# MEMORANDUM

To: Reviewers

Through: Lori Bocchino, Operating Permit Program Manager

From: Maggie Endres, Scientist

Subject: Draft Chapter 6, Section 3 Operating Permit 3-3-009, Kern River Gas Transmission Company, Muddy Creek Compressor Station

Date: November 4, 2010 *(Revised 12/2/2011)*
*Addendum 2/27/12*

## Introduction

Attached for your review is a draft renewal Wyoming Air Quality Standards and Regulations (WAQSR) Ch 6, Sec 3 operating permit for the Muddy Creek Compressor Station. The station compresses natural gas from production fields in southwestern Wyoming for transmission to the pipeline termination point. Emission sources at the facility include six Solar turbine engines, two Waukesha emergency generators, two Peerless building heaters, and several small heaters.

## Permitting History

The permits/waivers in this paragraph have been superseded, but are listed to document the permitting history. Permit CT-906 (3/1/91): was issued for the construction of the station, consisting of two Solar Mars 90-T12000 turbines, a Waukesha L7042GU generator, and a 3.85 MMBtu/hr Peerless building heater. Waiver AP-N55 (8/2/95): allowed the replacement of the two existing turbines with two SoLoNO$_X$ turbines prior to completion of the permitting process. The turbines were then permitted under MD-290 (7/18/96) which reflected the replacement of the two turbines with SoLoNO$_X$ units (T-12000S). Waiver AP-YQ1 (6/11/01): allowed replacement of the two Solar Mars 90-T12000S turbines with two Solar Mars 100-T15000S turbines. Permit MD-736 (3/5/02): allowed installation of a third turbine with SoLoNO$_X$ - a Solar Mars 90-T13002S.

Permit MD-783 (7/30/02): allowed installation of two additional Solar Mars 100-T15000S turbines, a second Waukesha backup generator (model L36GSI) and Peerless building heater, and returned the Solar Mars 90 (permitted under MD-736) to its original 100-T15000S operating parameters. The new generator is equipped with a non-selective catalytic reduction catalyst (NSCR) and air fuel ratio control (AFRC). NO$_X$ and CO emission limits are set for the five Solar Mars 100-T15000S turbines and the new generator. The two generators are each limited to 500 operating hours per year. The permit also requires that the turbines and the new generator NSCR/AFRC controls be maintained per manufacturer's or supplier's specifications. The turbines are subject to the requirements of 40 CFR 60 Subpart GG, as discussed below.

Permit MD-7883 (2/17/09): allowed installation of a sixth turbine (a Solar Titan 130-20502S), and restaging of the five existing turbines to raise the maximum operating pressure of the pipeline downstream. The permit sets NO$_X$ and CO emission limits, and a minimum stack height for the new turbine. The new turbine is subject to 40 CFR 60 Subpart KKKK, as discussed below. The permit also requires minimization of emissions during startup, shutdown and blowdown activities. Initial performance testing for the new turbine was completed in January 2010.

Permit MD-9658 (9/9/09): modified MD-7883 by removing two conditions: one condition had required the permittee to submit a BACT analysis for approval prior to the next turbine exchange for the five existing turbines; the other condition specified notification and re-testing requirements. The modification requires that the new (sixth) turbine be maintained per manufacturer's or supplier's specifications, and indicates testing requirements.

**Applicable Requirements**

Applicable requirements include the WAQSR Ch 6, Sec 2 permit limits and conditions listed above, Ch 3, Sec 2 visible emission limits, and $NO_X$ emission limits under Ch 3, Sec 3 for the Peerless building heaters and the small heaters.

There are also applicable requirements from the following Ch 5, Sec 2 New Source Performance Standards, and 40 CFR Part 60:
Subpart GG - *Stationary Gas Turbines* (five Solar Mars 100-T15000S turbines, units 1-5)
Subpart KKKK - *Stationary Combustion Turbines* (one Solar Titan 130-20502S turbine, unit 6)

and from the following Ch 5, Sec 3 National Emission Standards for Hazardous Air Pollutants (NESHAPs), and 40 CFR Part 63:
Subpart ZZZZ - *Stationary Reciprocating Internal Combustion Engines* (two Waukesha's, units 7&8)

*(12/2/2011 revision; clarification added at the request of the applicant)* 40 CFR Part 60 Subpart JJJJ - *Stationary Spark Ignition Internal Combustion Engines* was also included in the operating permit. As of the date of this statement of basis, no engines at the facility are subject to Subpart JJJJ. In the event of a like-kind replacement during the permit term, however, it is possible that a like-kind engine that is subject to Subpart JJJJ is installed at the facility. The Subpart, and associated permit conditions, are included to cover this situation.

**Periodic Monitoring**

Periodic monitoring of visible emissions will consist of monitoring the type of fuel burned to ensure natural gas is the sole fuel source for all units. Monitoring for $NO_X$ emissions from the six turbines will be done in accordance with Subpart KKKK §60.4400. (Performance standards promulgated after November 15, 1990 contain sufficient monitoring to satisfy title V periodic monitoring requirements. The original five turbines are not subject to Subpart KKKK, but the permittee has chosen to utilize the $NO_X$ monitoring requirements of this subpart as periodic monitoring.) Monitoring for CO emissions from the turbines will be performed concurrently with the $NO_X$ testing. For the generator engines the permittee will monitor the operating hours for each generator. The new generator requires $NO_X$ and CO testing every 2,000 hours of operation. The permittee will also monitor for any startup, shutdown and blowdown activities at the facility, and record the number, date, duration, and type of activities, and steps taken to minimize emissions during the event.

*Addendum 2/27/12*

For clarification, condition F11(b)(ii) is modified to indicate that engine 7 must be tested every 2,000 hours of operation or every five years, whichever is more frequent.