

North Dakota
State Implementation Plan
Revision

(New section)

Section 8.3.1 Continuous Opacity Monitoring for Fluid Bed Catalytic Cracking Units: Tesoro Refining and Marketing Co., Mandan Refinery

Applicability: This SIP revision is only applicable to the existing fluidized bed catalytic cracking unit at the Mandan Refinery located at 900 Old Red Trail Northeast in Mandan, North Dakota.

Background:

The Tesoro Refining and Marketing Company (Tesoro) currently operates a fluidized bed catalytic cracking unit (FCCU) at the Mandan Refinery near Mandan, North Dakota. The refinery, which was previously operated by Amoco Oil Company and more recently by British Petroleum Company (BP), was constructed in the 1950's. As such, the operator of the refinery is required to continuously monitor the opacity of emissions from the FCCU as mandated by 40 CFR 51, Appendix P, Section 2.4. On May 10, 1977, the Department issued an Order to Amoco Oil Co. requiring the installation and operation of continuous opacity monitoring equipment for emissions from the FCCU. The owners/operators of the refinery have continuously monitored the opacity since the compliance date of September 30, 1978.

In 2001, BP, and ultimately Tesoro, entered into a Consent Decree with the U.S. Environmental Protection Agency to settle allegations of noncompliance under the Prevention of Significant Deterioration Program. As part of this settlement, Tesoro was required to control sulfur dioxide emissions from the FCCU. Tesoro installed a wet scrubber and wet electrostatic precipitator (ESP) to comply with the terms of the Consent Decree. A secondary benefit of the control system is the reduction of particulate matter emissions and visible emissions (opacity) from the FCCU. However, the large amount of moisture from the control system has made monitoring of the opacity of emissions using continuous opacity monitoring equipment unfeasible. Specifically, water droplets contained in the flue gas could potentially result in the monitor overstating the true opacity.

The FCCU is subject to a 40% opacity limit under NDAC 33-15-03-01 except for one six-minute period per hour in which up to 60% opacity is allowed. The owners of the refinery, both past and present, have been able to comply with the 40% opacity with limited exceedances prior to the installation of the wet scrubber and wet ESP. The addition of the wet scrubber and wet ESP will only reduce visible emissions further. The alternative monitoring plan is designed to assure that liquid is flowing through the wet scrubber at 2511 gallons per minute (gpm), or more, on an hourly average basis. Tesoro has demonstrated through Method 9 measurements that the FCCU will easily comply with the visible emissions limit (40% opacity) when the scrubber flow rate is at least 2511 gpm. If the flow rate

is less than 2511 gpm, Tesoro will conduct a Method 9 test each day until the required flow rate is achieved.

In response to the installation of the scrubber and wet electrostatic precipitator, Tesoro has requested alternative monitoring procedures and requirements in accordance with 40 CFR 51, Appendix P, Section 6.0. The Department believes that alternative monitoring procedures are warranted based on the large amount of moisture and the low stack gas temperature.

Alternative Monitoring Procedures and Requirements:

Alternative monitoring for visible emissions shall consist of the following:

1. Monitoring Parameters:

Wet Gas Scrubber - Monitor liquid flow rate.

2. Frequency of Monitoring:

Wet Gas Scrubber - Continuous.

3. Requirements:

Wet Gas Scrubber - Flow rate of at least 2511 gallons per minute of scrubber liquid (1-hour average).

4. Recordkeeping:

The owner or operator shall keep records of the liquid flow rate on a continuous basis. Records shall be stored electronically or in hard copy format. All records shall be kept for at least five years.

5. Reporting:

The owner or operator shall submit semi-annual deviations reports for the FCCU. The report shall list any time period monitoring is not conducted as outlined in this section and anytime monitoring indicates the required flow rate is not attained. The owner or operator shall also submit an annual certification indicating compliance with the visible emissions limit.

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(date)

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