

KCS

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

N559023783

FACILITY: Hartland Production Facility		SRN / ID: N5590
LOCATION: LONE TREE RD, HARTLAND		DISTRICT: Lansing
CITY: HARTLAND		COUNTY: LIVINGSTON
CONTACT: Jim Long, Plant Manager		ACTIVITY DATE: 12/05/2013
STAFF: Daniel McGeen	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced, scheduled inspection of synthetic minor source, conducted as a Partial Compliance Evaluation (PCE) activity, part of a Full Compliance Evaluation (FCE).		
RESOLVED COMPLAINTS:		

On 12/5/2013, staff of the Department of Environmental Quality's (DEQ) Air Quality Division (AQD) conducted an unannounced inspection of the Hartland Production Facility. Additionally, staff of the Office of Oil, Gas & Minerals (OOGM), and Remediation and Redevelopment Division (RRD) met us onsite, also unannounced. This air quality inspection was a Partial Compliance Evaluation (PCE) activity, conducted as part of a Full Compliance Evaluation (FCE) activity. The purpose of this inspection was to determine compliance with the facility's air use permits, and with applicable state and federal air regulations.

**Environmental contacts:**

Bill Loney, Manager, Michigan gas plants; [bill.loney@meritenergy.com](mailto:bill.loney@meritenergy.com)

Jim Long, Plant Manager; 248-889-9860 (plant phone)

**Emission units:**

Emission unit ID	Emission unit description	Control device	Permit to Install No.	Federal regulation, if applicable	Compliance status at time of inspection
Gas sweetening plant	Natural gas sweetening facility	Deep well injection, and flare	58-95A	40 CFR Part 60, Subparts A, KKK, LLL, OOOO, and (by reference) VV	Noncompliance for PTI 58-95A; pending re: A, KKK, LLL, OOOO, and VV
EUENGINE1	Natural gas-fired 1,232 hp reciprocating internal combustion engine, Waukesha 7042GSI unit	Catalytic converter with 3-way catalyst; Air Fuel Ratio Controller	58-95C	40 CFR Part 63 Subpart ZZZZ	Compliance pending, re: ZZZZ
EUENGINE2	Natural gas-fired 330 hp rich burn Caterpillar G379NA reciprocating internal combustion engine	Catalytic converter with 3-way catalyst; Air Fuel Ratio Controller	58-95C	40 CFR Part 63 Subpart ZZZZ	Compliance pending, re: ZZZZ
EUENGINE3	Acid gas compressor engine; a natural gas-fired 330 hp rich burn Caterpillar G379NA reciprocating internal combustion engine	Catalytic converter with 3-way catalyst; Air Fuel Ratio Controller	58-95C	40 CFR Part 63 Subpart ZZZZ	Noncompliance for PTI 58-95C; pending re: ZZZZ

**Facility description:**

The Hartland Production Facility is a gas sweetening plant owned and operated by Merit Energy. The purpose of the plant is to remove hydrogen sulfide (H<sub>2</sub>S) from sour gas, thereby making it sweet. Additionally, the plant removes oil, water, and natural gas liquids from the natural gas which enters the facility

#### Regulatory overview:

The gas sweetening facility is regulated by the AQD. The oil and gas production processes at the site, however, comprise the Hartland 36 CPF, which is regulated by OOGM.

The gas sweetening plant is classified as a synthetic minor facility. This is because the Potential to Emit (PTE) of SO<sub>2</sub> is restricted to less than major source levels by the Permit to Install (PTI) No. 58-95A. It is considered a true minor source for Hazardous Air Pollutants (HAPs), having a PTE less than 10 tons per year for a single HAP, and PTE less than 25 tons per year for all HAPs combined. The plant also has a PTI No. 58-95C, for three Internal Combustion Engines (ICEs) with catalytic converters as air pollution control devices.

This facility is also subject to the following federal New Source Performance Standards (NSPS) regulations: 40 CFR Part 60, Subpart KKK, Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011; Subpart LLL, Standards of Performance for SO<sub>2</sub> Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Notification Commenced After January 20, 1984, and on or Before August 23, 2011; and Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution. Additionally, 40 CFR Part 60, Subpart KKK references 40 CFR Part 60, Subpart VV, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006.

The engines at the sweetening plant are subject to the following National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation: 40 CFR Part 63 Subpart ZZZZ, the Maximum Achievable Control Technology Standards for Reciprocating Internal Combustion Engines, also known as the RICE MACT. AQD does not have delegation of authority from the U.S. Environmental Protection Agency (EPA) to enforce this MACT standard for area (non-major) HAP sources, however.

#### Location:

This facility is located at 13750 Lone Tree Road, in Hartland. It is in a partially rural area, with nearby farms and residences. However, there is a large manufactured home subdivision about 3,700 feet to the north, residential neighborhoods 1,800 and 4,000 feet to the east, and a large manufactured home subdivision 5,000 feet to the southeast.

#### Recent history:

Numerous complaints have been received since late August, 2013. An 8/24 malfunction resulted in odorous emissions detectable about 4,000 feet north, in the Hartland Meadows subdivision. Additionally, a power outage from strong windstorms on the night of 11/17 resulted in complaints of severe sour gas odors at neighboring properties about 3,800 feet downwind. The emissions were identified by a complainant as the suspected cause of the sudden illness and death of a farm's matriarchal cow, as well as the sickening of the surviving cows. The complainant has reported continuing human health effects, as well.

#### Arrival:

Accompanying me on today's inspection was AQD Permit Engineer Terry Wright, who wrote the original PTI for this facility, No. 58-95, and the subsequent 58-95A. As we drove east on Lone Tree Road, at 9:01 AM, we detected no odors. We drove to Cherry Blossom Lane, and checked for odors as we slowly drove south. At 9:07 AM, I detected distinct and definite (level 2 on AQD's 0 to 5 odor scale) sour gas odors, about 1,000 feet north of the 90 degree turn in Cherry Blossom Lane where it heads west. Although I did not find this level 2 odor to constitute a nuisance at this time, the frequent presence of odors at this level or stronger could be an indicator of a nuisance situation.

T. Wright and I drove to the sweetening plant. There were no visible emissions from the flare, the separators, or the amine tower. There was a brief level 2 odor of sour gas, at this time. Weather conditions were partly sunny, 41 degrees F, and winds were out of the west at 5-10 miles per hour (mph). OOGM's Shaun Lehman had already arrived at the site, shortly before us. RRD's Rebecca Taylor joined us later during the inspection, as she had been in the area at another site. She brought a camera, and took photos, some of which illustrate this activity report.

We met with Mr. Jim Long, plant manager, and explained the reason for our visit. I provided a copy to Mr. Long of the DEQ "Environmental Inspections: Rights and Responsibilities" brochure. He explained that this was not an opportune time to observe the plant run, because only some processes were operating. They were in the midst of shutting it down, so they could conduct repairs to a gas-fired heater which had failed. Several Merit employees from northern lower Michigan were presently arriving onsite, to help in shutting the plant down.

#### Inspection:

PTI No. 58-95A, Special Condition No. 26 requires that the plant not undergo more than 5 normal startups or shutdowns per calendar year. Today's shutdown would be the fifth "normal" shutdown conducted this calendar year, for maintenance, according to records the AQD has on file.

Mr. Long indicated that for questions on flare emissions, I would need to speak with his supervisor, Mr. Bill Loney, who is at a different location. Mr. Loney oversees Merit Energy's gas plants in Michigan. For environmental recordkeeping, such as required by the federal requirements 40 CFR Part 60, Subparts A, KKK, LLL, OOOO, and VV, and 40 CFR Part 63 Subpart ZZZZ, he advised that I would need to speak with Ms. Vicki Kniss, Regulatory Affairs - Michigan contact for Merit Energy.

#### Natural gas sweetening plant; PTI No. 58-95A:

As Mr. Long was not always available, due to shutting the plant down, Merit Energy's Mr. Mike Shustock took our group through the site when he could not be present. We started at the west end of the plant, where gas from four wells, two sour and two sweet, enters the plant. A fifth well was capped last year.

There are four three phase separators that are regularly run, while a fifth does not operate. These units are heater treaters. Two separators were running, labeled for the Traylor well and the Dunleavy well. There is a larger heater treater unit to the south of the smaller units (please see attached photo by R. Taylor). It was not running, at this time. We were informed that the gas-fired heater which had failed and needed repairs was not a heater treater.

There were no visible emissions from the two fixed roof 400 barrel oil tanks, the fixed roof 400 barrel water tank, or the NGL storage tank. These are not open to atmosphere. We were told that if they were overpressurized, they would vent to the flare. There were no signs of visible emissions from the tanks.

The flare's pilot flame was visible, intermittently. It was a small flame, and was difficult to see, above a lip at the tip of the flare's stack (please see attached photo by R. Taylor). Standing a short distance allowed for better visibility. There were no visible emissions of smoke (opacity) from the flare. It is propane-fired. The PTI 58-95A requires natural gas be used as the fuel, but T. Wright advised that propane is an equivalent fuel.

AQD and OOGM have expressed concern to Merit Energy staff about the high level of carbon dioxide (CO<sub>2</sub>) in the tail gas, as this might reduce the flare's efficiency at combusting H<sub>2</sub>S, to convert it to SO<sub>2</sub>. M. Shustock advised S. Lehman today that they are now able to direct extra fuel to the flare, so the flame can be as large as they want, when they are flaring.

Tail gas from the sweetening process is disposed of by injection into an underground storage well. This is considered to be Best Available Control Technology for Toxics (T-BACT) for the sweetening plant, T. Wright explained. It also serves to limit the PTE for SO<sub>2</sub>. During emergency shutdown or during periods of maintenance, gas can be flared for a limited time (30 minutes) under Special Condition No. 3 of the PTI 58-95A. AQD will check compliance with this time limit when flare data for the night of 11/17 is provided by Merit Energy. AQD will also check compliance with the SO<sub>2</sub> emissions limit of 150 lbs/hr, based on a 3-hour average, based upon a mass flow rate of H<sub>2</sub>S to the flare of 80 lbs/hr.

A number of Special Conditions within PTI 58-95A reference an optional incinerator and/or sulfur recovery unit, neither of which were ever built. This includes conditions Nos. 1, 4, 9, 10, 11, 15, 16, 19, 20, 22, 25, and 26. Some of these conditions (10, 11, 19, and 26) also reference the flare or the overall sweetening plant, so those requirements are still applicable.

PTI No. 58-95A Special Condition (S.C.) No. 5 sets a 20% visible emission limit for equipment at the gas sweetening plant. There were no visible emissions seen from the plant today. Special Condition No. 6 sets a 20% visible emissions limit for the refrigeration unit. No opacity was seen from the refrigeration building. Special Condition No. 7 specifies no visible emissions from the flare, except as provided for in 40 CFR Part 60, Supart KKK, which references Section 60.18 of Subpart A. Section 60.18 involves using opacity method 22. No visible emissions were observed from the flare.

S. C. No. 8 requires a continuous in-shed monitoring program for H<sub>2</sub>S meeting the requirements of Rule 403(5). The condition, and Rule 403(d), require that all inflow streams of gas to the equipment shall be shutoff if the H<sub>2</sub>S concentration inside the building reaches 100 ppm. J. Long has previously described to me how the plant will shut itself down within one second of such a reading, shutting off all the gas flow to the plant. He has indicated that the computerized systems for the plant would not allow the facility to be started up again, until the reason for the shutdown has been corrected.

Rule 403(5)(a) requires the operator of a sour gas sweetening plant to "Monitor the mass flow rate of hydrogen sulfide either entering the plant or going to the waste gas flare or flares on a periodic schedule specified by the department. The monitoring program shall include a determination of the hydrogen sulfide concentration using colorimetric detector tubes or their equivalent and a determination of the volumetric gas flow rate. The monitoring data shall be submitted to the department in an acceptable format within 30 days following the end of the month in which the data were collected." I asked what method they use to determine H<sub>2</sub>S concentration, and was told this should be answered by their corporate office. AQD District staff will pursue the establishment of a monitoring schedule, and monthly submittal of required reports.

Rule 403(5)(b) requires fencing, warning signs, or other measures as necessary to warn or deter unauthorized individuals from entering the plant property or buildings. Signs are to read: "Danger--Poison Gas." There were several signs to this effect, on the north fenceline around the plant. We did not walk around the outside of the fenceline, to check out the south, east, or west sides.

Rule 403(5)(c) requires that burning or equivalent control be provided for pressure relief valves, storage tanks, and dehydrator vent or vents. Company personnel explained how tanks and other equipment have emissions which are routed to the flare.

Rule 403(5)(d) requires a program of continuous monitoring of H<sub>2</sub>S concentrations in any building housing a sweetening process. I have been informed previously that each of the main three buildings (compressor building, process building, and acid gas compressor building) is equipped with two or more H<sub>2</sub>S monitors. Inside their process building (where the sweetening process and ICE EUENGINE2 were located), I asked what their H<sub>2</sub>S monitors were currently reading. J. Long showed me a monitor inside the building, which read 0 ppm. A green light on the outside of the building showed that H<sub>2</sub>S levels inside the building were within acceptable limits. A nearby yellow and red light would show progressively higher levels of H<sub>2</sub>S.

Rule 403(e) requires a safe and orderly shutdown of all process inflow streams to the plant if H<sub>2</sub>S concentration is more than 100 ppm in any building enclosing a sweetening process. Full operation may resume only after successful corrective measures have been applied. J. Long has explained that the computerized control system for the plant will not permit operations to resume until the situation which triggers a shutdown has been corrected.

Rule 403(f) requires that the facility automatically begin shutting down within one second after extinguishment of the flare flame, unless otherwise authorized by the Department. Operation of the facility is not to resume unless successful corrective measures have been taken. J. Long has explained that the shut down occurs within one second. The mechanisms which close off incoming gas to the plant are powered by compressed air.

S.C. No. 9 is nonapplicable, as the incinerator and sulfur recovery unit were never built.

S.C. No. 10 requires a continuously burning pilot flame at the flare, and the never installed incinerator. In the event that the flame is extinguished, shut-in of all wells feeding the equipment (sweetening plant) is to commence automatically within one second. AQD has requested data from the company on flare operations on the night of 11/17, and in general.

S.C. No. 11 requires all emergency relief valves, all storage tanks, and all dehydrators are vented to a flare, an incinerator, or vapor recovery system. The flare is the control device that was chosen when the plant was built.

S.C. No. 12 states that the applicant shall not process wells other than those specified in the permit application. The company is currently processing gas from the Dunleavy, GM, Traylor, and Petty's wells, as indicated on the individual heater treaters. In the original 1995 permit application, five wells were mentioned. The Dunleavy 1-36, Giegler 1-36, and Traylor 1-36 had all been drilled and tested, as of that date. The Traylor Offset well had not yet been drilled, nor had the Petty well. AQD will check with OOGM to verify compliance with this condition.

S.C. No. 13 states that the applicant shall not operate the equipment unless a vapor return system is employed in the loadout of all brine and condensate tanks. J. Long indicated that a vapor return system is used.

S.C. No. 14 requires the applicant to maintain fencing, warning signs, and other measures as necessary to prevent unauthorized individuals from entering the plant property and buildings, pursuant to Rule 403 (5)(b). As previously mentioned, several signs were posted on the north perimeter fence warning of danger from poison gas. We did not walk around the entire perimeter, however.

S.C. No. 15 is nonapplicable, as it refers to the sulfur recovery unit, which was never installed.

S.C. No. 16 is nonapplicable, as it refers to the incinerator, which was never installed.

S.C. No. 17 requires monitoring and recordkeeping of emissions and operating information to comply with 40 CFR Part 60, Subparts A, KKK\*, and LLL. I was informed that for these recordkeeping requirements, I would need to contact Ms. Vicki Kniss, Regulatory Affairs, of Merit Energy's corporate office.

\*It should be noted that twice a year, the company submits Semiannual Reports required by 40 CFR Part 60, Subpart KKK, for VOC monitoring activities. Their reports submitted on 1/9/2013 (for the second half of 2012) and 7/30/2013 (for the first half of 2013) stated that no leaks were detected.

S.C. No. 18 requires compliance with 40 CFR Part 60, Subparts A, KKK, and LLL, as described in Appendices A and B of the PTI. As previously mentioned, for environmental recordkeeping, I was referred to Ms. Kniss of Merit Energy's corporate office. See above note regarding Subpart KKK reporting.

S.C. No. 19 requires either of two sets of control equipment for the sweetening plant; this plant was built with the acid gas injection into an underground well and the flare as the desired combination of controls.

S.C. No. 20 is nonapplicable, as it refers to the incinerator, which was never installed.

S.C. No. 21 requires exhaust gas to be discharged unobstructed vertically upwards to the ambient air from a stack with a diameter of 6 inches at an exit point not less than 100 feet above ground level. The flare exhausts unobstructed vertically upwards, and looks to be approximately the right dimensions.

S.C. No 22 is nonapplicable, as it refers to the incinerator, which was never installed.

S.C. No. 23 requires written notification of the actual date of initial startup of the equipment, to comply with 40 CFR Part 60, Subpart A. On 11/9/2000, KCS Michigan Resources provided an initial startup notification to the AQD District Supervisor Mike Koryto.

S.C. No. 24 requires compliance with all requests, rules and regulations as specified in the Hatland Township Conditional Use Permit, which is Appendix C of the PTI. Where the Conditional Use Permit is more restrictive, the applicant is to comply with those stricter requirements.

S.C. No. 25 refers in large part to the Sulfur Recovery Unit, which was never installed, but it also requires compliance with procedures in a Malfunction Abatement Plan (MAP), which is Appendix G of the PTI. The MAP contains maintenance and inspection items, including a daily check of the acid gas H<sub>2</sub>S content and flowrate. It is not currently known to AQD how often the H<sub>2</sub>S content of the gas is checked, nor by what method.

S.C. No. 26 limits the number of normal startups and shutdowns of the gas sweetening plant to no more than five per calendar year. Today's shutdown for maintenance is the fifth for calendar year 2013, according to the records the AQD has on file. This condition also contains some items which only apply to the never installed incinerator and Sulfur Recovery Unit.

S.C. No. 27 requires that during startups and shutdowns, the plant shall be operated in accordance with the good air pollution control practices outlined in the Emissions Minimization Plan (EMP) in Appendix D. The EMP is required to be updated after final design is complete and before initial startup, and annually thereafter. For the past 12 months, the AQD has not received an update to the EMP for the gas sweetening portion of the facility, which constitutes a violation of S.C. No. 27 of PTI No. 58-95A.

S.C. No. 28 requires that during startups and shutdowns, the applicant shall keep records of all instances which result in emissions exceeding an emission limit specified in this permit, and violations of monitoring or recordkeeping requirements. Verbally, on 11/27, and subsequently by e-mail, AQD has requested data on the flare and associated emissions for the night of 11/17, and will review this data upon receipt.

The complainant who reported the 11/17 power outage and odorous emissions to AQD has asked that the sweetening plant be required to install an emergency generator, so future disruptions in the electrical grid would not result in a plant shutdown. I discussed this prospect with J. Long. He indicated that in order to run, this facility requires 13,700 volts of electricity, and that a generator this large would be so expensive, it would cost more than the gas sweetening plant is actually worth. He added that the well field is only producing 1/50th of the amount of gas that it used to, and is barely breaking even right now, so Merit Energy is not likely to pursue this.

#### **EUENGINE1, PTI 58-95C:**

The purpose of the first ICE is to compress the incoming, untreated gas to the desired pressure, 700 lbs per square inch (psi), as it enters the plant. Consumers Energy sets this specification. EUENGINE1 was currently running. There were no visible emissions from the exhaust stack, in compliance with the 20% limit for visible emissions specified in Rule 301. The exhaust stack exhausted unobstructed vertically upwards, as required by Special Condition 1.14a of PTI No. 58-95C.

We were informed that as part of the process of shutting down for maintenance, they were processing all of the gas still within the sweetening plant's system, before entirely shutting the plant down. This way, there would be no unsweetened gas released to the flare. That is why some parts of the plant, like this ICE, were still running.

#### **EUENGINE2, PTI 58-95C:**

When the gas arrives at the second building, known as the process building, it is still sour, and NGLs and propane are still present. (Please see attached photo of east side of process building by R. Taylor.)

Here, any liquids left in the gas are separated out. Sour gas enters contact towers, which contain a series of stacked trays with slots. A type of amine classified as Sulfinol D enters the tower from the top, while the unsweetened gas bubbles up from below. The sulfinol is 10 degrees F hotter than the gas, and the H<sub>2</sub>S and carbon dioxide (CO<sub>2</sub>) cling to the sulfinol, making the gas sweet. At this point, the sweetened gas still contains propane, butane, heavier compounds, and a small amount of water.

Outside the process building, there are three towers which comprise a dehydration system. This system is referred to as a molecular sieve, or mole sieve. The gas is now free of water-based liquids.

At this point, the Sulfinol D, which now contains H<sub>2</sub>S and CO<sub>2</sub>, is heated by a still and boiler. The gas drops while the steam rises in the system. Because the steam is hotter than the Sulfinol D, the H<sub>2</sub>S and CO<sub>2</sub> now cling to the steam. The pressure is reduced, which causes the CO<sub>2</sub> to separate from the steam, and take the H<sub>2</sub>S with it. This CO<sub>2</sub> and H<sub>2</sub>S is called tail gas, and it exits the process building at this point.

The sweet gas, meanwhile, which has had the water dried out of it, still contains some heavy hydrocarbons as liquids. A propane refrigeration unit runs cold propane through a tube and shell chiller process. The sweet gas runs through this cooling system, and is cooled to -40 degrees F. The heavier hydrocarbons turn to liquid, and drop out. These are now Natural Gas Liquids or NGLs, including but not limited to propane and butane. These go to a 30,000 gallon fixed roof NGL storage tank, which are periodically trucked out, as needed.

The refrigeration unit is powered by EUENGINE2, a natural gas-fired, 330 hp, rich burn Caterpillar G379NA ICE with a 3-way catalyst. The engine was running, at this time, with no visible emissions from the exhaust stack. The regulatory limit for visible emissions is the 20% opacity limit specified in Rule 301. The exhaust stack exhausted unobstructed vertically upwards, as required by Special Condition 1.14b of PTI No. 58-95C.

At this point, the sweetened gas is methane, odorless and tasteless. It has no mercaptans in it, when it is sent out from here. The mercaptans are added by Consumers Energy, to odorize the gas, for safety purposes, before the gas reaches customers.

**EUENGINE3; PTI No. 58-95C:**

The tail gas, meanwhile, is routed to the acid gas building (see attached photo by R. Taylor). EUENGINE3 is a natural gas-fired, 330 hp, rich burn Caterpillar G379NA ICE with a 3-way catalyst. It powers a compressor, to compress the tail gas to 750-800 psi. The tail gas is then injected into the disposal well, which is northeast of the plant

T. Wright noted that the exhaust stack for the acid gas compressor engine, EUENGINE3, did not exhaust unobstructed vertically upwards, as required by PTI No. 58-95C, Special Condition No. 1.14c, because the exhaust stack had a horizontal outlet. This is a violation of the permit conditions. The previous engines, EUENGINE1 and EUENGINE2 were exhausting unobstructed vertically upwards, as required. There were no visible emissions from this exhaust stack, which is limited to 20% opacity by Rule 301.

Immediately to the north and east of the acid gas compressor building, I was able to detect a distinct and definite sour gas odor, as were S. Lehman and R. Taylor. T. Wright explained although his nose does not have the ability to detect H<sub>2</sub>S, he was able to detect a gas-like odor, like mercaptans.

After the date of the inspection, I asked J. Long if the acid gas compressor building might have been the source of the odors I detected offsite, prior to the inspection. He indicated that it was possible these were the source of the odors downwind. He explained there is a scrubber pump where the inlet gas (tail gas) comes into the acid gas compressor building. A small leak on a valve had been found, and he recalled that it was repaired that same day. He indicated a few drops of reflux water could be enough to cause odors downwind, but not enough to pose an actual hazard.

PTI No. 58-95C, S.C. No. 1.1 specifies emission limits for NO<sub>x</sub> and CO, for the three ICEs. I have been referred to Merit Energy Corporate staff, to discuss required environmental recordkeeping.

S.C. No. 1.2 states that the permittee shall not burn any sour natural gas in FGENGINES. J. Long indicated that the engines burn only sweet natural gas that they have sweetened onsite, and they refer to the fuel as "fuel gas."

S.C. No. 1.3 requires a Preventative Maintenance/Malfunction Abatement Plan (PM/MAP) for the three engines, which comprise the flexible group FGENGINES. It includes minimum requirements that must be met, as detailed in PTI No. 58-95C. On 9/25/2007, a PM/MAP submittal was made, and contained all the required elements.

S.C. No. 1.4 requires the engines shall not be operated without an add on control device for more than 200 hours per engine per year. J. Long has indicated that since he became plant manager this October,

they have not run any engines without the catalytic converters or Air Fuel Ratio (AFR) controller. Mr. Mike Orlando was plant manager before that, but J. Long did not believe the engines ran without control devices during that part of 2013, either.

S.C. No. 1.5 requires the ICE engines not to be operated unless any control device (catalytic converters and AFR controllers) are installed, maintained, and operated in a satisfactory manner, except as specified in S.C. 1.4, above. J. Long explained that last month they had maintenance checks done on their catalytic converters. He has also explained that they document all of their maintenance activities in writing, and enter the activities into their computerized recordkeeping. The company periodically submits updates to the PM/MAP.

S.C. No. 1.6 requires stack testing of NOx and CO emissions from one or more of the ICEs, upon request by the AQD District Supervisor. Such a request has not been made, at this time. The ICEs do not appear to have contributed to the recent air pollution complaints.

S.C. No. 1.7 states that verification of H2S and/or sulfur content of the natural gas burned in the three ICEs may be required, upon request by the AQD District Supervisor. Such a request has not been made at this time.

S.C. No. 1.8 requires installation, calibration, maintenance, and operation of a device to record and monitor natural gas fuel usage for each ICE. J. Long indicated they document fuel use on a daily and weekly basis, and provide this information to their corporate office.

S.C. No. 1.9 states that the permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month. AQD has not recently requested ICE emissions data, but will request this, as part of checking compliance with environmental recordkeeping requirements.

S.C. No. 1.10 requires the permittee to maintain a log of all maintenance activities conducted according to the MP/MAP required by S.C. No. 1.3. J. Long has explained to me on previous site visits how every maintenance activity at the site is documented on paper and entered into their computer system.

S.C. No. 1.11 requires the permittee to keep for the ICEs records, on a monthly and 12-month rolling basis, of the hours that the engines are operated without their control devices (catalytic converters and AFR controllers). As previously mentioned, J. Long indicated the control devices have been in use the entire time he has been plant manager (since mid-October), and, to the best of his knowledge, they were in use during the previous portion of 2013.

S.C. No. 1.12 requires monthly fuel use records for each of the three ICEs, as required by S.C. 1.8. The records shall be kept on file at the facility for at least five years. AQD will discuss this environmental recordkeeping requirement with corporate Merit Energy staff.

S.C. No. 1.13 requires monthly and 12-month rolling period NOx and CO emission calculation records for each of the three ICEs, as required by S.C. 1.1 and Appendix A of the PTI. This is to be done by tracking fuel usage for each engine, and multiplying that by an equipment-specific emission factor. The records shall be kept on file at the facility for at least five years. AQD will discuss this environmental recordkeeping requirement with corporate Merit Energy staff.

To check compliance with the environmental recordkeeping provisions of PTI No. 58-95C, it will be necessary to meet with Merit Energy corporate staff. Mr. Bill Loney of Merit Energy has indicated that they would be willing to meet to review these requirements, in the near future.

#### Conclusion:

Based upon the inspection, the following violations have been identified:

Rule 403 (5)(a) requires monthly submittals of H2S monitoring data, which are not being received.

The company did not provide an annual update to the Emission Minimization Plan for the gas sweetening plant during the most recent 12 months, as required by PTI No. 58-95A, Special Condition No. 27.

The exhaust stack for ICE number 3, the acid gas compressor engine, is exhausted horizontally, instead of unobstructed vertically upwards, as required by PTI No. 58-95C, Special Condition No. 1.14c.

The AQD Lansing District office is preparing a Violation Notice to be sent to the company, which will request a program for corrective actions. Additionally, AQD will be arranging a meeting with Merit Energy staff to review the facility's compliance with the following federal regulations:

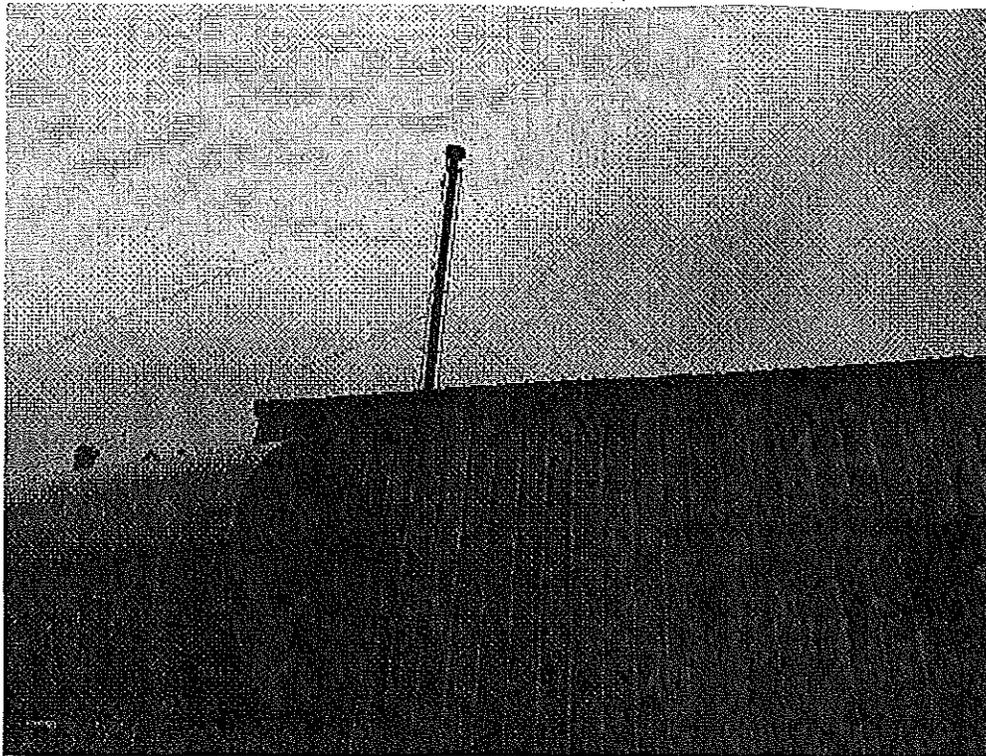
40 CFR Part 60, Subparts A, KKK, LLL, OOOO, and (by reference) VV.

40 CFR Part 63, Subpart ZZZZ, also known as the RICE MACT. However, AQD does not have delegation of authority for this MACT for area (non-major) sources of HAPs.

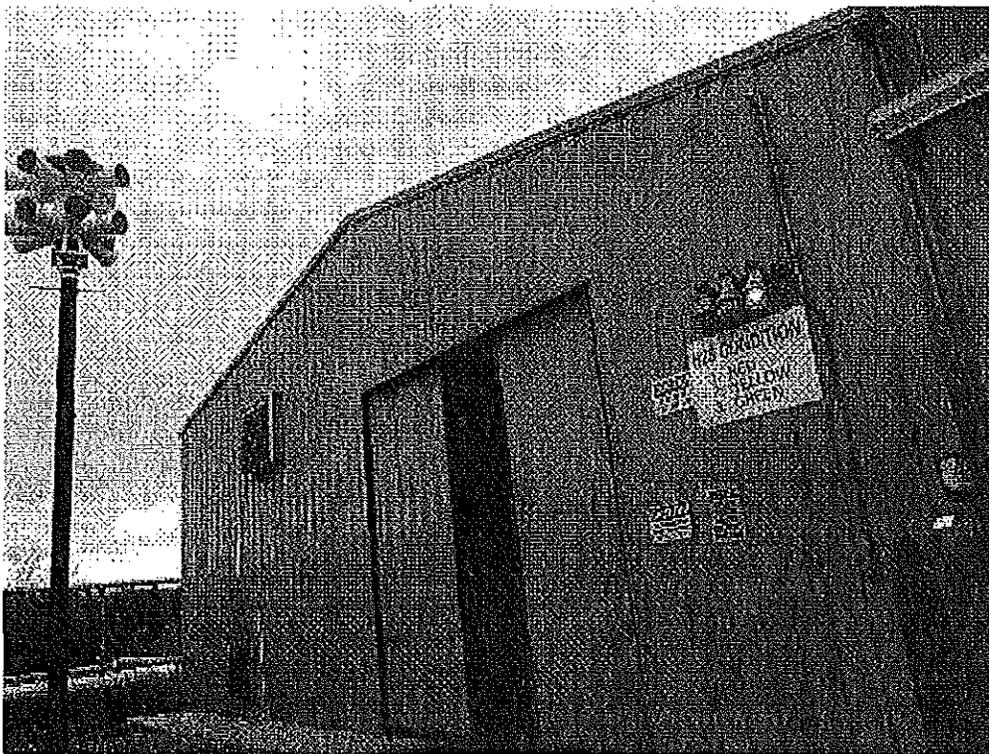
Since 12/5, the date of the inspection, AQD has been made aware of allegations that the plant's flare was not used on the night of 11/17, between 8:30 PM and 1:30 AM the next morning. AQD is seeking data to verify the operational status of the flare during that incident. Additionally, the complainant has reported to the AQD continuing health effects to her and her family attributed to emissions from the plant that night. The complainant has indicated that their symptoms, and the symptoms of their deceased and surviving cows are consistent with those of sulfuric acid poisoning. The Livingston County Health Department has recently contacted AQD regarding the 11/17 incident and associated complaints, and is requesting copies of documentation in the Lansing District files, on reports and correspondence concerning the gas sweetening plant in 2013.



**Image 1(West end of plant)** : Small and one large heater treater units (3-phase separators) are at center of photo. At left is compressor building, which houses ICE EUENGINE1.



**Image 2(Flare)** : Flare, although the small pilot flame is not visible above the metal disc atop the stack, in this photo.



**Image 3(Process building)** : Process building, which houses ICE EUENGINE2, as seen from east side. Indicator light is green above the white sign board.



**Image 4(Acid gas compressor) :** Acid gas compressor building, at east end of site. The exhaust stack for ICE EUENGINE3 is exhausting horizontally, at left of photo.

NAME [Signature]

DATE 12/19/2013 SUPERVISOR [Signature]