DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N742145300

FACILITY: DTE Gas Company - Willow Run Compressor Station		**SRN / ID:** N7421
LOCATION: 3020 East Michigan Avenue, YPSILANTI		**DISTRICT:** Jackson
CITY: YPSILANTI		**COUNTY:** WASHTENAW
CONTACT:		**ACTIVITY DATE:** 06/20/2018
STAFF: Zachary Durham	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled inspection of PTIs 246-07 and 44-16A. Note: This facility is now subject to Title V and must submit a complete ROP application by April 25, 2019.		
RESOLVED COMPLAINTS:		

Contact

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313-235-4698

Purpose

This was a scheduled inspection of the Willow Compressor facility located at 3020 East Michigan Ave. in Ypsilanti, MI owned by DTE Energy. The facility has two active Permits to Install (PTIs) numbered 246-07 and 44-16A for equipment necessary for the compression of natural gas onto distribution pipelines. The inspection occurred concurrently with a scheduled stack test. Scott Miller, Jackson District Supervisor, accompanied me during the inspection on June 20th.

Background

This facility has become subject to Title V of the Clean Air Act (CAA) for Hazardous Air Pollutants (HAP). Per Rule 210(4) DTE will be required to submit an application for a Renewable Operating Permit (ROP) not more than 12 months after commencing operation as a major source. A report dated May 16, 2018 indicates the new compression engines installed under PTI 44-16A began trial operations on April 25, 2018, which for the purposes of Rule 210(4) constitutes commencing operations as a major source. Therefore, an administratively complete ROP application shall be received no later than April 25, 2019.

The newly installed equipment is a part of a larger project that will handle natural gas moving operations in conjunction with the construction of the Nexus pipeline. The equipment currently on site was not sufficient to handle the increased volume of natural gas. Nexus is installing a natural gas metering station directly adjacent to the compressor station, which also is the site of four (4) inline heaters (EUILHTR1-4) as listed in PTI 44-16A.

The facility conducted a routine stack test on a compressor engine in PTI 246-07 during the inspection in accordance with the RICE MACT in 40 CFR Part 63, Subpart ZZZZ. Remarks on the stack test can be found in the Stack Test Observation report for 6/20/18.

Compliance Evaluation

PTI 246-07

FGENGINES

This is the flexible group (FG) for two (2) natural gas-fired compressor engines (EUENGINE1 and EUENGINE2) rated at 4,735 horsepower used to move natural gas through pipelines. The engines are equipped with a catalyst to reduce HAP. This FG has emission limits on NOx, CO, VOC, and Formaldehyde. Formaldehyde, a HAP, is determined to be in compliance so long as the catalyst operates at a minimum of 93% destruction efficiency of CO. The previous CO test from 6/2017 determined a 99.1% destruction efficiency. At no point was the engine operated without the control device.

I observed on site the central control room that maintains engine and catalyst data required in Special Condition

(SC) 1.6 for maintaining a continuous parameter monitoring system (CPMS). Attached are photos of screens from the engine as it was operating, which supply the information to the control room. Also attached are the 12-month rolling emissions for the FG, which are drastically below permitted limits.

FGFACILTIY

This FG is for facility-wide emissions of NOx, CO, VOC, as well as a material limit of 600,000,000 cubic feet of natural gas per 12-month rolling time period. The attached spreadsheet with facility-wide data shows a usage of 34,477,000 for the 12-month rolling time period through as of March 2018. Likewise, facility-wide emissions of NOx = 2.41 tons, CO = 0.002 tons, and VOC = 1.54 tons. All of these are below the limit of 89 tpy as included in the permit.

PTI 44-16A

The issuance of this PTI has subjected the facility to requirements of Title V of the CAA as a major source of HAP. Much the equipment only recently was finished being installed and may or may not be operating at this time. At the time of this writing emission data is not available for specific emission units in PTI 44-16A.

EUTURBINE1

This is the emission unit (EU) for a 7,700 horsepower natural gas-fired turbine with electric start used for natural gas compression. Testing in accordance with 40 CFR Part 60, Subpart KKKK shall occur within 60 days of maximum production rate, but not later than 180 days. A report received on 7/25/18 indicates that the initial startup occurred on 7/10/18.

EUEMGRICE1

This is the EU for an emergency natural gas-fired engine rated at 1,818 horsepower used to provide power to the station. A report dated 10/13/2017 indicates the engine installation was completed and submitted according to SC VII.1. Another report on 1/9/2018 indicates initial startup and operation as a non-certified engine, and submitted according to SC VII.2. A revised letter received on 6/14/18 indicates the engine was not started up initially until 6/8/18, but confirms the operation as non-certified. Discussion with the testing group concluded that testing will likely occur in Fall 2018, based on their current schedule. The testing will adhere to 40 CFR Part 60, Subpart JJJJ.

FGENGINES

This is the FG for two (2) 2,500 horsepower and one (1) 5,000 horsepower engines used to compress natural gas. These engines are subject to both NSPS JJJJ and MACT ZZZZ and will be operated in a non-certified manner. SC V.1 states that these units shall be tested within 180 days after commencement of initial startup, which will align with a Fall 2018 testing date as previously mentioned by DTEs testing group.

FGENGMACT4Z

This is the FG that covers conditions of the MACT in 40 CFR Part 63, Subpart ZZZZ for spark ignition RICE at a major source of HAP greater than 500 horsepower. Testing for this condition is also within 180 days of startup, as mentioned above in FGENGINES. They will also be required to report semiannual compliance reports, the first one being postmarked not later than September 15th per SC VII.3.

FGNOX

This is the FG for boilers and heaters with NOx limits. These include four (4) boilers (EUBOILER1-4), seven (7) modular heating units (EUMODHTR1-7), and four (4) indirectly-fired line heaters (EUILHTR1-4). A report received 12/14/17 indicates the construction of the seven modular heaters per SC VII.1. Likewise, reports received 9/19/17 and 11/9/17 indicate the construction and startup of the four boilers per SC VII.1. Lastly, a report received 5/21/18 notified the commencement of construction and actual startup of the line heaters. These have a combined NOx limit of 27 tons per year while only burning pipeline quality natural gas.

FGBLRMACT

This is the FG for boilers or process heaters at major sources of HAP per 40 CFR Part 63, Subpart DDDDD,

which include EUBOILER1-4 (less than 5 MMBtu/hr) and EUILHTR1-4 (greater than 10 MMBtu/hr). These units only burn natural gas. For EUBOILER1-4 a tune-up must occur within 5 years (61 months) from the startup dates of 9/19/17 and 11/9/17. EUILHTR1-4 must complete a tune-up within 1 year (13 months) from the startup date of 5/21/18. No compliance reports for either 1 year tune-ups or 5 year tune-ups have yet occurred since the startup of the equipment.

Compliance Determination

After onsite inspection and review of recordkeeping, I have determined that this facility is in compliance with State of Michigan and Federal air quality rules and regulations and PTIs 246-07 and 44-16A.

Recommendations

I recommend the facility begin developing an ROP application to be submitted in a timely manner, and before the deadline in April 2019. Additionally, I recommend the facility prepare for the required testing on all the newly installed equipment. Finally, assembling a spreadsheet for tracking fuel use and emissions from the new equipment should remain a priority.

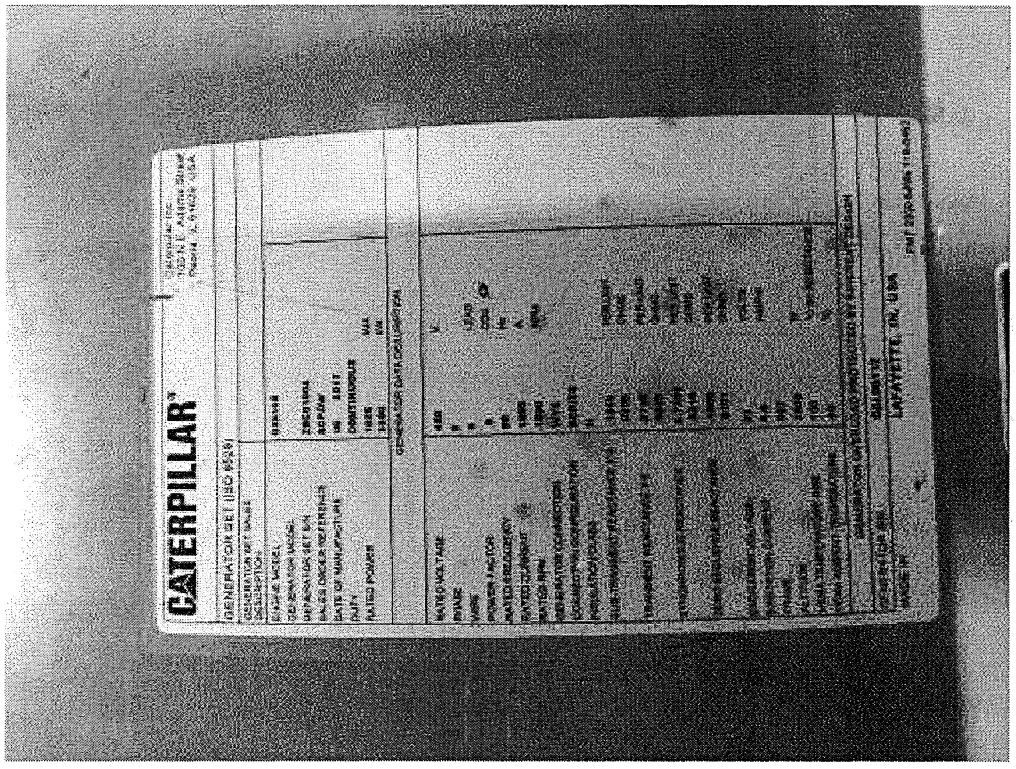
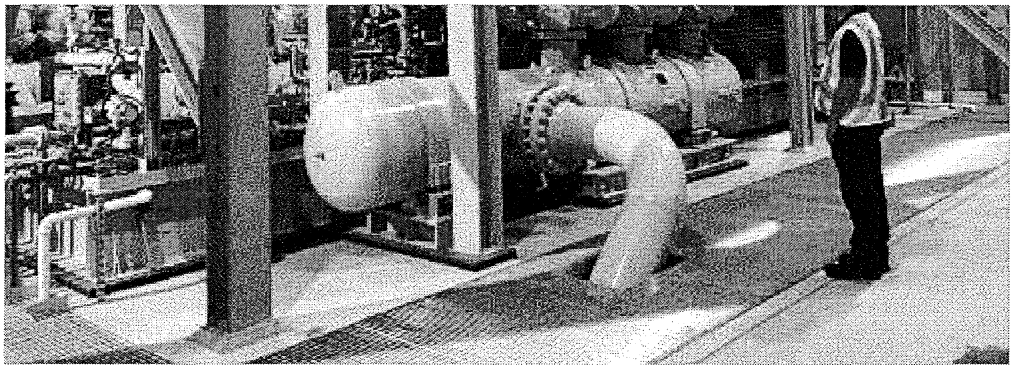
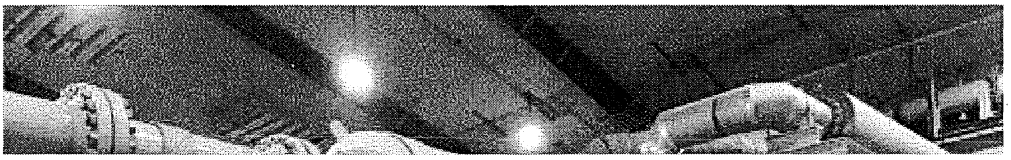


Image 1(EUEMERGRICE1) : The nameplate on the emergency backup generator in PTI 44-16A





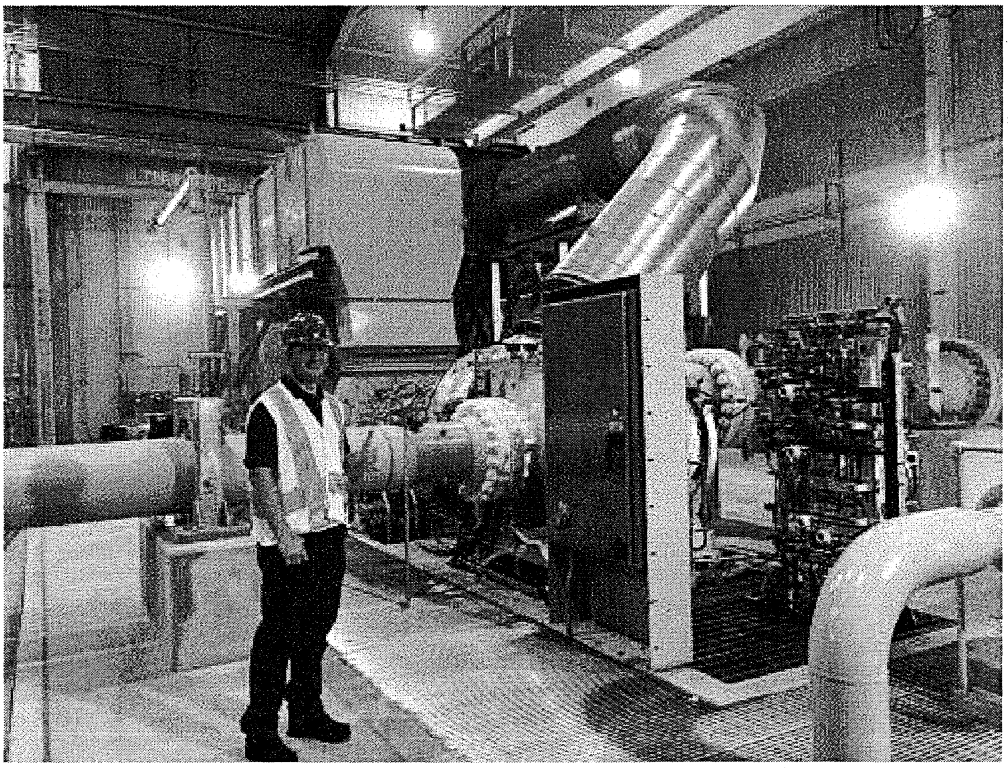


Image 3(EUTURBINE1) : The newly installed turbine.

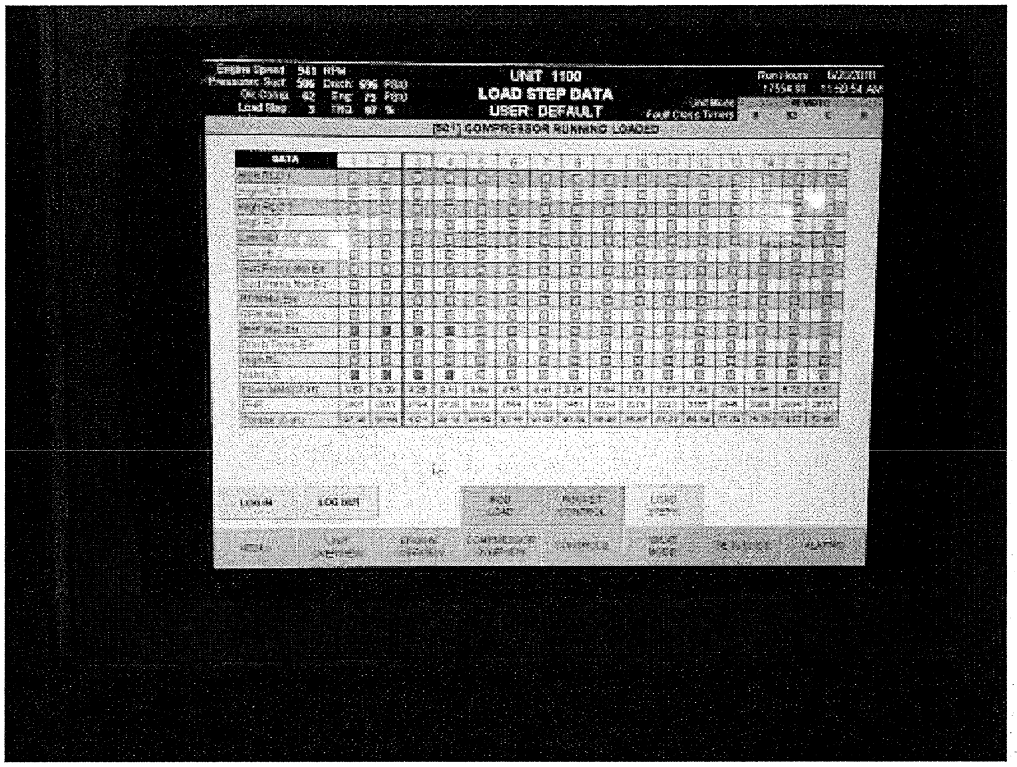


Image 4(EUENGINE1) : Control panel for EUENGINE1 in PTI 246-07 as it is operating

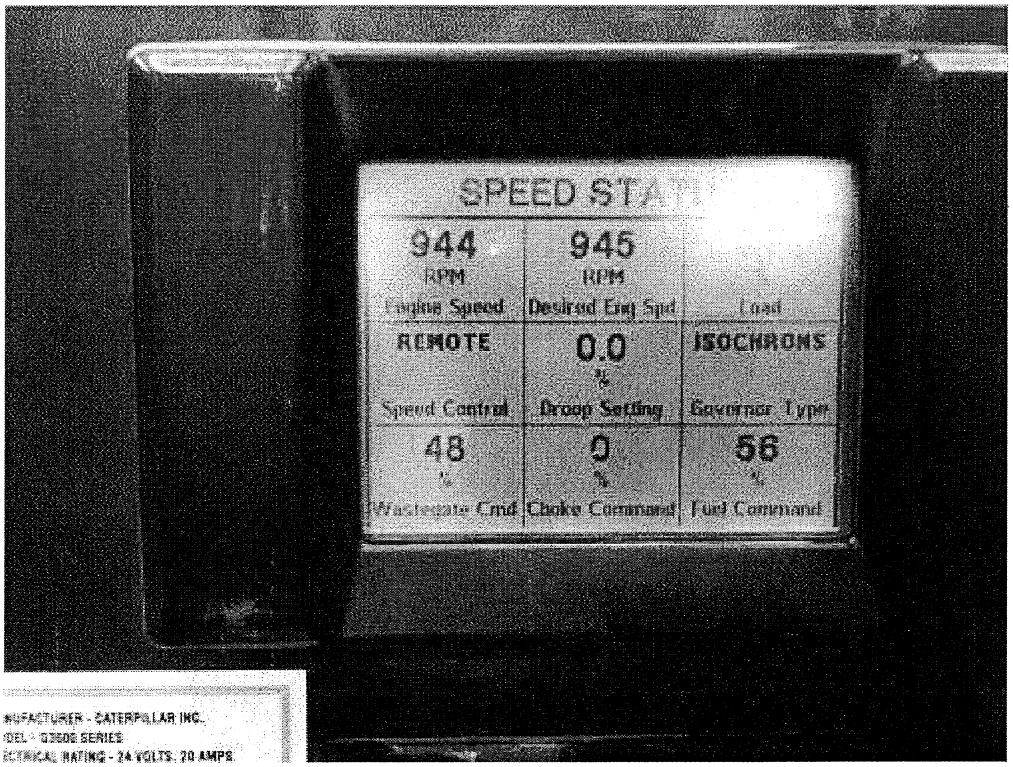


Image 5(EUENGINE1 (2)) : Another control panel for the engine that was operating during the inspection.

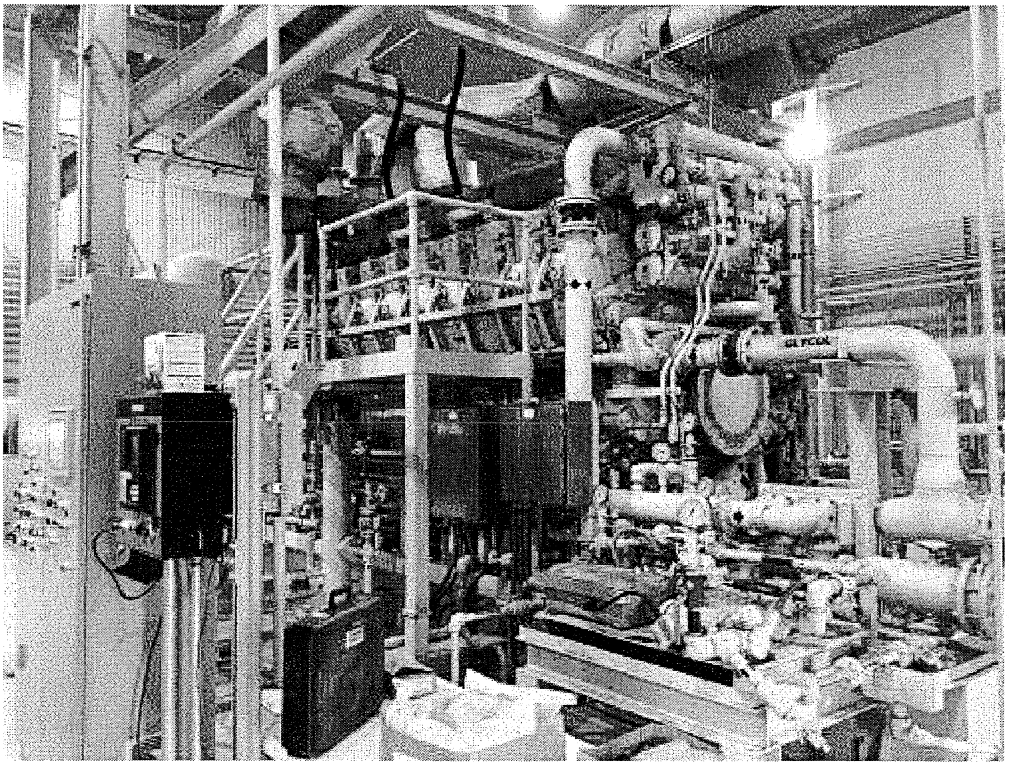


Image 6(EUENGINE1 (3)) : The engine operating during the inspection.

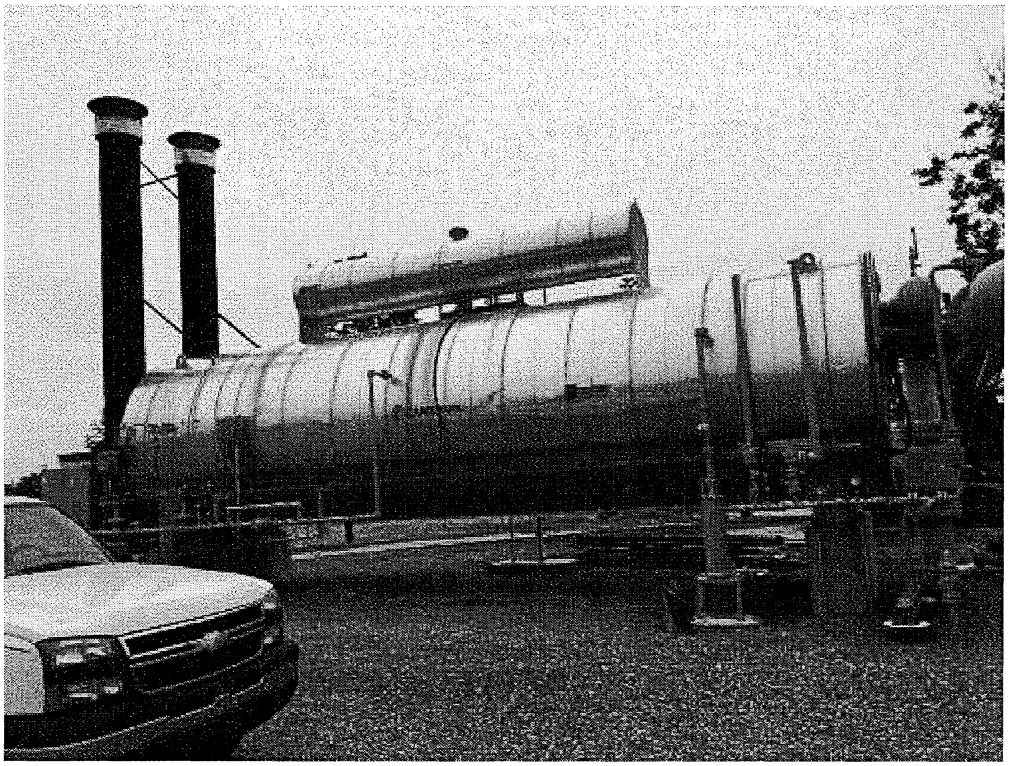


Image 7(Line heater) : A 13 MMBtu/hr line heater.

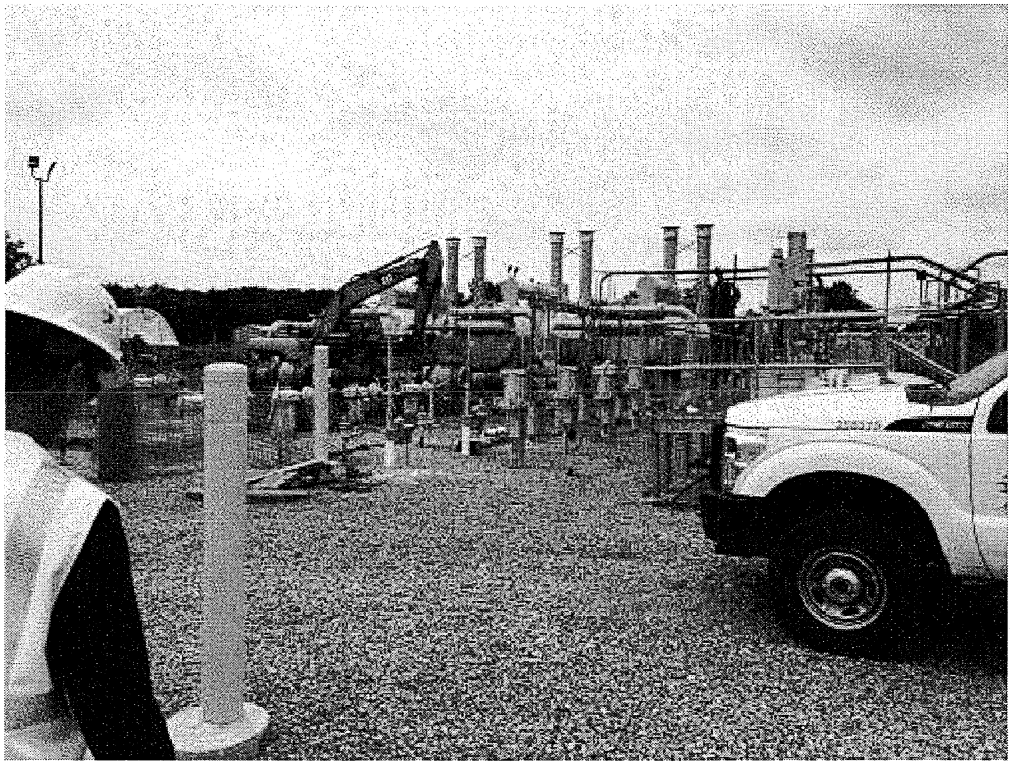


Image 8(Line heaters) : Three 14 MMBtu/hr line heaters.

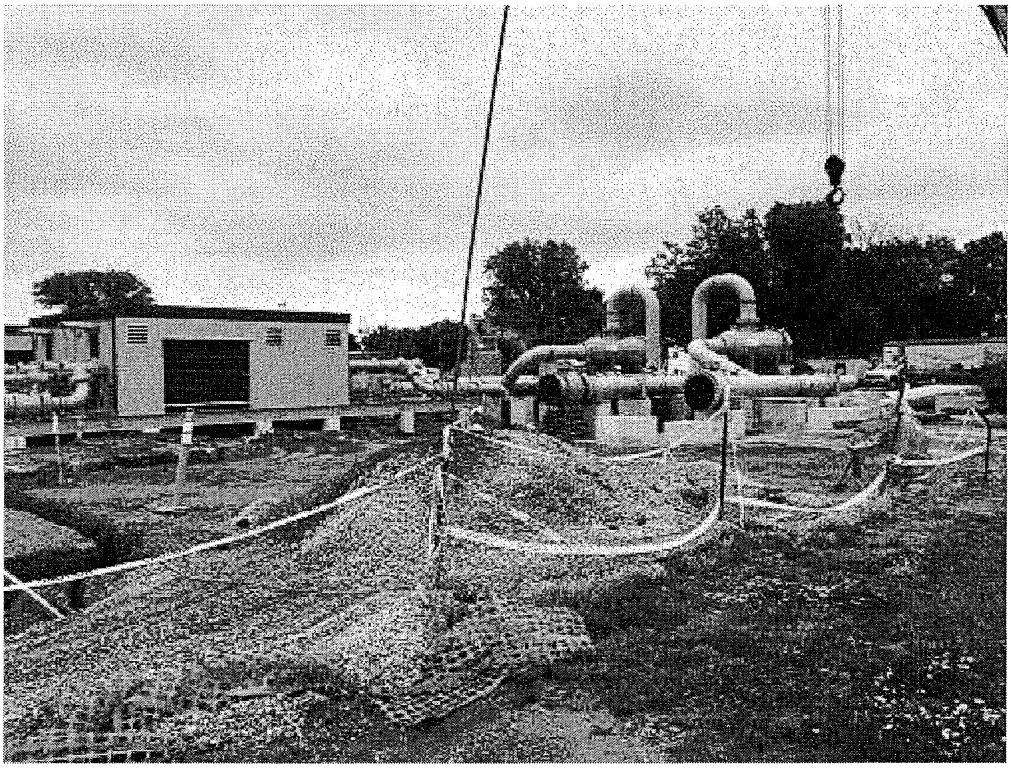


Image 9(Nexus) : Current construction on the Nexus metering station

NAME Frank Dunham DATE 7/25/18 SUPERVISOR SD