

# East Lansing, Michigan Steam Plant - Cogeneration

## **CAPACITY: 50.5 mMBTU**

A University Steam Plant is using a predictive emission monitoring plan (PEMS) to determine NO<sub>x</sub> and CO emissions from a gas turbine. The turbine is a 14.8 MW gas fired turbine Solar Titan 130 located at the plant in Michigan (Ingham County). The gas turbine is configured with an 80 MMBTU/hr duct burner and heat recovery steam generator that is subject to 40 CFR 60, Subpart Db. The gas turbine and controls were installed and started-up in 2006. The unit was equipped with a CEMS that was certified in December, 2006. This certified CEMS provided the quality assured data that constitutes the training dataset for the statistical hybrid PEMS model. The PEMS to be installed is a SmartCEMS® Analyzer and is provided by CMC Solutions, L.L.C. with its business alliance partner Environmental Systems Corporation who is supplying the compliance report generation.

Data from the plant control system was collected and correlated with emissions data obtained from the certified continuous emissions monitoring system (CEMS). The process and emissions data was collected at normal operating conditions including startup and shutdown during a one-year time period. During this time, the unit will be operated through the full operating range, firing natural gas in both warm weather and cold ambient conditions. This data was used to train the PEMS to predict NO<sub>x</sub> and CO emissions based on turbine operating data.

The University intends to request approval of the PEMS, pending successful completion of the required performance specification tests including RATA and implementation onsite of a quality assurance plan and program that conforms with 40 CFR Part 60, Appendix F.



\*Not actual site. Source: WKAR

**DAS System:** SmartCEMS® with Data elements®

### **History of Project Development:**

#### **01/07/2005**

The renewable operating permit (ROP) number MI-ROP-K3249-2005a was issued.

#### **2006**

The gas turbine and controls were installed and started up. A draft of the alternative monitoring plan was prepared.

#### **07/29/2008**

Performed data collection for initial training dataset.

#### **08/22/2008**

The PEMS model development was completed.

**08/25/2008**

The input failure and drift analysis were completed.

**08/26/2008**

The model was installed on the client computer. The demonstration period of the model began.

**PRODUCTS:**

