DETROIT THERMAL HEATING PLANT – BEACON FACILITY (SRN: B2814)
COMPLIANCE ASSURANCE MONITORING PLAN
FLUE GAS RECIRCULATION FOR NO_X CONTROL

Background

The flue gas recirculation (FGR) devices for Boilers 6 and 7 are subject to compliance assurance monitoring (CAM) pursuant to 40 CFR 64.2. The low NOx burners are not a control device subject to CAM as defined in 40 CFR 64.1. In addition, when burning natural gas, the pre-control device emissions would not exceed major source thresholds; therefore, the boilers are not subject to CAM when burning natural gas.

Boilers 6 and 7 are also subject to 40 CFR 60 Subpart Db when burning fuel oil. A predictive emissions monitoring system (PEMS) is used to calculate estimated NOx emissions. The EGLE-AQD approved Alternative Monitoring Protocol PEMS for Boilers 6 and 7 (AMP Cherokee, 2016) provides additional details with regard to the PEMS.

A. Emissions Unit

Description:	180.2 MMBtu/hr boiler
Identification:	EU-BOILER6 AND EU-BOILER7
Facility:	DT Beacon (SRN: B2814) Detroit Michigan

B. Applicable Regulation, Emissions Limit, and Monitoring Requirements

Regulation:	40 CFR 60, Subpart Db (NSPS Db);
Emissions Limits:	
NOx:	0.036 lb/MMBtu (Rule 205 when burning natural gas)
	0.20 lb/MMBtu (NSPS Db)
	0.140 lb/MMBtu (Rule 205 when burning fuel oil)
Monitoring Requirements:	NOx PEMS

C. Control Technology: Flue gas recirculation (FGR)

Monitoring Approach

The key elements of the monitoring approach, including the indicator and performance criteria are presented in Table 1.

Table 1 Monitoring Approach

Monitoring Approach	
Indicator	NOx emission rate in lb/MMBtu
Performance Criteria	When burning natural gas, the NOx limit is 0.036 lb/MMBtu for the calendar day. When burning No. 2 fuel oil, the NOx limit is 0.140 lb/MMBtu for the calendar day.

Justification

Monitoring approach and indicator

As detailed in the approved Alternative Monitoring Protocol, the PEMS emissions model was developed for the entire design range of each boiler. CEMS data was collected over a four-day period for the boilers covering 35 operating ranges (from 0% to 100% load) including periods of startup and shutdown. The sensor indicator ranges reflect the sensor readings over that load range. As detailed in the approved Alternative Monitoring Protocol, the PEMS model relies on three valid readings of the eight sensors recorded by the PEMS to develop a NOx emission rate for the given period.

Indicator range for PEMS

As detailed in the approved Alternative Monitoring Protocol, the PEMS emissions model was developed for the entire design range of each boiler. CEMS data was collected over a four-day period for the boilers covering 35 operating ranges (from 0% to 100% load) including periods of startup and shutdown. The sensor indicator ranges reflect the sensor readings over that load range.