subsequent to the initial compliance test. The Executive Secretary may require testing at any time.

B. Notification
The Executive Secretary 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 Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

C. Sample Location
The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An OSHA or MSHA approved access shall be provided to the test location.

D. Volumetric Flow Rate
40 CFR 60, Appendix A, Method 2 or other testing methods approved by the Executive Secretary.

E. NO_x
40 CFR 60, Appendix A, Method 3A, 7, 7A, 7B, 7C, 7D, 7E, 20 or other testing methods approved by the Executive Secretary.

F. CO
40 CFR 60, Appendix A, Method 10, or other testing methods approved by the Executive Secretary.

G. VOCs
40 CFR 60, Appendix A, Method 18, 25, 25A, 40 CFR 63 Appendix A, Method 320,or other testing methods approved by the Executive Secretary.

H. 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 Executive Secretary, to give the results in the specified units of the emission limitation.

I. New Source Operation
For a new source/emission point, the production rate during all method-testing shall be no less than 90% of the production rate listed in this AO. If the production rate listed in this AO has not been achieved at the time of the test, then method-testing shall be conducted at no less than 90% of the maximum production rate achieved as of the date of the test.

J. 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]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), GG: Stationary Gas Turbines
NSPS (Part 60), KKKK: Stationary Combustion Turbines
NSPS (Part 60), A: General Provisions

PERMIT HISTORY

This AO is based on the following documents:

Is Derived From NOI dated December 7, 2009

ADMINISTRATIVE CODING

The following information is for UDAQ internal classification use only:

Utah County
CDS B
NSPS (Part 60), Nonattainment or Maintenance Area, Title V (Part 70) Area source

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 EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CO	Carbon monoxide
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds

State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

RN125140005

June 17, 2021

Robert Checketts
Kern River Gas Transmission Company
2755 E Cottonwood Parkway
Suite 300, PO Box 71400
Salt Lake City, UT 84121
robert.checketts@kernrivergas.com

Dear Robert Checketts,

Re: Engineer Review:
Modification to AO DAQE-AN0125140001-10 to Replace Turbine and Update Emissions
Project Number: N125140005

The DAQ requests a company representative review and sign the attached Engineer Review (ER). This ER identifies all applicable elements of the New Source Review permitting program. Kern River Gas Transmission Company should complete this review within **10 business days** of receipt.

Kern River Gas Transmission Company should contact **Ms. Catherine Wyffels** at (385) 306-6531 if there are questions or concerns with the review of the draft permit conditions. Upon resolution of your concerns, please email cwyffels@utah.gov the signed cover letter to Ms. Catherine Wyffels. Upon receipt of the signed cover letter, the DAQ will prepare an ITA for a 30-day public comment period. At the completion of the comment period, the DAQ will address any comments and will prepare an AO for signature by the DAQ Director.

If Kern River Gas Transmission Company does not respond to this letter within **10 business days,** the project will move forward without source concurrence. If Kern River Gas Transmission Company has concerns that cannot be resolved and the project becomes stagnant, the DAQ Director may issue an Order prohibiting construction.

Approval Signature _____ June 24, 2021
(Signature & Date)

UTAH DIVISION OF AIR QUALITY
ENGINEER REVIEW

SOURCE INFORMATION

Project Number	N125140005
Owner Name	Kern River Gas Transmission Company
Mailing Address	2755 E Cottonwood Parkway Suite 300, PO Box 71400 Salt Lake City, UT, 84121
Source Name	Kern River Gas Transmission Company- Elberta Compressor Station
Source Location	SE1/4 SW1/4 Sect 7, T10S, R1 W,39-57-13 Lat, 111-59-10 W Lo Elberta, UT 84626
UTM Projection	415,772 m Easting, 4,423,002 m Northing
UTM Datum	NAD83
UTM Zone	UTM Zone 12
SIC Code	4922 (Natural Gas Transmission)
Source Contact	Denise Kohtala
Phone Number	(801) 937-6347
Email	denise.kohtala@kernrivergas.com
Project Engineer	Ms Catherine Wyffels, Engineer
Phone Number	(385) 306-6531
Email	cwyffels@utah gov
Notice of Intent (NOI) Submitted	April 28, 2021
Date of Accepted Application	May 12, 2021

SOURCE DESCRIPTION

General Description
The Kern River Gas Transmission Company (Kern River) Elberta Compressor Station consists of the following equipment: two natural gas turbine compressors, one natural gas-fired emergency generator, one natural gas-fired boiler, and auxiliary equipment. The Elberta Compressor Station is designed to pressurize natural gas in a natural gas transmission pipeline that runs from Wyoming to California

NSR Classification:
Minor Modification at Minor Source

Source Classification
Located in Provo UT $PM_{2.5}$ NAA
Utah County
Airs Source Size: B

Applicable Federal Standards
NSPS (Part 60), A. General Provisions
NSPS (Part 60), GG. Standards of Performance for Stationary Gas Turbines
NSPS (Part 60), KKKK: Standards of Performance for Stationary Combustion Turbines
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) Area Source

Project Proposal
Modification to AO DAQE-AN0125140001-10 to Replace Turbine and Update Emissions

Project Description
Kern River has submitted an NOI to replace Turbine 1 with a 15 ppm NO_x unit. The turbine replacement is expected to be completed in Spring 2024. This replacement is considered a routine maintenance activity for turbines and meets the requirements of a replacement-in-kind in R307-401-11.

No other changes are proposed to existing equipment However, facility-wide emissions were re-evaluated as part of this NOI This included adding emissions from a storage tank, blowdown/venting, engine startup and shutdowns, and fugitive components These emissions had not been previously quantified and were not included in previous PTE calculations

EMISSION IMPACT ANALYSIS

Emission increases are below the thresholds in R307-410-4 and R-307-410-5. Therefore, modeling is not required [Last updated May 4, 2021]

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		119224.00
Carbon Monoxide	-13.15	68.85
Nitrogen Oxides	-12.33	59.55
Particulate Matter - PM_{10}	-0.02	6 11
Particulate Matter - $PM_{2\,5}$		6 11
Sulfur Dioxide	-2 92	0.22
Volatile Organic Compounds	-5 09	12.19
Volatile Organic Compounds - Fugitive		0 16

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Generic HAPs (CAS #GHAPS)		2111
	Change (TPY)	**Total (TPY)**
Total HAPs	0.15	1.06

Note: Change in emissions indicates the difference between previous AO and proposed modification.

Review of BACT for New/Modified Emission Units

1. **BACT review regarding Replaced Turbine**
This turbine replacement meets the provisions of a replacement-in-kind in R307-401-11 The emission increases are based on revisions to the emission calculations and assumptions and are not due to a modification to existing equipment Therefore, BACT is not required
[Last updated May 14, 2021]

SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO **(New or Modified conditions are indicated as "New" in the Outline Label):**

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 or modification 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

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.A THE APPROVED EQUIPMENT

II.A.1	**Site Wide** Natural Gas Turbine Compressor Station
II.A.2	**Solar Mars 100-15000S Turbine (T-1)** Natural Gas Turbine Compressor Rating. 15,000 hp Control. SoLoNO$_x$ burners NSPS Applicability· 40 CFR 60 Subpart GG
II A 3	**Solar Mars 100 T-16000SA Turbine (T-2)** Natural Gas Turbine Compressor Rating· 16,000 hp Control. SoLoNO$_x$ burners NSPS Applicability: 40 CFR 60 Subpart KKKK
II.A.4	**Boiler (B-1)** Rating. 3.85 MMBTU/hour Fuel: Natural Gas NSPS/NESHAP Applicability: None
II A 5	**Emergency Generator Engine** Rating· 1,072 hp Fuel Type· Natural Gas NSPS Applicability: None NESHAP Applicability· 40 CFR 63 Subpart ZZZZ
II.A.6 NEW	**Storage Tank** Capacity: 4,200 gal Content. Pipeline liquids

SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.B REQUIREMENTS AND LIMITATIONS

II B 1 NEW	**Sitewide Requirements**
II B 1 a NEW	Visible emissions from any stationary point or fugitive emission source shall not exceed 10% opacity [R307-401-8]
II.B.1.a.1 NEW	Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-401-8]
II.B.1.b NEW	The owner/operator shall only use pipeline quality natural gas in the turbines, boiler, and the emergency generator [R307-401-8]
II B 2 NEW	**Turbine Requirements**
II B 2 a NEW	Emissions to the atmosphere from the following emission points shall not exceed the following rates and concentrations: **Source: Solar Mars 100-15000S Turbine (T-1)** **i. Prior to the completion of turbine replacement, the following emission factors shall apply.** NO_x: Emission Rate (lb/hr) 9 19; Concentration (ppmvd)** 25 CO: Emission Rate (lb/hr) 11.19; Concentration (ppmvd)** 50 The above emission factors shall only apply for the stack test required within 180 days from the date of this AO. **ii. After completion of turbine replacement, the following emission factors shall apply.** NO_x: Emission Rate (lb/hr) 6 30; Concentration (ppmvd)** 15 CO: Emission Rate (lb/hr) 6 39; Concentration (ppmvd)** 25 VOC: Emission Rate (lb/hr) 0.73; Concentration (ppmvd)** 25 **Source: Solar Mars 100 T-16000SA Turbine (T-2)** NO_x: Emission Rate (lb/hr) 6.53; Concentration (ppmvd)** 15 CO: Emission Rate (lb/hr) 6.62; Concentration (ppmvd)** 25 VOC: Emission Rate (lb/hr) 0.758; Concentration (ppmvd)** 25 ** ppmvd at 15% O_2 [R307-401-8]

II.B.2 b NEW	Stack tests shall be conducted at the following frequency: **Test Status** **Frequency** Solar Mars 100-15000S Turbine (T-1) Before Replacement * N/A After Replacement ** # Solar Mars 100 T-16000SA Turbine (T-2) *** ## *Testing shall be performed no later than 180 days from the date of this AO. ** Initial testing shall be performed as soon as possible and in no case later than 180 days after turbine replacement is completed. *** Initial compliance test already conducted N/A - Not applicable # Test every 3 years. The Director may require testing at any time ##Test in accordance with 40 CFR 60.4340(a) or (b) The Director may require testing at any time [R307-401-8]
II.B 2 c NEW	The owner/operator shall conduct any stack testing required by this AO according to the following conditions. [R307-401-8]
II B 2 c.1 NEW	**Notification** At least 30 days prior to conducting a stack test, the owner/operator shall submit a source test protocol to the Director The source test protocol shall include the items contained in R307-165-3. If directed by the Director, the owner/operator shall attend a pretest conference. [R307-165-3, R307-401-8]
II.B.2.c.2 NEW	**Testing & Test Conditions** The owner/operator shall conduct testing according to the approved source test protocol and according to the test conditions contained in R307-165-4. [R307-165-4, R307-401-8]
II B 2 c 3 NEW	**Access** The owner/operator shall provide Occupational Safety and Health Administration (OSHA)- or Mine Safety and Health Administration (MSHA)-approved access to the test location. [R307-401-8]
II.B.2.c.4 NEW	**Reporting** No later than 60 days after completing a stack test, the owner/operator shall submit a written report of the results from the stack testing to the Director. The report shall include validated results and supporting information. [R307-165-5, R307-401-8]

II.B 2 c.5 NEW	**Possible Rejection of Test Results** The Director may reject stack testing results if the test did not follow the approved source test protocol or for a reason specified in R307-165-6. [R307-165-6, R307-401-8]
II B 2.d NEW	**Test Methods** When performing stack testing, the owner/operator shall use the appropriate EPA-approved test methods as acceptable to the Director Acceptable test methods for pollutants are listed below. [R307-401-8]
II.B.2.d.1 NEW	**NO_x** 40 CFR 60, Appendix A, Method 7; Method 7E; or other EPA-approved testing method as acceptable to the Director. [R307-401-8]
II.B.2.d.2 NEW	**VOC** 40 CFR 60, Appendix A, Method 18, Method 25; Method 25A, 40 CFR 63, Appendix A, Method 320; or other EPA-approved testing method as acceptable to the Director. [R307-401-8]
II.B 2 d 3 NEW	**CO** 40 CFR 60, Appendix A, Method 10 or other EPA-approved testing method as acceptable to the Director. [R307-401-8]
II.B.3 NEW	**Emergency Engine Requirements**
II B 3 a NEW	The owner/operator shall not operate the emergency 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 63 Subpart ZZZZ, R307-401-8]
II.B.3.a 1 NEW	To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 30th day of each month using data from the previous 12 months Records documenting the operation of each emergency engine shall be kept in a 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 ZZZZ, R307-401-8]
II.B.3.a.2 NEW	To determine the duration of operation, the owner/operator shall install a non-resettable hour meter for the emergency engine. [40 CFR 60 Subpart ZZZZ, R307-401-8]

PERMIT HISTORY

When issued, the approval order shall supersede (if a modification) or will be based on the following documents.

Incorporates	Additional Information dated May 11, 2021
Is Derived From	NOI dated April 28, 2021
Supersedes	DAQE-AN0125140001-10 dated March 22, 2010

REVIEWER COMMENTS

1. **Comment regarding Emission Estimates:**
Emissions were estimated for the following sources: T-1 turbine, T-2 turbine, startup/shutdown events, blowdowns, fugitive component emissions, emergency generator, boiler, and storage tank

Emissions from the T-1 Turbine were estimated based on a fuel usage of 977 11 MMscf/yr, a low fuel heating value of 939.2 BTU/scf, and 8,760 hours of operation per year. Emission factors for NO_x, CO, and VOC were based on manufacturer predicted performance data. VOC emissions were assumed to be 20% of unburned hydrocarbons. SO_2, PM_{10}, and $PM_{2.5}$ emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3.1-2a For a conservative estimate, PM emissions are assumed to equal PM_{10} and $PM_{2.5}$ HAPs emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3.1-3. GHG emissions were based on emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C

Emissions from the T-2 Turbine were estimated based on a fuel usage of 952.11 MMscf/yr, a low fuel heating value of 939 2 BTU/scf, and 8,760 hours of operation per year. Emission factors for NO_x, CO, and VOC were based on manufacturer predicted performance data VOC emissions were assumed to be 20% of unburned hydrocarbons SO_2, PM_{10}, and $PM_{2.5}$ emissions were based on the emission factors in EPA's AP-42 Chapter 3 1, Table 3.1-2a For a conservative estimate, PM emissions are assumed to equal PM_{10} and $PM_{2.5}$. HAPs emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3 1-3. GHG emissions were based on emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C.

Startup/shutdown emissions were based on the emission factors from Solar Turbines document "Emission Estimates at Startup, Shutdown, and Commissioning for SoloNO$_x$ Combustion Products", September 15, 2020. A total of 100 startup events and 100 shutdown events were assumed for each turbine per year.

Blowdown/venting emissions were based on a volume of vented gas of 20,373 Mcf, which is the highest of the annual volume vented from 2018 through 2020 with a safety factor of 3 applied. The gas compositions for years 2018, 2019, and 2020 were averaged and used to determine HAPs emissions.

Fugitive component emissions were based on the default number of components in GRI-HAPCalc 3 0 Program for compressor stations and the emission factors in Table 2-4 of EPA's *Protocol for Equipment Leak Emission Estimates*, dated November 1995. The average of gas composition from 2018, 2019, and 2020 data was used to determine VOC and HAPs emissions.

Emissions from the emergency generator engine were based on the emission factors in AP-42 Table 3.2-2 for NO_x, CO, PM_{10}, $PM_{2.5}$, VOCs, and SO_2, and HAPs. GHG emissions were based on

emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C. Emissions were calculated by multiplying the generator capacity (7 73 MMBtu/hr) by the hours of operation (100 hrs/yr) and dividing by the natural gas high heating value (1,050 BTU/scf)

Boiler emissions were based on the emission factors in AP-42 Chapter 1.4, Table 1.4-1 for NO_x and CO, Table 1.4-2 for PM, SO_2, VOCs. All PM was assumed to be PM_{10} and $PM_{2.5}$; and Tables 1.4-3 and 1.4-4 for HAPs GHG emissions were based on emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C.

Emissions from the storage tanks were estimated using EPA Tanks 4 0 9D for a vertical fixed roof tank storing pipeline liquids. A storage capacity of 4,200 gallons was used with a turnover rate of 0 2
[Last updated June 11, 2021]

2. **Comment regarding Turbine T-1 NSPS Applicability:**
40 CFR 60 Subpart GG (Standards of Performance for Stationary Gas Turbines) applies to turbines with a heat input at peak load greater than or equal to 10 MMBtu/hr and that commenced construction, modification, or reconstruction after October 3, 1977 Turbine T-1 will continue to be subject to the requirements of this subpart after the proposed turbine replacement.

40 CFR 60 Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) applies to stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005. The proposed replacement of Turbine T-1 will not trigger applicability of this subpart because it is not considered a construction, modification or reconstruction of the turbine, as detailed below.
Construction - The turbine was constructed prior to the 2005 applicability date
Modification - The proposed turbine replacement will not result in an increase in emissions, and is therefore, not considered a modification.
Reconstruction - 40 CFR 60 15 defines reconstruction as replacement of the components of an existing facility such that the fixed capital cost of the new component exceeds 50% of the fixed capital cost of a comparable new facility Kern River provided the costs for the engine overhaul and a new turbine as part of the NOI for this modification The cost of the engine overhaul is estimated at approximately 24% of the cost for a new turbine. Therefore, this change is not considered a reconstruction

[Last updated May 14, 2021]

3. **Comment regarding Changes to the AO:**
In addition to the proposed changes, DAQ made the following updates to the AO:

1 - Updated emergency generators condition to use most updated language and format.
2 - Updated emergency engine emissions based on 100 hours of operation per year for maintenance and testing
3 - Updated stack testing conditions to use most updated language and format
4 - Increased stack testing frequency from every five years to every three years This is consistent with the stack testing frequencies for other sources located within the $PM_{2.5}$ or ozone nonattainment areas. Removed the option to use a portable monitor to demonstrate compliance with emission limits.

[Last updated May 14, 2021]

4. **Comment regarding Engine NSPS/NESHAP Applicability:**
40 CFR 63 Subpart ZZZZ applies to owners and operators of stationary reciprocating internal combustion engines (RICE) at a major or area source of HAP emissions Since this source will have a stationary RICE at an area source of HAP emissions, this Subpart will apply to this facility 40 CFR 63 Subpart ZZZZ considers a stationary RICE as existing if construction or reconstruction of the stationary RICE commenced before June 12, 2006 The engine at this facility was manufactured prior to 2006 so it meets the criteria of an existing stationary RICE Therefore, this engine is subject to the requirements for an existing stationary emergency engine at an area source of HAPs emissions in 40 CFR 63 Subpart ZZZZ

40 CFR 60 NSPS Subpart JJJJ applies to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction after June 12, 2006, where the stationary SI ICE are manufactured on or after July 1, 2008, for engines with a maximum engine power less than 500 hp. The engine at this facility was manufactured prior to 2006, therefore, NSPS Subpart JJJJ will not apply

[Last updated June 11, 2021]

5. **Comment regarding Turbine Replacement Timeline and Emission Limits:**
The replacement of Turbine 1 with a 15 ppm emission unit is expected to occur by Spring 2024. In order to extend the construction timeline to Spring 2024, Kern River will be required to submit a notification to DAQ within 18-months of the date of issuance of this AO, in accordance with Condition I.8 of this AO. With this notification, DAQ will extend the construction timeframe by an additional 18-months, which would give Kern River until approximately end of summer of 2024 to complete the turbine replacement.

The existing Turbine 1 will continue to operate and will be allowed to comply with the emission limits of 9.19 lb/hr NO_x and 11.19 lb/hr CO established in DAQE-AN01251400001-10 until the turbine replacement is completed. The last stack test for Turbine 1 was conducted in December 2017. The next stack test was scheduled to be conducted by December 2022, however, because of the change to the testing frequency in this AO, the next stack tests will be required within 180 days from issuance of this AO. This will result Turbine 1 being tested before the replacement of the turbines is complete. Therefore, the original emission limits will be included in this AO and will only be valid for the stack tests scheduled to be conducted prior to the turbine replacement.

[Last updated June 16, 2021]

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 EPA 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 - 40 CFR 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 UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52 21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86 1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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

State of Utah
SPENCER J. COX
Governor
DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality
Kimberly D. Shelley
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

RN125140005

June 17, 2021

Robert Checketts
Kern River Gas Transmission Company
2755 E Cottonwood Parkway
Suite 300, PO Box 71400
Salt Lake City, UT 84121
robert.checketts@kernrivergas.com

Dear Robert Checketts,

Re: Engineer Review:
Modification to AO DAQE-AN0125140001-10 to Replace Turbine and Update Emissions
Project Number: N125140005

The DAQ requests a company representative review and sign the attached Engineer Review (ER). This ER identifies all applicable elements of the New Source Review permitting program. Kern River Gas Transmission Company should complete this review within **10 business days** of receipt.

Kern River Gas Transmission Company should contact **Ms. Catherine Wyffels** at (385) 306-6531 if there are questions or concerns with the review of the draft permit conditions. Upon resolution of your concerns, please email cwyffels@utah.gov the signed cover letter to Ms. Catherine Wyffels. Upon receipt of the signed cover letter, the DAQ will prepare an ITA for a 30-day public comment period. At the completion of the comment period, the DAQ will address any comments and will prepare an AO for signature by the DAQ Director.

If Kern River Gas Transmission Company does not respond to this letter within **10 business days,** the project will move forward without source concurrence. If Kern River Gas Transmission Company has concerns that cannot be resolved and the project becomes stagnant, the DAQ Director may issue an Order prohibiting construction.

Approval Signature _____
(Signature & Date)

UTAH DIVISION OF AIR QUALITY
ENGINEER REVIEW

SOURCE INFORMATION

Project Number	N125140005
Owner Name	Kern River Gas Transmission Company
Mailing Address	2755 E Cottonwood Parkway Suite 300, PO Box 71400 Salt Lake City, UT, 84121
Source Name	Kern River Gas Transmission Company- Elberta Compressor Station
Source Location	SE1/4 SW1/4 Sect 7, T10S, R1 W;39-57-13 Lat, 111-59-10 W Lo Elberta, UT 84626
UTM Projection	415,772 m Easting, 4,423,002 m Northing
UTM Datum	NAD83
UTM Zone	UTM Zone 12
SIC Code	4922 (Natural Gas Transmission)
Source Contact	Denise Kohtala
Phone Number	(801) 937-6347
Email	denise.kohtala@kernrivergas.com
Project Engineer	Ms. Catherine Wyffels, Engineer
Phone Number	(385) 306-6531
Email	cwyffels@utah.gov
Notice of Intent (NOI) Submitted	April 28, 2021
Date of Accepted Application	May 12, 2021

SOURCE DESCRIPTION

General Description
The Kern River Gas Transmission Company (Kern River) Elberta Compressor Station consists of the following equipment: two natural gas turbine compressors, one natural gas-fired emergency generator, one natural gas-fired boiler, and auxiliary equipment. The Elberta Compressor Station is designed to pressurize natural gas in a natural gas transmission pipeline that runs from Wyoming to California.

NSR Classification:
Minor Modification at Minor Source

Source Classification
Located in Provo UT $PM_{2.5}$ NAA
Utah County
Airs Source Size: B

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), GG: Standards of Performance for Stationary Gas Turbines
NSPS (Part 60), KKKK: Standards of Performance for Stationary Combustion Turbines
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) Area Source

Project Proposal
Modification to AO DAQE-AN0125140001-10 to Replace Turbine and Update Emissions

Project Description
Kern River has submitted an NOI to replace Turbine 1 with a 15 ppm NO_x unit. The turbine replacement is expected to be completed in Spring 2024. This replacement is considered a routine maintenance activity for turbines and meets the requirements of a replacement-in-kind in R307-401-11.

No other changes are proposed to existing equipment. However, facility-wide emissions were re-evaluated as part of this NOI. This included adding emissions from a storage tank, blowdown/venting, engine startup and shutdowns, and fugitive components. These emissions had not been previously quantified and were not included in previous PTE calculations.

EMISSION IMPACT ANALYSIS

Emission increases are below the thresholds in R307-410-4 and R-307-410-5. Therefore, modeling is not required. [Last updated May 4, 2021]

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		119224.00
Carbon Monoxide	-13.15	68.85
Nitrogen Oxides	-12.33	59.55
Particulate Matter - PM_{10}	-0.02	6.11
Particulate Matter - $PM_{2.5}$		6.11
Sulfur Dioxide	-2.92	0.22
Volatile Organic Compounds	-5.09	12.19
Volatile Organic Compounds - Fugitive		0.16

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Generic HAPs (CAS #GHAPS)		2111
	Change (TPY)	**Total (TPY)**
Total HAPs	0.15	1.06

Note: Change in emissions indicates the difference between previous AO and proposed modification.

Review of BACT for New/Modified Emission Units

1. **BACT review regarding Replaced Turbine**
   This turbine replacement meets the provisions of a replacement-in-kind in R307-401-11. The emission increases are based on revisions to the emission calculations and assumptions and are not due to a modification to existing equipment. Therefore, BACT is not required.
   [Last updated May 14, 2021]

SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

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 or modification 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

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.A THE APPROVED EQUIPMENT

II.A.1	**Site Wide** Natural Gas Turbine Compressor Station
II.A.2	**Solar Mars 100-15000S Turbine (T-1)** Natural Gas Turbine Compressor Rating: 15,000 hp Control: SoLoNO$_x$ burners NSPS Applicability: 40 CFR 60 Subpart GG
II.A.3	**Solar Mars 100 T-16000SA Turbine (T-2)** Natural Gas Turbine Compressor Rating: 16,000 hp Control: SoLoNO$_x$ burners NSPS Applicability: 40 CFR 60 Subpart KKKK
II.A.4	**Boiler (B-1)** Rating: 3.85 MMBTU/hour Fuel: Natural Gas NSPS/NESHAP Applicability: None
II.A.5	**Emergency Generator Engine** Rating: 1,072 hp Fuel Type: Natural Gas NSPS Applicability: None NESHAP Applicability: 40 CFR 63 Subpart ZZZZ
II.A.6 NEW	**Storage Tank** Capacity: 4,200 gal Content: Pipeline liquids

SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.B REQUIREMENTS AND LIMITATIONS

II.B.1 NEW	**Sitewide Requirements**
II.B.1.a NEW	Visible emissions from any stationary point or fugitive emission source shall not exceed 10% opacity. [R307-401-8]
II.B.1.a.1 NEW	Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-401-8]
II.B.1.b NEW	The owner/operator shall only use pipeline quality natural gas in the turbines, boiler, and the emergency generator. [R307-401-8]
II.B.2 NEW	**Turbine Requirements**
II.B.2.a NEW	Emissions to the atmosphere from the following emission points shall not exceed the following rates and concentrations: **Source: Solar Mars 100-15000S Turbine (T-1)** **i. Prior to the completion of turbine replacement, the following emission factors shall apply.** NO_x: Emission Rate (lb/hr) 9.19; Concentration (ppmvd)** 25 CO: Emission Rate (lb/hr) 11.19; Concentration (ppmvd)** 50 The above emission factors shall only apply for the stack test required within 180 days from the date of this AO. **ii. After completion of turbine replacement, the following emission factors shall apply.** NO_x: Emission Rate (lb/hr) 6.30; Concentration (ppmvd)** 15 CO: Emission Rate (lb/hr) 6.39; Concentration (ppmvd)** 25 VOC: Emission Rate (lb/hr) 0.73; Concentration (ppmvd)** 25 **Source: Solar Mars 100 T-16000SA Turbine (T-2)** NO_x: Emission Rate (lb/hr) 6.53; Concentration (ppmvd)** 15 CO: Emission Rate (lb/hr) 6.62; Concentration (ppmvd)** 25 VOC: Emission Rate (lb/hr) 0.758; Concentration (ppmvd)** 25 ** ppmvd at 15% O_2. [R307-401-8]

II.B.2.b NEW	Stack tests shall be conducted at the following frequency: **Test Status** **Frequency** Solar Mars 100-15000S Turbine (T-1) Before Replacement * N/A After Replacement ** # Solar Mars 100 T-16000SA Turbine (T-2) *** ## *Testing shall be performed no later than 180 days from the date of this AO. ** Initial testing shall be performed as soon as possible and in no case later than 180 days after turbine replacement is completed. *** Initial compliance test already conducted N/A - Not applicable # Test every 3 years. The Director may require testing at any time. ##Test in accordance with 40 CFR 60.4340(a) or (b). The Director may require testing at any time. [R307-401-8]
II.B.2.c NEW	The owner/operator shall conduct any stack testing required by this AO according to the following conditions. [R307-401-8]
II.B.2.c.1 NEW	**Notification** At least 30 days prior to conducting a stack test, the owner/operator shall submit a source test protocol to the Director. The source test protocol shall include the items contained in R307-165-3. If directed by the Director, the owner/operator shall attend a pretest conference. [R307-165-3, R307-401-8]
II.B.2.c.2 NEW	**Testing & Test Conditions** The owner/operator shall conduct testing according to the approved source test protocol and according to the test conditions contained in R307-165-4. [R307-165-4, R307-401-8]
II.B.2.c.3 NEW	**Access** The owner/operator shall provide Occupational Safety and Health Administration (OSHA)- or Mine Safety and Health Administration (MSHA)-approved access to the test location. [R307-401-8]
II.B.2.c.4 NEW	**Reporting** No later than 60 days after completing a stack test, the owner/operator shall submit a written report of the results from the stack testing to the Director. The report shall include validated results and supporting information. [R307-165-5, R307-401-8]

II.B.2.c.5 NEW	**Possible Rejection of Test Results** The Director may reject stack testing results if the test did not follow the approved source test protocol or for a reason specified in R307-165-6. [R307-165-6, R307-401-8]
II.B.2.d NEW	**Test Methods** When performing stack testing, the owner/operator shall use the appropriate EPA-approved test methods as acceptable to the Director. Acceptable test methods for pollutants are listed below. [R307-401-8]
II.B.2.d.1 NEW	**NO_x** 40 CFR 60, Appendix A, Method 7; Method 7E; or other EPA-approved testing method as acceptable to the Director. [R307-401-8]
II.B.2.d.2 NEW	**VOC** 40 CFR 60, Appendix A, Method 18; Method 25; Method 25A; 40 CFR 63, Appendix A, Method 320; or other EPA-approved testing method as acceptable to the Director. [R307-401-8]
II.B.2.d.3 NEW	**CO** 40 CFR 60, Appendix A, Method 10 or other EPA-approved testing method as acceptable to the Director. [R307-401-8]
II.B.3 NEW	**Emergency Engine Requirements**
II.B.3.a NEW	The owner/operator shall not operate the emergency 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 63 Subpart ZZZZ, R307-401-8]
II.B.3.a.1 NEW	To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 30th day of each month using data from the previous 12 months. Records documenting the operation of each emergency engine shall be kept in a 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 ZZZZ, R307-401-8]
II.B.3.a.2 NEW	To determine the duration of operation, the owner/operator shall install a non-resettable hour meter for the emergency engine. [40 CFR 60 Subpart ZZZZ, R307-401-8]

PERMIT HISTORY

When issued, the approval order shall supersede (if a modification) or will be based on the following documents:

Incorporates	Additional Information dated May 11, 2021
Is Derived From	NOI dated April 28, 2021
Supersedes	DAQE-AN0125140001-10 dated March 22, 2010

REVIEWER COMMENTS

1. **Comment regarding Emission Estimates:**

Emissions were estimated for the following sources: T-1 turbine, T-2 turbine, startup/shutdown events, blowdowns, fugitive component emissions, emergency generator, boiler, and storage tank.

Emissions from the T-1 Turbine were estimated based on a fuel usage of 977.11 MMscf/yr, a low fuel heating value of 939.2 BTU/scf, and 8,760 hours of operation per year. Emission factors for NO_x, CO, and VOC were based on manufacturer predicted performance data. VOC emissions were assumed to be 20% of unburned hydrocarbons. SO_2, PM_{10}, and $PM_{2.5}$ emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3.1-2a. For a conservative estimate, PM emissions are assumed to equal PM_{10} and $PM_{2.5}$. HAPs emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3.1-3. GHG emissions were based on emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C.

Emissions from the T-2 Turbine were estimated based on a fuel usage of 952.11 MMscf/yr, a low fuel heating value of 939.2 BTU/scf, and 8,760 hours of operation per year. Emission factors for NO_x, CO, and VOC were based on manufacturer predicted performance data. VOC emissions were assumed to be 20% of unburned hydrocarbons. SO_2, PM_{10}, and $PM_{2.5}$ emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3.1-2a. For a conservative estimate, PM emissions are assumed to equal PM_{10} and $PM_{2.5}$. HAPs emissions were based on the emission factors in EPA's AP-42 Chapter 3.1, Table 3.1-3. GHG emissions were based on emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C.

Startup/shutdown emissions were based on the emission factors from Solar Turbines document "Emission Estimates at Startup, Shutdown, and Commissioning for SoloNO_x Combustion Products", September 15, 2020. A total of 100 startup events and 100 shutdown events were assumed for each turbine per year.

Blowdown/venting emissions were based on a volume of vented gas of 20,373 Mcf, which is the highest of the annual volume vented from 2018 through 2020 with a safety factor of 3 applied. The gas compositions for years 2018, 2019, and 2020 were averaged and used to determine HAPs emissions.

Fugitive component emissions were based on the default number of components in GRI-HAPCalc 3.0 Program for compressor stations and the emission factors in Table 2-4 of EPA's *Protocol for Equipment Leak Emission Estimates*, dated November 1995. The average of gas composition from 2018, 2019, and 2020 data was used to determine VOC and HAPs emissions.

Emissions from the emergency generator engine were based on the emission factors in AP-42 Table 3.2-2 for NO_x, CO, PM_{10}, $PM_{2.5}$, VOCs, and SO_2, and HAPs. GHG emissions were based on

emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C. Emissions were calculated by multiplying the generator capacity (7.73 MMBtu/hr) by the hours of operation (100 hrs/yr) and dividing by the natural gas high heating value (1,050 BTU/scf).

Boiler emissions were based on the emission factors in AP-42 Chapter 1.4, Table 1.4-1 for NO_x and CO; Table 1.4-2 for PM, SO_2, VOCs. All PM was assumed to be PM_{10} and $PM_{2.5}$; and Tables 1.4-3 and 1.4-4 for HAPs. GHG emissions were based on emission factors in Tables C-1 and C-2 of 40 CFR 98 Subpart C.

Emissions from the storage tanks were estimated using EPA Tanks 4.0.9D for a vertical fixed roof tank storing pipeline liquids. A storage capacity of 4,200 gallons was used with a turnover rate of 0.2.
[Last updated June 11, 2021]

2. **Comment regarding Turbine T-1 NSPS Applicability:**
40 CFR 60 Subpart GG (Standards of Performance for Stationary Gas Turbines) applies to turbines with a heat input at peak load greater than or equal to 10 MMBtu/hr and that commenced construction, modification, or reconstruction after October 3, 1977. Turbine T-1 will continue to be subject to the requirements of this subpart after the proposed turbine replacement.

40 CFR 60 Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) applies to stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005. The proposed replacement of Turbine T-1 will not trigger applicability of this subpart because it is not considered a construction, modification or reconstruction of the turbine, as detailed below.
Construction - The turbine was constructed prior to the 2005 applicability date.
Modification - The proposed turbine replacement will not result in an increase in emissions, and is therefore, not considered a modification.
Reconstruction - 40 CFR 60.15 defines reconstruction as replacement of the components of an existing facility such that the fixed capital cost of the new component exceeds 50% of the fixed capital cost of a comparable new facility. Kern River provided the costs for the engine overhaul and a new turbine as part of the NOI for this modification. The cost of the engine overhaul is estimated at approximately 24% of the cost for a new turbine. Therefore, this change is not considered a reconstruction.

[Last updated May 14, 2021]

3. **Comment regarding Changes to the AO:**
In addition to the proposed changes, DAQ made the following updates to the AO:

1 - Updated emergency generators condition to use most updated language and format.
2 - Updated emergency engine emissions based on 100 hours of operation per year for maintenance and testing.
3 - Updated stack testing conditions to use most updated language and format
4 - Increased stack testing frequency from every five years to every three years. This is consistent with the stack testing frequencies for other sources located within the $PM_{2.5}$ or ozone nonattainment areas. Removed the option to use a portable monitor to demonstrate compliance with emission limits.

[Last updated May 14, 2021]

4. **Comment regarding Engine NSPS/NESHAP Applicability:**

40 CFR 63 Subpart ZZZZ applies to owners and operators of stationary reciprocating internal combustion engines (RICE) at a major or area source of HAP emissions. Since this source will have a stationary RICE at an area source of HAP emissions, this Subpart will apply to this facility. 40 CFR 63 Subpart ZZZZ considers a stationary RICE as existing if construction or reconstruction of the stationary RICE commenced before June 12, 2006. The engine at this facility was manufactured prior to 2006 so it meets the criteria of an existing stationary RICE. Therefore, this engine is subject to the requirements for an existing stationary emergency engine at an area source of HAPs emissions in 40 CFR 63 Subpart ZZZZ.

40 CFR 60 NSPS Subpart JJJJ applies to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction after June 12, 2006, where the stationary SI ICE are manufactured on or after July 1, 2008, for engines with a maximum engine power less than 500 hp. The engine at this facility was manufactured prior to 2006; therefore, NSPS Subpart JJJJ will not apply.

[Last updated June 11, 2021]

5. **Comment regarding Turbine Replacement Timeline and Emission Limits:**

The replacement of Turbine 1 with a 15 ppm emission unit is expected to occur by Spring 2024. In order to extend the construction timeline to Spring 2024, Kern River will be required to submit a notification to DAQ within 18-months of the date of issuance of this AO, in accordance with Condition I.8 of this AO. With this notification, DAQ will extend the construction timeframe by an additional 18-months, which would give Kern River until approximately end of summer of 2024 to complete the turbine replacement.

The existing Turbine 1 will continue to operate and will be allowed to comply with the emission limits of 9.19 lb/hr NO_x and 11.19 lb/hr CO established in DAQE-AN01251400001-10 until the turbine replacement is completed. The last stack test for Turbine 1 was conducted in December 2017. The next stack test was scheduled to be conducted by December 2022; however, because of the change to the testing frequency in this AO, the next stack tests will be required within 180 days from issuance of this AO. This will result Turbine 1 being tested before the replacement of the turbines is complete. Therefore, the original emission limits will be included in this AO and will only be valid for the stack tests scheduled to be conducted prior to the turbine replacement.

[Last updated June 16, 2021]

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 EPA 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 - 40 CFR 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 UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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