



State of Utah

Department of  
Environmental Quality

Richard W. Sprott  
*Executive Director*

DIVISION OF AIR QUALITY  
Cheryl Heying  
*Director*

JON M. HUNTSMAN, JR.  
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GARY HERBERT  
*Lieutenant Governor*

DAQE-AN0125960005-07

October 3, 2007

Lee Bauerle  
Kern River Gas Transmission Company  
2755 East Cottonwood Parkway, Suite 300  
Salt Lake City, Utah 84171

Dear Mr. Bauerle:

Re: Approval Order: Modification to Approval Order DAQE-AN2596002-04, Salt Lake City  
Compressor Station to Accurately Characterize Emissions, Salt Lake County – CDS SM; NA;  
NSPS; HAPs; TITLE V  
Project Code: N012596-0005

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. Please direct any technical questions you may have on this project to Mr. Tad Anderson. He may be reached at (801) 536-4456.

Sincerely,

M. Cheryl Heying, Executive Secretary  
Utah Air Quality Board

MCH:TA:dn

cc: Salt Lake Valley Health Department

Mike Owens,  
US EPA Region 8

**STATE OF UTAH**

**Department of Environmental Quality**

**Division of Air Quality**

**APPROVAL ORDER: Modification to Approval Order  
DAQE-AN2596002-04, Salt Lake City Compressor Station  
To Accurately Characterize Emissions**

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

**APPROVAL ORDER NUMBER**

**DAQE-AN0125960005-07**

**Date: October 3, 2007**

**Kern River Gas Transmission Company**

**Source Contact  
Lee Bauerle  
(801) 937-6085**

**M. Cheryl Heying  
Executive Secretary  
Utah Air Quality Board**

### *Abstract*

***Kern River Gas Transmission Company (Kern River) has submitted a Notice Of Intent (NOI) to accurately characterize emissions of each emission source for the Salt Lake City Compressor Station. There is no change of operations or equipment with this modification, but the emissions are changing to better represent the sources. The emissions for the Salt Lake City Compressor Station are changing by:  $PM_{10}$  = (+) 0.69 tons per year (tpy),  $SO_x$  = (+) 0.02 tpy,  $NO_x$  = (-) 0.09 tpy,  $CO$  = (-) 9.94 tpy,  $VOC$  = (+) 0.33 tpy and combined Hazardous Air Pollutant's (HAPs) = (+) 0.38 tpy. The new total emissions for the Salt Lake City Compressor Station are:  $PM_{10}$  = 6.32 tpy,  $SO_x$  = 2.85 tpy,  $NO_x$  = 85.24 tpy,  $CO$  = 92.78 tpy,  $VOC$  = 29.39 tpy and combined HAPs = 0.76 tpy.***

***Salt Lake County is a non-attainment area for  $SO_x$ ,  $NO_x$  and Maintenance area for  $CO$ . This station is subject to New Source Performance Standards (NSPS) 40 CFR Part 60; Subpart GG (Stationary Gas Turbines). This station is no longer subject to Title V regulations as a Major Source, due to the fact that the emissions for  $CO$  are now below the 100 tons annually threshold. This source is no longer classified as a major source, but as a synthetic minor source. Because of the new classification and supporting conditions, a 30-day public comment period is required.***

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-7 and no comments were received. This air quality Approval Order (AO) authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

### **General Conditions:**

1. This AO applies to the following company:

#### Corporate Office Location

Kern River Gas Transmission Company  
2755 East Cottonwood Parkway, Suite 300  
P.O. Box 71400  
Salt Lake City, Utah 84171-0400  
Phone Number (801)937-6085  
Fax Number (801)937-6312

The equipment listed in this AO shall be operated at the following location:

#### PLANT LOCATION:

South of Salt Lake City International Airport  
40° North 45' 56.6" Latitude, 112° West 00' 35.2" Longitude  
Section 1, T-1-S, R-2-W

Universal Transverse Mercator (UTM) Coordinate System:

4,513.24 kilometers Northing, 414.48 kilometers Easting, Zone 12  
UTM NAD83

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401, UAC.
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 in accordance with R307-401-1.
5. Kern River Gas Transmission shall install and operate the Salt Lake City natural gas turbine compressor station in accordance with the terms and conditions of this AO, which was written pursuant to Kern River Gas Transmission's NOI submitted to the Division of Air Quality (DAQ) on July 18, 2007 and July 27, 2007.
6. All records referenced in this AO or in applicable NSPS, 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. Records shall be kept for the following minimum periods:
  - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.
  - B. All other records Five years.
7. The approved installations shall consist of the following equipment:
  - A. Two (2) Natural Gas Turbine compressors
 

Size:	15,000 hp
Control:	SoLoNO <sub>x</sub> burners
Site rated hp:	12,549 hp-site rated @ 59 ° F*
Stack height:	46 feet from ground
  - B. Emergency Backup generator
 

Fuel Type:	Natural gas
Capacity:	5.89 MMBTU/hr
Power:	832 hp-site rated*
  - C. Building Heater
 

Capacity:	3.85 MMBTU/hr
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  - D. Emergency Flare

\* This information is listed for informational purposes only.

8. This AO shall replace the AO (DAQE-AN-2596002-04) dated February 27, 2004.

**Limitations and Tests Procedures**

9. Kern River shall not exceed 300 hours of operation (excluding maintenance) per rolling 12 month period for the emergency backup generator. A log of hours of operation shall be maintained for compliance.
10. Emissions to the atmosphere at all times from the indicated emission point shall not exceed the following rates and concentrations:

Source: Existing Natural gas turbine compressor

<u>Pollutant</u>	<u>lb/hr</u>
CO.....	10.38(each)
NO <sub>x</sub> .....	9.48(each)

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

A.	<u>Emissions Point</u>	<u>Pollutant</u>	<u>Test Frequency</u>
	Turbine compressors	NO <sub>x</sub> .....	#
		CO .....	##

B. Testing Status

# Test every five years using method 20 or 7e. The span used during the testing shall conform to the requirements of the test method used. The Executive Secretary may require testing at any time.

## Test every year using method 10 or a portable analyzer for the next 3 years. After the three years of testing then the frequency will extend to test once every five years. The Executive Secretary may require testing at any time.

C. 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.

D. 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.

E. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2

F. Sulfur Dioxide (SO<sub>2</sub>)

Sulfur dioxide testing must be performed as per 40 CFR 60.335.

G. Nitrogen Oxides (NO<sub>x</sub>)

Nitrogen oxide testing must be performed as per 40 CFR 60.332.

H. Carbon Monoxide (CO)

Carbon monoxide testing must be performed using EPA method 10.

I. 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.

12. Visible emissions from turbine compressors, heater and the backup generator 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.

**Fuels**

13. The owner/operator shall use only pipeline quality natural gas in the turbines, heater and the emergency generator.

**Federal Limitations and Requirements**

14. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, New Source Performance Standards (NSPS) Subpart A, 40 CFR 60.1 to 60.18 and Subpart GG, 40 CFR 60.330 to 60.335 (Standards of Performance for Stationary Gas Turbines) apply to this installation. However, to be in compliance, this facility must operate in accordance with the most current version of 40 CFR 60 applicable to this site.

**Record Keeping**

15. 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 the 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 the equipment authorized by this AO shall be recorded.

16. The owner/operator shall comply with UAC, R307-150 Series. Inventories, Testing and Monitoring.
17. The owner/operator shall comply with R307-107, UAC-General Requirements, Unavoidable Breakdown.

The Executive Secretary shall be notified in writing if the company is sold or changes its name. 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.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the DAQ. The Utah Administrative Code R307 rules used by DAQ, the NOI guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov/>

The annual emission estimations below are for the purpose of determining the applicability of Prevention of Significant Deterioration, nonattainment area, Maintenance area, and Title V source requirements of the UAC R307. They are not to be used for determining compliance.

Annual emissions for the Salt Lake City Turbine Compressor Station are currently calculated at the following values:

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	PM <sub>10</sub> .....	6.32
B.	SO <sub>2</sub> .....	2.85
C.	NO <sub>x</sub> .....	85.24
D.	CO .....	92.78
E.	VOC .....	29.39
F.	HAPs	
	Formaldehyde .....	0.64
	Xylene.....	0.05
	Toluene .....	0.11
	Total HAPs .....	0.76

Approved By:

M. Cheryl Heying, Executive Secretary  
Utah Air Quality Board



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

RN125960011

June 24, 2021

Robert Checketts  
Kern River Gas Transmission Company  
2755 E Cottonwood Parkway  
Suite 300  
Salt Lake City, UT 84121  
[robert.checketts@kernrivergas.com](mailto:robert.checketts@kernrivergas.com)

Dear Robert Checketts,

Re: Engineer Review:  
Modification to AO DAQE-AN0125960005-07 to Replace Turbines and Update Emissions  
Project Number: N125960011

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](mailto: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	N125960011
Owner Name	Kern River Gas Transmission Company
Mailing Address	2755 E Cottonwood Parkway Suite 300 Salt Lake City, UT, 84121
Source Name	Kern River Gas Transmission Company- Salt Lake City Compressor Station
Source Location	5051 W 150 S Salt Lake City, UT 84104
UTM Projection	414,616.22 m Easting, 4,512,907.69 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) Salt Lake 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 Salt Lake 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 Northern Wasatch Front O3 NAA, Salt Lake City UT PM<sub>2.5</sub> NAA, Salt Lake County SO<sub>2</sub> NAA

Salt Lake 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

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-AN0125960005-07 to Replace Turbines and Update Emissions

### Project Description

Kern River has submitted an NOI to replace Turbine 1 and Turbine 2 with two 15 ppm NO<sub>x</sub> units. The turbine replacements are expected to be completed by Spring 2024. The replacements are considered a routine maintenance 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 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 14, 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.

<b>Criteria Pollutant</b>	<b>Change (TPY)</b>	<b>Total (TPY)</b>
CO <sub>2</sub> Equivalent		116085.00
Carbon Monoxide	-23.65	69.13
Nitrogen Oxides	-25.75	59.49
Particulate Matter - PM <sub>10</sub>	0.01	6.33
Particulate Matter - PM <sub>2.5</sub>	0.01	6.33
Sulfur Dioxide	-2.62	0.23
Volatile Organic Compounds	-19.34	10.05
Volatile Organic Compounds - Fugitive		0.15

<b>Hazardous Air Pollutant</b>	<b>Change (lbs/yr)</b>	<b>Total (lbs/yr)</b>
Generic HAPs (CAS #GHAPS)	600	2117
	<b>Change (TPY)</b>	<b>Total (TPY)</b>
Total HAPs	0.3	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 BACT**

The turbine replacements meet the provisions of a replacement-in-kind in R307-401-11. The emission increases are based on revisions to the emission calculations/assumption and are not due to a modification to existing equipment. Therefore, BACT is not required. [Last updated June 11, 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]
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## 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 NEW	<b>Sitewide</b> Natural Gas Turbine Compressor Station
II.A.2 NEW	<b>Solar Mars 100-15000S Turbine (T-1)</b> Natural Gas Turbine Compressor Rating: 15,000 hp Control: SoLoNO <sub>x</sub> burners NSPS Applicability: 40 CFR 60 Subpart GG
II.A.3 NEW	<b>Solar Mars 100-15000S Turbine (T-2)</b> Natural Gas Turbine Compressor Rating: 15,000 hp Control: SoloNO <sub>x</sub> burners NSPS Applicability: 40 CFR 60 Subpart GG
II.A.4 NEW	<b>Emergency Generator</b> Rating: 832 hp Fuel Type: Natural Gas NSPS Applicability: None NESHAP Applicability: 40 CFR 63 Subpart ZZZZ
II.A.5 NEW	<b>Boiler (B-1)</b> Rating: 3.85 MMBTU/hour Fuel: Natural Gas NSPS/NESHAP Applicability: None
II.A.6 NEW	<b>Storage Tank</b> Capacity: 4,200 gal Content: Pipeline liquids
II.A.7 NEW	<b>Emergency Flare</b>

## 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	<b>Sitewide Requirements</b>																					
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. [R307-415-6a]																					
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	<b>Stack Testing Requirements</b>																					
II.B.2.a NEW	<p>Emissions to the atmosphere from the following emission points shall not exceed the following rates and concentrations.</p> <p><b>i. Prior to the completion of turbine replacements, the following emission factors shall apply.</b></p> <p>Source: Each Solar Mars 100-15000S Turbine (T-1 and T-2)</p> <table><tr><td></td><td>Emission Rate (lb/hr)</td><td>Concentration (ppmvd)**</td></tr><tr><td>NO<sub>x</sub></td><td>9.48</td><td>25</td></tr><tr><td>CO</td><td>10.38</td><td>50</td></tr></table> <p>The above emission factors shall only apply for the stack tests scheduled for 2022 and 2023.</p> <p><b>ii. After completion of turbine replacements, the following emission factors shall apply.</b></p> <p>Source: Each Solar Mars 100-15000S Turbine (T-1 and T-2)</p> <table><tr><td></td><td>Emission Rate (lb/hr)</td><td>Concentration (ppmvd)**</td></tr><tr><td>NO<sub>x</sub></td><td>6.45</td><td>15</td></tr><tr><td>CO</td><td>6.54</td><td>25</td></tr><tr><td>VOC</td><td>0.75</td><td>25</td></tr></table> <p>** ppmvd at 15% O<sub>2</sub></p> <p>[R307-401-8]</p>		Emission Rate (lb/hr)	Concentration (ppmvd)**	NO <sub>x</sub>	9.48	25	CO	10.38	50		Emission Rate (lb/hr)	Concentration (ppmvd)**	NO <sub>x</sub>	6.45	15	CO	6.54	25	VOC	0.75	25
	Emission Rate (lb/hr)	Concentration (ppmvd)**																				
NO <sub>x</sub>	9.48	25																				
CO	10.38	50																				
	Emission Rate (lb/hr)	Concentration (ppmvd)**																				
NO <sub>x</sub>	6.45	15																				
CO	6.54	25																				
VOC	0.75	25																				

II.B.2.a.1 NEW	<p>Prior to the completion of turbine replacements, testing shall be conducted every 3 years from the date of the last stack test.</p> <p>After completion of turbine replacements, initial compliance test shall be conducted no later than 180 days after the turbine replacement is completed. Subsequent testing shall be conducted every 3 years thereafter.</p> <p>The Director may require testing at any time.</p> <p>[R307-401-8]</p>
II.B.2.b NEW	The owner/operator shall conduct any stack testing required by this AO according to the following conditions. [R307-401-8]
II.B.2.b.1 NEW	<p><b>Notification</b></p> <p>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]</p>
II.B.2.b.2 NEW	<p><b>Testing &amp; Test Conditions</b></p> <p>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]</p>
II.B.2.b.3 NEW	<p><b>Access</b></p> <p>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]</p>
II.B.2.b.4 NEW	<p><b>Reporting</b></p> <p>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]</p>
II.B.2.b.5 NEW	<p><b>Possible Rejection of Test Results</b></p> <p>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]</p>
II.B.2.c NEW	<p><b>Test Methods</b></p> <p>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]</p>
II.B.2.c.1 NEW	<p><b>NO<sub>x</sub></b></p> <p>40 CFR 60, Appendix A, Method 7; Method 7E; or other EPA-approved testing method as acceptable to the Director. [R307-401-8]</p>

II.B.2.c.2 NEW	<b>VOC</b> 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.c.3 NEW	<b>CO</b> 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	<b>Emergency Engine Requirements</b>
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 60 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
Incorporates	NOI dated April 28, 2021
Supersedes	DAQE-AN0125960005-07 dated October 3, 2007

## 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 and T-2 Turbines were estimated based on a fuel usage of 1001 MMscf/yr per turbine, a low fuel heating value of 939.2 BTU/scf, and 8,760 hours of operation per year per turbine. Emission factors for NO<sub>x</sub>, CO, and VOC were based on manufacturer predicted performance data. VOC emissions were assumed to be 20% of unburned hydrocarbons. SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> 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<sub>10</sub> and PM<sub>2.5</sub>. 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<sub>x</sub> 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 10,140 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<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, VOCs, and SO<sub>2</sub>, 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 (832 hp) 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<sub>x</sub> and CO; Table 1.4-2 for PM, SO<sub>2</sub>, VOCs. All PM was assumed to be PM<sub>10</sub> and PM<sub>2.5</sub>; 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.

[Last updated June 11, 2021]

2. **Comment regarding Turbine 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. Turbines T-1 and T-2 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 Turbines T-1 and T-2 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 turbines were 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 - Entered AO into Tempo database and updated AO to use current format and language.
- 2 - Updated emergency generators condition to use most updated language and format.
- 3 - Updated emergency engine emissions based on 100 hours of operation per year for maintenance and testing.
- 4 - Updated stack testing conditions to use most updated language and format
- 5 - 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<sub>2.5</sub> 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 engine (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 in June 2002, 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 engine (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 in June 2002; therefore, NSPS Subpart JJJJ will not apply.

[Last updated June 11, 2021]

5. **Comment regarding Flare:**

Kern River operates a flare at this site. The flare is mostly used for emergency and unscheduled events. Below is a description of the flare operations:

1) When personnel are not at the site and the compressor station is in remote operations, the following events are routed to the flare:

- Compressor case vents (unintended shutdowns and gas control initiated normal starts and stops)
- Unscheduled emergency shutdowns (ESD's) due to safety concerns (i.e. fire detection, gas leak in compressor building, etc.)

2) When personnel are at the site, the following is routed to the flare:

- Unscheduled ESD's due to safety concerns (i.e. fire detection, gas leak in compressor building, etc.)

3) When personnel are at the site, the following is routed to the vent stack:

- Compressor case vents (shutdowns and normal starts and stops)
- Annual ESD's required for testing of the safety systems are normally blocked from venting. If venting of station piping is required, it is routed to the vent stack

[Last updated May 20, 2021]

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

The replacements of Turbines 1 and 2 with two 15 ppm emission units are 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 replacements.

The existing turbines will continue to operate and will be allowed to comply with the emission limits of 9.48 lb/hr NO<sub>x</sub> and 10.38 lb/hr CO established in DAQE-AN0125960005-07 until turbine replacements are completed. The last stack tests were conducted in June 2020 for Turbine 2 and May 2019 for Turbine 1. Based on the new testing frequency in this AO, the next stack tests are expected to be conducted by June 2023 for Turbine 2 and May 2022 for Turbine 1. This is before the replacement of the turbines will be completed. 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 replacements.

[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 <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	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 <sub>x</sub>	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM <sub>10</sub>	Particulate matter less than 10 microns in size
PM <sub>2.5</sub>	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 <sub>2</sub>	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

RN125960011

June 24, 2021

Robert Checketts  
Kern River Gas Transmission Company  
2755 E Cottonwood Parkway  
Suite 300  
Salt Lake City, UT 84121  
[robert.checketts@kernrivergas.com](mailto:robert.checketts@kernrivergas.com)

Dear Robert Checketts,

Re: Engineer Review:  
Modification to AO DAQE-AN0125960005-07 to Replace Turbines and Update Emissions  
Project Number: N125960011

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](mailto: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)

June 24, 2021

# UTAH DIVISION OF AIR QUALITY

## ENGINEER REVIEW

### SOURCE INFORMATION

Project Number	N125960011
Owner Name	Kern River Gas Transmission Company
Mailing Address	2755 E Cottonwood Parkway Suite 300 Salt Lake City, UT, 84121
Source Name	Kern River Gas Transmission Company- Salt Lake City Compressor Station
Source Location	5051 W 150 S Salt Lake City, UT 84104
UTM Projection	414,616 22 m Easting, 4,512,907.69 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@kernriversgas.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) Salt Lake 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 Salt Lake 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 Northern Wasatch Front O3 NAA, Salt Lake City UT PM<sub>2.5</sub> NAA, Salt Lake County SO<sub>2</sub> NAA  
Salt Lake County  
Air Source Size: B

### Applicable Federal Standards

NSPS (Part 60), A. General Provisions  
NSPS (Part 60), GG: Standards of Performance for Stationary Gas 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-AN0125960005-07 to Replace Turbines and Update Emissions

### Project Description

Kern River has submitted an NOI to replace Turbine 1 and Turbine 2 with two 15 ppm NO<sub>x</sub> units. The turbine replacements are expected to be completed by Spring 2024 The replacements are considered a routine maintenance 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 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 14, 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 <sub>2</sub> Equivalent		116085.00
Carbon Monoxide	-23.65	69.13
Nitrogen Oxides	-25.75	59.49
Particulate Matter - PM <sub>10</sub>	0.01	6.33
Particulate Matter - PM <sub>2.5</sub>	0.01	6.33
Sulfur Dioxide	-2.62	0.23
Volatile Organic Compounds	-19.34	10.05
Volatile Organic Compounds - Fugitive		0.15

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Generic HAPs (CAS #GHAPS)	600	2117
	Change (TPY)	Total (TPY)
Total HAPs	0.3	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 BACT

The turbine replacements meet the provisions of a replacement-in-kind in R307-401-11. The emission increases are based on revisions to the emission calculations/assumption and are not due to a modification to existing equipment. Therefore, BACT is not required. [Last updated June 11, 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]
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## 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 NEW	<b>Sitewide</b> Natural Gas Turbine Compressor Station
II A 2 NEW	<b>Solar Mars 100-15000S Turbine (T-1)</b> Natural Gas Turbine Compressor Rating: 15,000 hp Control: SoLoNO <sub>x</sub> burners NSPS Applicability: 40 CFR 60 Subpart GG
II A 3 NEW	<b>Solar Mars 100-15000S Turbine (T-2)</b> Natural Gas Turbine Compressor Rating: 15,000 hp Control: SoloNO <sub>x</sub> burners NSPS Applicability: 40 CFR 60 Subpart GG
II A 4 NEW	<b>Emergency Generator</b> Rating: 832 hp Fuel Type: Natural Gas NSPS Applicability: None NESHAP Applicability: 40 CFR 63 Subpart ZZZZ
II A.5 NEW	<b>Boiler (B-1)</b> Rating: 3.85 MMBTU/hour Fuel: Natural Gas NSPS/NESHAP Applicability: None
II A 6 NEW	<b>Storage Tank</b> Capacity: 4,200 gal Content: Pipeline liquids
II A.7 NEW	<b>Emergency Flare</b>

## 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	<b>Sitewide Requirements</b>																					
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 [R307-415-6a]																					
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	<b>Stack Testing Requirements</b>																					
II.B.2 a NEW	<p>Emissions to the atmosphere from the following emission points shall not exceed the following rates and concentrations.</p> <p><b>i. Prior to the completion of turbine replacements, the following emission factors shall apply.</b></p> <p>Source Each Solar Mars 100-15000S Turbine (T-1 and T-2)</p> <table><tr><td></td><td>Emission Rate (lb/hr)</td><td>Concentration (ppmvd)**</td></tr><tr><td>NO<sub>x</sub></td><td>9.48</td><td>25</td></tr><tr><td>CO</td><td>10.38</td><td>50</td></tr></table> <p>The above emission factors shall only apply for the stack tests scheduled for 2022 and 2023</p> <p><b>ii. After completion of turbine replacements, the following emission factors shall apply.</b></p> <p>Source Each Solar Mars 100-15000S Turbine (T-1 and T-2)</p> <table><tr><td></td><td>Emission Rate (lb/hr)</td><td>Concentration (ppmvd)**</td></tr><tr><td>NO<sub>x</sub></td><td>6 45</td><td>15</td></tr><tr><td>CO</td><td>6 54</td><td>25</td></tr><tr><td>VOC</td><td>0 75</td><td>25</td></tr></table> <p>** ppmvd at 15% O<sub>2</sub></p> <p>[R307-401-8]</p>		Emission Rate (lb/hr)	Concentration (ppmvd)**	NO <sub>x</sub>	9.48	25	CO	10.38	50		Emission Rate (lb/hr)	Concentration (ppmvd)**	NO <sub>x</sub>	6 45	15	CO	6 54	25	VOC	0 75	25
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NO <sub>x</sub>	9.48	25																				
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	Emission Rate (lb/hr)	Concentration (ppmvd)**																				
NO <sub>x</sub>	6 45	15																				
CO	6 54	25																				
VOC	0 75	25																				

II B 2 a 1 NEW	<p>Prior to the completion of turbine replacements, testing shall be conducted every 3 years from the date of the last stack test</p> <p>After completion of turbine replacements, initial compliance test shall be conducted no later than 180 days after the turbine replacement is completed. Subsequent testing shall be conducted every 3 years thereafter</p> <p>The Director may require testing at any time</p> <p>[R307-401-8]</p>
II B 2 b NEW	The owner/operator shall conduct any stack testing required by this AO according to the following conditions [R307-401-8]
II B 2 b 1 NEW	<p><b>Notification</b></p> <p>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]</p>
II B.2 b 2 NEW	<p><b>Testing &amp; Test Conditions</b></p> <p>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]</p>
II B 2 b 3 NEW	<p><b>Access</b></p> <p>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]</p>
II B 2 b 4 NEW	<p><b>Reporting</b></p> <p>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]</p>
II.B.2.b 5 NEW	<p><b>Possible Rejection of Test Results</b></p> <p>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]</p>
II B 2 c NEW	<p><b>Test Methods</b></p> <p>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]</p>
II B 2 c 1 NEW	<p><b>NO<sub>x</sub></b></p> <p>40 CFR 60, Appendix A, Method 7, Method 7E, or other EPA-approved testing method as acceptable to the Director [R307-401-8]</p>

II B 2 c 2 NEW	<b>VOC</b> 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 c 3 NEW	<b>CO</b> 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	<b>Emergency Engine Requirements</b>
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 60 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
Incorporates	NOI dated April 28, 2021
Supersedes	DAQE-AN0125960005-07 dated October 3, 2007

## 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 and T-2 Turbines were estimated based on a fuel usage of 1001 MMscf/yr per turbine, a low fuel heating value of 939.2 BTU/scf, and 8,760 hours of operation per year per turbine. Emission factors for NO<sub>x</sub>, CO, and VOC were based on manufacturer predicted performance data. VOC emissions were assumed to be 20% of unburned hydrocarbons. SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> 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<sub>10</sub> and PM<sub>2.5</sub>. 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<sub>x</sub> Combustion Products", September 15, 2020. A total of 100 startup events and 100 shutdown events were assumed for each turbine per year.

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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<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, VOCs, and SO<sub>2</sub>, 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 (832 hp) 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<sub>x</sub> and CO, Table 1.4-2 for PM, SO<sub>2</sub>, VOCs. All PM was assumed to be PM<sub>10</sub> and PM<sub>2.5</sub>, 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.

[Last updated June 11, 2021]

2 **Comment regarding Turbine 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. Turbines T-1 and T-2 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 Turbines T-1 and T-2 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 turbines were 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 - Entered AO into Tempo database and updated AO to use current format and language
- 2 - Updated emergency generators condition to use most updated language and format
- 3 - Updated emergency engine emissions based on 100 hours of operation per year for maintenance and testing
- 4 - Updated stack testing conditions to use most updated language and format
- 5 - 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<sub>2.5</sub> 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 engine (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 in June 2002, 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 engine (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 in June 2002, therefore, NSPS Subpart JJJJ will not apply

[Last updated June 11, 2021]

5 **Comment regarding Flare:**

Kern River operates a flare at this site. The flare is mostly used for emergency and unscheduled events. Below is a description of the flare operations:

1) When personnel are not at the site and the compressor station is in remote operations, the following events are routed to the flare:

- Compressor case vents (unintended shutdowns and gas control initiated normal starts and stops)
- Unscheduled emergency shutdowns (ESD's) due to safety concerns (i.e. fire detection, gas leak in compressor building, etc.)

2) When personnel are at the site, the following is routed to the flare:

- Unscheduled ESD's due to safety concerns (i.e. fire detection, gas leak in compressor building, etc.)

3) When personnel are at the site, the following is routed to the vent stack:

- Compressor case vents (shutdowns and normal starts and stops)
- Annual ESD's required for testing of the safety systems are normally blocked from venting. If venting of station piping is required, it is routed to the vent stack.

[Last updated May 20, 2021]

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

The replacements of Turbines 1 and 2 with two 15 ppm emission units are 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 replacements.

The existing turbines will continue to operate and will be allowed to comply with the emission limits of 9.48 lb/hr NO<sub>x</sub> and 10.38 lb/hr CO established in DAQE-AN0125960005-07 until turbine replacements are completed. The last stack tests were conducted in June 2020 for Turbine 2 and May 2019 for Turbine 1. Based on the new testing frequency in this AO, the next stack tests are expected to be conducted by June 2023 for Turbine 2 and May 2022 for Turbine 1. This is before the replacement of the turbines will be completed. 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 replacements.

[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 <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	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 <sub>x</sub>	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM <sub>10</sub>	Particulate matter less than 10 microns in size
PM <sub>2.5</sub>	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 <sub>2</sub>	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

