

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

N158651156

FACILITY: TUSCOLA ENERGY - NIXON FARMS		SRN / ID: N1586
LOCATION: 7611 BAY CITY FORESTVILLE RD, AKRON		DISTRICT: Saginaw Bay
CITY: AKRON		COUNTY: TUSCOLA
CONTACT: Jeff Adler , President		ACTIVITY DATE: 10/08/2019
STAFF: Matthew Karl	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection to determine compliance with PTI No. 20-12B.		
RESOLVED COMPLAINTS:		

On Tuesday (10/8/19) Derek Timmermann (EGLE-OGHD) and I (Matt Karl) conducted a scheduled inspection at the Tuscola Energy Inc. – Nixon Farms facility located 7611 Bay City Forestville Road, Wisner Township, Michigan. The purpose of this inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes and Energy, Air Quality Division (EGLE-AQD) Administrative Rules and Permit to Install (PTI) No. 20-12B. Mr. Jeff Adler, President, Tuscola Energy Inc. assisted me by providing requested records.

Background:

Nixon Farms is an existing oil production facility that consists of both sweet and sour gas wells. A sour gas well is defined as a well in which sour gas is present which contains hydrogen sulfide (H₂S). Each well has an associated pump to bring the oil and gas to the surface. The oil and gas are pumped from each well to a battery of separator tanks where the oil is separated from the gas. The oil is routed to several storage tanks on site while the gas is routed to a 50-foot-tall flare. The wells that are associated with this facility are included in the table below:

Well Identification	Well Type
Nixon 1-23	Sweet Well
Nixon 2-23	Sweet Well
Nixon 3-23	Sour Well
Nixon 4-23	Sour Well
Nixon 5-23	Sour Well
Nixon 6-23	Sour Well
Nixon 14-23	Sweet Well
Morgan 1-23	Unknown*

*The Morgan 1-23 was under a "Plug or Produce" judgement at the time of my 10/8/19 inspection. The Morgan 1-23 well ended up being plugged the week of 10/21/19.

The following equipment is permitted at the facility under PTI No. 20-12B:

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUNIXON3TANK	Storage tank for oil from the Nixon 3-23 sour well.	FGOILPRODUCTION
EUNIXON3SEP	Separator for the Nixon 3-23 sour well.	FGOILPRODUCTION
EUNIXON4TANK	Storage tank for oil from the Nixon 4-23 sour well.	FGOILPRODUCTION
EUNIXON4SEP	Separator for the Nixon 4-23 sour well.	FGOILPRODUCTION
EUNIXON5TANK	Storage tank for oil from the Nixon 5-23 sour well.	FGOILPRODUCTION
EUNIXON5SEP	Separator for the Nixon 5-23 sour well.	FGOILPRODUCTION
EUNIXON6TANK	Storage tank for oil from the Nixon 6-23 sour well.	FGOILPRODUCTION
EUNIXON6SEP	Separator for the Nixon 6-23 sour well.	FGOILPRODUCTION

EUMORGAN1TANK	Storage tank for oil from the Morgan 1-23 sour well.	FGOILPRODUCTION
EUMORGAN1SEP	Separator for the Morgan 1-23 sour well.	FGOILPRODUCTION
EUWASTEWATERTK1	Storage tank for water separated from the oil in the oil treatment system.	FGOILPRODUCTION
EUNIXON1TANK	Storage tank for oil from the Nixon 1-23 sweet well.	FGOILPRODUCTION
EUNIXON2TANK	Storage tank for oil from the Nixon 2-23 sweet well.	FGOILPRODUCTION
EUNIXON14TANK	Storage tank for oil from the Nixon 14-23 sweet well.	FGOILPRODUCTION
EUWASTEWATERTK2	Storage tank for water separated from the oil in the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK1	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK2	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK3	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK4	Oil storage tank for the oil treatment system.	FGOILTREATSYS

Site Inspection:

We arrived on site at approximately 11:00 am. At the time of our inspection the temperature was ~56°F, the wind was ~5 mph from the east, and it was sunny, and the skies were clear. We noted a slight H2S odor on-site around the storage tank batteries. I did not note any readings on my personal H2S meter, but Derek noted a peak H2S reading on his personal meter of 9.5 ppm. It was difficult to determine where the H2S odor was originating from and where Derek picked up the peak reading.

The attached site map shows the setup of equipment at the facility. In the site map, storage tanks with an “X” overlaid are currently not in use. Currently, the facility has four (4) storage tanks dedicated to storing oil from the wells, two (2) storage tanks dedicated to storing treated oil, one (1) storage tank dedicated to storing brine water, six (6) separators, a heater treater treatment system and a flare control. The attached reference photo (Photo 1) shows the separators and storage tanks of the southern storage tank battery as they appeared at the time of our inspection. Photo 2 shows the four storage tanks in the northern storage tank battery as they appeared at the time of our inspection. Photo 3 shows the heater treater treatment system as it appeared at the time of our inspection. Photo 4 shows the flare control (SVFLARE) which is a 50-foot-tall flare which was operating at the time of our inspection.

I reviewed the on-site meter and recorded the following information about the flow of H2S gas to the flare:

Flow Rate	32.9 MSCF/D
Flow Monthly	255.6 MSCF
Flow Today	11.9 MSCF
Flow Yesterday	35.3 MSCF

We also checked the status of the Morgan 1-23 well. As noted above, the well is currently under a “Plug or Produce” judgement. Derek had been in communication with Jeff Adler via email on 9/12/19 setting a deadline of 10/29/19 for any work to be completed to either bring the well online for production or close and plug the well. At the time of our inspection, it appeared that there were no signs of activity around the well. The Morgan 1-23 well was plugged the week of 10/21/19. Derek and the EGLE-OGMD will follow up on the final phases of cleaning up and closing out the well site.

We departed the facility at approximately 11:45 am.

Records Review:

I sent Jeff Adler a records request on Thursday (10/10/19) via email. Jeff Adler responded by providing the following records via email on Monday (10/14/19), which are available in the District Office files:

- Records Request – 10-10-19.xlsx

FGOILTREATSYS:

SC VI.1. The permittee shall maintain a log of all maintenance activities conducted according to the PM /

MAP (pursuant to SC III.2).

On Thursday (10/24/19) Jeff Adler sent me via email with an updated "Records Request – 10-10-19.xlsx" spreadsheet with a "Maintenance" tab. I've included the section relevant to the Nixon Farms FGOILTREATSYS in the table below:

Nixon Treatment Tanks	
Date	Maintenance
4/9/2019	Repaired hatch on Red tank.
4/11/2019	Shoveled sediment from Red tank.
4/17/2019	Took off burner.
5/8/2019	Installed new burner.
5/13/2019	Plumbed gas line.

FGOILPRODUCTION:

SC VI.1. The permittee shall monitor and record all of the following at the frequency indicated:

- a) Volumetric flow rate of sour gas going to the flare- daily
- b) Annual readings of the concentration of hydrogen sulfide in the produced sour gas from the wells while being pumped which is representative of the three wells sending the highest volume of gas to the flare- annually. Both of the following are acceptable means of determining the concentration of hydrogen sulfide in the sour gas:
 - I) Colorimetric detector tube
 - II) Laboratory gas analysis

I reviewed the spreadsheet "Records Request – 10-10-19.xlsx." I reviewed records of the volumetric flow rate of sour gas from 12/3/18 to 9/30/19. The volumetric flow rate of sour gas going to the flare ranged from 0 to 77.066 MSCF, with an average flow rate of 23.546 MSCF over the time period of the records reviewed. The latest annual reading of the concentration of H2S was performed on 10/1/18 and was 7.5% H2S. The requirement for determining the concentration of hydrogen sulfide in the produced sour gas is on an annual basis, so the facility is due for an updated reading for 2019 via colorimetric detector tube or laboratory gas analysis. Tuscola Energy Inc. performed H2S concentration testing on 10/29/19. Tuscola Energy Inc. will send in correspondence with the results to the EGLE-AQD District Office. A copy of the concentration results will be on file in the District Office.

SC VI.2. Each calendar month the permittee shall calculate the mass flow rate of hydrogen sulfide (H2S) that went to the flare each day using all of the following:

- a) The most recently determined concentration of hydrogen sulfide in the sour gas
- b) The individual daily volume of sour gas that went to the flare

I reviewed the spreadsheet "Records Request – 10-10-19.xlsx." I reviewed records of the mass flow rate of H2S from 12/3/18 to 9/30/19. The most recently determined concentration of H2S was performed on 10/1/18 and was 7.5% H2S. The facility is due for an updated annual reading for 2019. Tuscola Energy Inc. performed H2S concentration testing on 10/29/19. Tuscola Energy Inc. will send in correspondence with the results to the EGLE-AQD District Office. A copy of the new concentration results will be on file in the District Office.

Over the period of 12/3/18 to 9/30/19 the mass flow rate of H2S that went to the flare each day ranged from 0 to 509.793 lbs/day and averaged 141.318 lbs/day over the time period of the records reviewed. The maximum mass flow rate of 509.793 lbs/day occurred on 3/4/19 which was also the maximum volumetric flow rate of 77.066 MSCF. This was an exceedance of the emission limit of SC II.1. of 460 lbs/day H2S.

On Thursday (10/24/19) Jeff Adler sent me an explanation for the 3/4/19 exceedance via email. I've transcribed the explanation below:

"In response to our H2S exceedance at the Nixon Farms on 3/4/19 it was because we had the wells shut in for the prior two days because we were doing repairs to the flare shroud. Shutting in the wells caused the pressure to build up so when we turned the flare back on the flow was too high. We should have started it later in the day to keep us under the limit, but we started it in the morning. We have not gone over the limit since."

The response appeared sufficient to address the exceedance noted and a violation notice will not be sent at this time. Tuscola Energy Inc. should make sure that wells are operated in a manner that assures that the H2S

emissions remain below the emissions limits. Future exceedances should be reported to the EGLE-AQD District Office as well as corrective actions taken to ensure that the period of exceedance is as short as possible.

SC VI.3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period H2S emission calculation records for FGOILPRODUCTION, as required by SC II.2.

I reviewed the spreadsheet "Records Request – 10-10-19.xlsx." I reviewed the 12-month rolling time period H2S emissions from 12/3/18 to 9/30/19. The 12-month rolling emissions ranged from 27.581 to 30.680 tons/year and averaged 29.243 tons/year over the time period of the records reviewed. The maximum 12-month rolling mass emissions of H2S of 30.680 tons/year represents approximately 61% of the permit limit SC II.2. of 50 tons/year.

SC VI.4. The permittee shall record on a daily basis which well is pumping and the timeframe.

On Tuesday (10/29/19) Jeff Adler sent me an email with an updated "Records Request – 10-10-19.xlsx" spreadsheet with an "Operating Schedule Nixon" tab. I reviewed the "Operating Schedule Nixon" from 4/1/19-9/30/19. The schedule indicated the pumping schedule for sour wells Nixon 3-23 (Nixon 3), Nixon 4-23 (Nixon 4), Nixon 5-23 (Nixon 5), and Nixon 6-23 (Nixon 6). Process/operation restrictions SC III.1. specifies that the sour wells shall not be pumped simultaneously except for the following exceptions: the Nixon 5 well may be pumped simultaneously with Morgan 1-23 well; the Nixon 3 well may be pumped simultaneously with Nixon 4 well. Over the time period of the records reviewed, the Nixon 3 and Nixon 6 were not operated in April 2019, the Nixon 6 was not operated in May 2019, and the Nixon 5 and Nixon 6 were not operated in June 2019. When the wells were operating, the Nixon 3 and Nixon 4 were operated from 12-4, except for several days at the end of May where the Nixon 4 was operated by itself from 11-3. When operating, the Nixon 5 was normally operated by itself from 8-12, except for July 2019, when it was operated from 7-12. When operating, the Nixon 6 was normally operated from 4-8.

An issue was noted on 9/25/19 when the Nixon 3 was operated from 10-4, overlapping with the time the Nixon 5 was operated from 8-12, which resulted in an overlap of two (2) hours where the Nixon 3 and Nixon 5 were being operated together.

On Wednesday (10/30/19) Jeff Adler sent me an explanation for the 9/25/19 well operating schedule overlap via email. I've transcribed the explanation below:

"I believe we started the Nixon 3 early because of a hot oiling and maintenance that was going on. We hot oiled both the Nixon 3 and Nixon 5 near those times. I have reminded them that we need to strictly follow the operating schedules, even when work is being done on the wells."

The response appeared sufficient to address the well operating schedule overlap noted and a violation notice will not be sent at this time. As stated in the Tuscola Energy Inc. response, the permitted operating schedule should be followed even when work is being done on the wells.

VI.6. The permittee shall maintain a log of all maintenance activities conducted according to the PM / MAP (pursuant to SC III.2).

On Thursday (10/24/19) Jeff Adler sent me an email with an updated "Records Request – 10-10-19.xlsx" spreadsheet with a "Maintenance" tab. I've included the section relevant to the Nixon Farms FGOILPRODUCTION in the table below:

Nixon Treatment Tanks	
Date	Maintenance
12/6/2018	Replaced batteries
12/7/2018	Replaced thermocouple
12/7/2018	Temp. set at 200 degrees
12/7/2018	Propane pressure above 50 lbs
3/2/2019	Repaired shroud
3/3/2019	Repaired shroud

Summary:

After the scheduled inspection on Tuesday (10/8/19) and subsequent records review it appeared that Tuscola Energy Inc – Nixon Farms was in compliance with PTI No. 20-12B.

Future inspections should focus on reviewing permitted equipment on-site, making sure H2S emissions

are in compliance with emission limits, and making sure that the permitted well operating schedule is being followed.

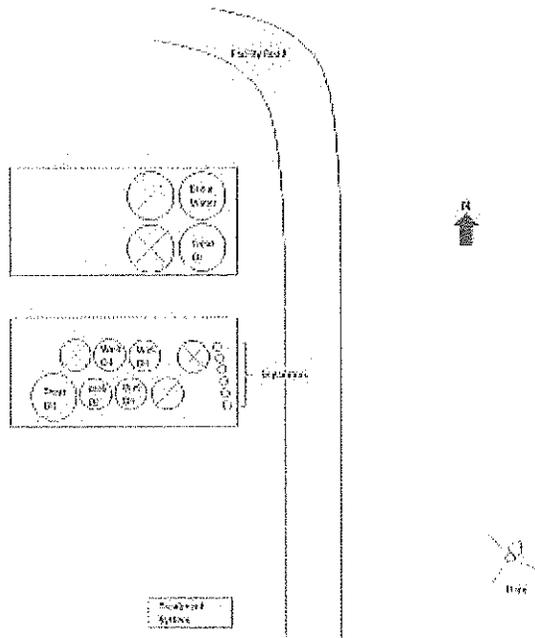


Image 1(Site Map) : Site Map



Image 2(Photo 1) : Photo 1. Reference photo of separators and storage tanks in the southern storage tank battery as it appeared on 10/8/19. Perspective facing west.

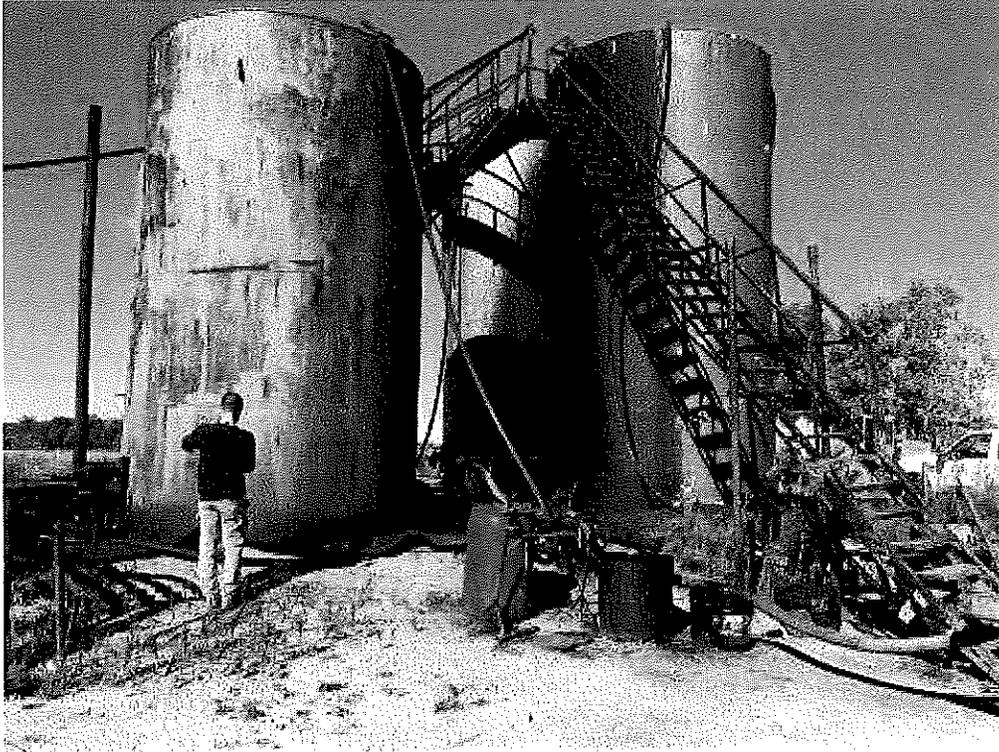


Image 3(Photo 2.) : Photo 2. Reference photo of the storage tanks in the northern storage tank battery at the time of our 10/8/19 inspection. Perspective facing west.

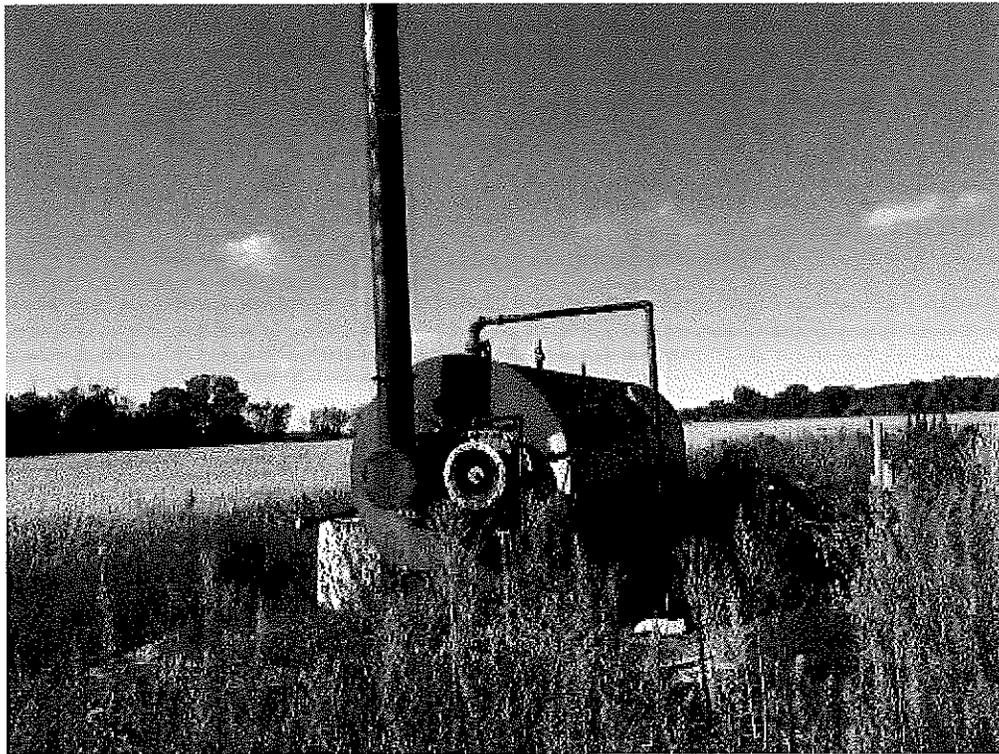


Image 4(Photo 3.) : Photo 3. Reference photo of heater treater system at the time of the 10/8/19 inspection.

Perspective facing west.

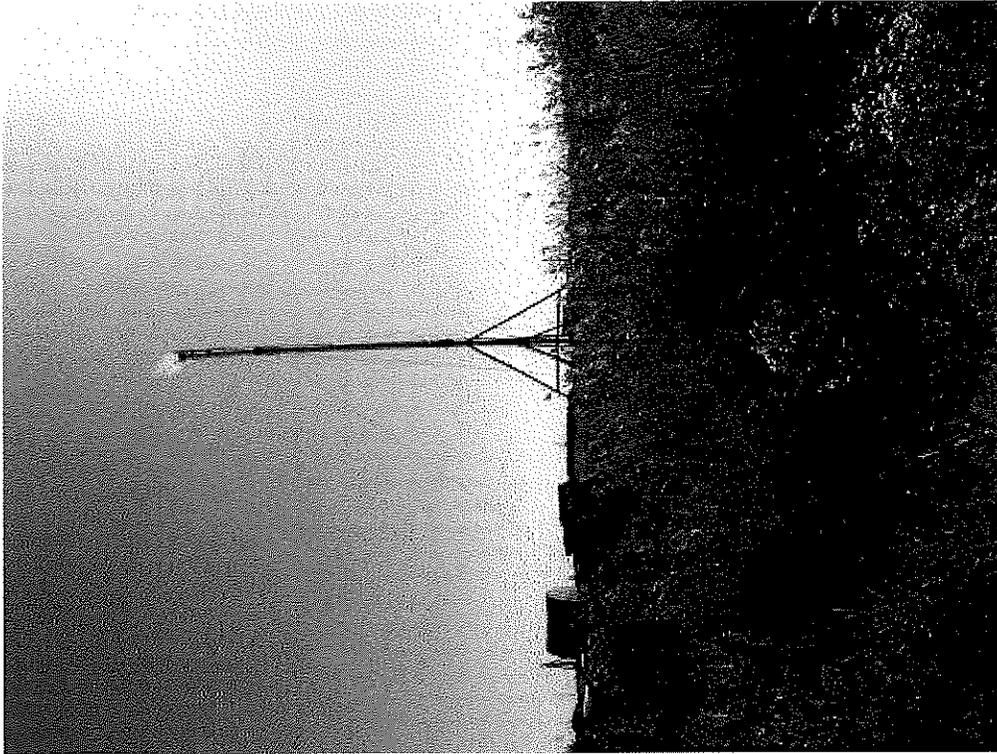


Image 5(Photo 4.) : Photo 4. Reference photo of flare control as it appeared at the time of the 10/8/19 inspection. Perspective facing northeast.

NAME Matthew R. Kaul

DATE 10/30/19

SUPERVISOR C. Kaul