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August 5, 2019

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RE: Quarterly Compliance Report – 2nd Calendar Quarter 2019
Adkins Energy, LLC
4350 West Galena Road
Lena, IL 61048
Site ID No: 177802AAA
FESOP Permit No: 03060057

Dear Sir/Madam:

Please find enclosed two (2) copies of the quarterly compliance report for the second calendar quarter (April through June) 2019.

If you have any questions or need any additional information, please do not hesitate to contact me at 815-369-9173.

Sincerely,

Christopher L. Posey, CHMM
Environmental and Safety Manager

Enclosure

Quarterly Compliance Report

**In Accordance with FESOP Permit Number 03060057
DDGS Dryer/RTO Construction Permit No. 03040053
Turbine Replacement/Bypass of Feed Dryer Scrubber Permit No. 06100046
Standby Compression Ignition Engine Construction Permit No. 07070030
Fermentation Scrubber Construction Permit No. 07090050
RTO and Plant Capacity Increase Construction Permit No. 07110047
Corn Oil Extraction System Permit No. 07050002
Fermentation Tank No. 4 Construction Permit No. 11110049
Storage Tank Addition Construction Permit No. 12040021
Hammermill System Construction Permit No. 12070051
Boiler Burner Replacement Construction Permit No. 13010031
Biodiesel Plant Construction Permit No. 13080015
Production Increase Permit No. 14070040
Blend Skid and Corn Metering System Permit No. 14090003
Methanol Recovery System Permit No. 15070009
Grain Receiving Upgrade Permit No. 17020017
Production Increase Permit No. 17060011
Additional Feed Drying Capacity Permit No. 18050036**



**Adkins Energy, LLC
4350 West Galena Road
Lena, IL 61048
Site ID No: 177802AAA**

2nd Quarter 2019

Submitted August 2019

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EXHIBITS

- Exhibit 1 Montrose Semi-Annual Leaking Components Summary Report

1.0 Introduction/Plant Wide Conditions

The purpose of this report is to satisfy the quarterly reporting requirements as identified in Special Condition 3.5.b of Adkins Energy LLC's FESOP Permit No: 03060057. This report covers the 2nd calendar quarter (April through June) 2019. This report also satisfies the quarterly reporting requirements identified and equipment covered in the following construction permits:

- Special Condition 1.10.c) of the facility's DDGS Dryer/RTO Construction Permit No: 03040053;
- Attachment 1 of the facility's Turbine Replacement and Bypass/Removal of the Feed Dryer Scrubber Permit No: 06100046;
- Special Condition 1.10 b) of the facility's Standby Compression Ignition Engine Construction Permit No: 07070030;
- Special Condition 1.10 a) and e) of the facility's Fermentation Scrubber Construction Permit No: 07090050;
- Special Condition 1.10 a) and e) and new limitations in Sections 2 and 3 of the facility's RTO and Plant Capacity Increase Construction Permit No: 07110047;
- Special Condition 1.10 a) of the facility's Corn Oil Extraction System Construction Permit No: 07050002;
- Special Condition 2 of the facility's Fermentation Tank No. 4 Construction Permit No: 11110049;
- Special Condition 2 of the facility's Storage Tank Addition Construction Permit No: 12040021;
- Special Condition 2 of the facility's Boiler Burner Replacement Construction Permit No: 13010031;
- Biodiesel Production Plant Construction Permit No: 13080015;
- Production Increase Construction Permit No: 14070040;
- Blend Skid and Corn Metering System Construction Permit No: 14090003;
- Methanol Recovery Construction Permit No: 15070009;

- Grain Receiving Upgrade Construction Permit No: 17020017;
- Production Increase Construction Permit No: 17060011;
- Additional Feed Drying Capacity Construction Permit No: 18050036.

Additionally, this report satisfies the semi-annual reporting requirements as identified in 40 CFR 60.487 (Subpart VV) and 40 CFR 60.487a (Subpart VVa) for the first six months (January through June) of 2019. The semi-annual Subpart VV and Subpart VVa reports were also submitted separately.

There were no deviations from the requirements in Section 1.0 Plant Wide Conditions during this reporting period. Adkins Energy, LLC was in compliance with all plant-wide operating and production limitations identified in the applicable permits during the 2nd calendar quarter 2019, as determined monthly based on a running total of twelve (12) months of data, pursuant to the permit.

2.0 Unit Specific Conditions

2.1 Boilers

There were no deviations from permit requirements for this equipment during this reporting period.

2.2 Gas Turbine

There were no deviations from permit requirements for this equipment during this reporting period.

2.3 Grain Receiving and Handling

There were no deviations from permit requirements for this equipment during this reporting period.

2.4 Fermentation

Modifications were made under a construction permit to route the fermentation exhaust gas through the RTO stack to allow for better dispersion. Table 11 shows the times that the fermentation scrubber vent stack was open to the atmosphere during the quarter, rather than venting to the RTO. These times do not constitute a deviation, unless identified in Table 10, which describes in detail the deviations during the quarter. Immediate notifications and excess emissions estimates were submitted as appropriate. As identified in Table 10, there were no deviations associated with the fermentation operations during the 2nd quarter 2019. When applicable, deviation reports are submitted as required.

Two (2) additional construction permits associated with the fermentation operations were issued in 2007. One (1) was for the installation of a “new” fermentation scrubber, consisting of a combination of the body of the original scrubber that was installed with the plant and the scrubber packing of the current scrubber. The second construction permit was for the installation of a regenerative thermal oxidizer to control fermentation in place of the scrubber.

The RTO was installed downstream of the scrubber, allowing the scrubber to function primarily as a product recovery device, with the RTO controlling emissions from the fermentation process. To allow for maintenance and repair as well as unplanned

outages of the RTO, the fermentation units are allowed to operate for up to 336 hours with the scrubber providing emission control. The RTO combustion temperature is shown in Figure 2 along with the Dryer RTO combustion temperature. Figure 6 shows the temperatures recorded at the fermentation scrubber during the 4th quarter 2018, and Figure 7 shows the water flow and pressure recorded during the same time period.

2.5 Distillation

Excess emissions from the distillation equipment as a result of the opening of the dryer emergency vent valve due to an unplanned dryer shutdown are identified in Section 2.6 Feed Drying and Handling.

As shown in Table 4, there were no distillation deviation events recorded during the quarter that resulted in excess emissions. Events are only considered a deviation event if the process scrubber is online at the time, as indicated in Table 6. Additionally, temperature deviations are not considered cause for excess emissions, regardless of whether the temperature deviation is a result of a CIP event, provided the scrubber is otherwise operating properly. Figure 8 shows the temperatures recorded at the distillation scrubber during the 2nd quarter 2019, and figure 9 shows the water flow and pressure recorded during the same time period. Uncontrolled VOM and HAP emissions from the distillation process during actual events are documented in Table 5. Distillation process deviation emission rates are assumed to be equal to the uncontrolled distillation process emissions measured at the distillation scrubber inlet during the August 2003 scrubber compliance demonstration test. Dryer emissions are addressed in the feed drying section of this report.

2.6 Feed Drying and Handling

This quarterly report includes the following information as it relates to Feed Drying and Handling:

- Summary of Dryer/RTO Operations and Operating Rates
- Rotary Dryer/RTO Emissions
- Ring Dryer/RTO Emissions
- Dryer Deviation Emissions
- Distillation Scrubber Deviation Emissions
- Other Dryer Feed Interruptions
- Dryer Operating Trend Data

Summary of Feed Drying Operations

The calculated average dryer feed rate (wet cake plus syrup) averaged approximately 29.20 tons per hour (tph) during the quarter. Rotary Dryer natural gas consumption averaged 40.99 MMBtu/hr during the quarter.

Ring Dryer Summary

A construction permit for the addition of a ring dryer controlled by an RTO was issued in 2018. Construction was completed and the ring dryer began operation during the 2nd quarter of 2019. The ring dryer is constructed and integrated to allow operation either in series with the rotary dryer/RTO (primary mode of operation), or individually (secondary mode of operation).

Feed Drying Emissions

Table 1 also presents a summary of dryer/RTO emissions during the quarter. All dryer operating hours were multiplied by the hourly emission rates measured during the compliance demonstration test to determine normal process emissions. Short term hourly emissions rates are less than the permitted short-term emission limitations and the total quarterly emissions, projected to annual emissions are less than permitted annual emissions.

Deviation emissions occur when an unplanned dryer shutdown triggers the opening of the dryer emergency vent stack allowing uncontrolled emissions from the dryer to be vented directly to the atmosphere. The emergency vent stack opens automatically in response to a number of dryer operating conditions that, when exceeded, may represent a safety hazard to plant personnel and equipment. Unexpected events that result in the emergency vent valve opening results in uncontrolled emissions from the dryer and/or distillation process (distillation scrubber). These deviations are described as follows:

Rotary Dryer Emission Deviation Events: As shown in Table 2 there was one event during the quarter where the dryer emergency vent valve was opened during dryer operation, resulting in one instance of deviation emissions during the quarter, as identified in Table 3.

Emissions are calculated using data presented on Tables 8 and 9. When the emergency vent valve is opened (and the valve allowing dryer exhaust to go to the RTO is closed), the wet feed is stopped and the dryer burner is driven to the low fire position and shut down over an approximately one (1) to three (3) minute period depending on the cause of the event. The dryer combustion air fan speed decreases in relation to the dryer burner gas valve position reducing the amount of combustion air entering the dryer. As a result, the dryer recirculation fan speed is also decreased, reducing the gas discharge rate through the emergency vent. Due to the lack of specific gas flow rate and emission rate measurements from a shutdown event, a number of conservative assumptions have been made to estimate uncontrolled dryer emissions. Each of the assumptions introduces a high bias to the estimated emissions.

Dryer VOC and HAP emissions are assumed to be related to dryer inlet temperatures. Data from dryer burner shutdowns shows that the dryer inlet temperature decreases from approximately 740°F normal operating temperature to approximately 250°F in about three (3) minutes. NO_x and CO emission decrease and cease with the shutdown of the dryer burner. The dryer inlet temperature continues to decrease to approximately 160°F (the temperature of the wet cake discharged from the centrifuges) in about fifteen (15) minutes. At this point, VOC and HAP emissions should be insignificant.

Table 8 shows that emissions during the first three (3) minutes of the shutdown event (time required to reduce dryer inlet temperature to 250°F) are assumed to be equal to the full uncontrolled emission rate (lb/min) measured at the RTO inlet during the compliance demonstration test. Over the next 12 minutes, the dryer inlet temperature decreases to approximately 160°F. During this period, dryer emissions are assumed to be equal to the average of the uncontrolled emission rates at 740°F and projected emissions at 160°F. During the next 45 minutes of a shutdown event, the dryer inlet temperature continues to decrease. Emissions during this period are assumed to be equal to the projected emission rates at 160°F. When the dryer duct temperatures reduce to 130°F, final shutdown occurs where all fans are stopped, effectively ending the emissions event. The time required for temperatures to reach 130°F will vary based on the ambient temperatures, however, in any case, the time is not expected to exceed 90 minutes.

Assumed emissions rates from 61 to 90 minutes following a shutdown are assumed to be equal to the projected emission rates (lb/min) at 160°F reduced by the ratio of 5,000 / 44,500 acfm, which represents the reduction in gas flow through the dryer vent. The measured gas flow rate at the RTO inlet was approximately 44,500 acfm during the dryer compliance test. The dryer vent gas flow is anticipated to reduce to approximately 5,000 cfm by the time the dryer inlet temperature reaches 160°F.

Table 9 presents a summary of the total calculated emissions (lbs) from any dryer shutdown event ranging from 1 minute to 90 minutes. The values in Table 9 were used in Table 3 to estimate total dryer deviation emission from each event. This table will be used for estimating future dryer deviation emissions as well.

Distillation Scrubber Emission Deviations: Distillation scrubber emissions are also vented to the RTO for VOC control. During an unexpected dryer shutdown and the emergency vent opens, distillation process emissions continue to be directed toward the RTO, and therefore are discharged through the emergency vent stack for several minutes until plant operators manually close an isolation valve and start the distillation scrubber fan and water flow. Scrubber deviation emissions are estimated based on the number of minutes from opening of the emergency vent stack and a positive scrubber pressure drop (and positive water flow rate), indicating that gas is flowing through the scrubber, is recorded. The time required to transition distillation process gas flow from the RTO to the scrubber varies depending on the severity of the dryer shutdown conditions and immediate availability of operators to manually close the valve.

Dryer Deviations

The causes of the dryer deviations are shown in Table 2. The cause of each event is evaluated, and where possible, changes in operating procedures and/or dryer programming are made to reduce repeated shutdowns from a single cause. Where deviations are traced to monitors or sensors, each device is checked and replaced as may be necessary. Where no problems are found at the suspect sensors, dryer programming and operating procedures are evaluated.

Other Dryer Feed Interruptions

When other non-critical operating conditions trigger an alarm and shut down the dryer feed system, the emergency vent valve does not open and dryer exhaust continues to be directed to the RTO. There can be multiple interruptions in dryer feed that do not result in opening the dryer emergency vent and these events are not reported because there are no excess emissions. Typically non-critical dryer feed interruptions are quickly corrected and feed is resumed. However, during prolonged feed interruptions, the dryer burner eventually shuts down. During non-critical feed interruptions, the RTO continues to operate normally and distillation emissions continue to be treated in the RTO.

Each time the dryer burner must be re-started, National Fire Protection Association (NFPA) and insurance requirements dictate that the dryer must be purged with at least five (5) volumes of ambient air prior to attempting to light the burner. These same requirements prohibit ducting of the purge emissions to a combustion device (RTO). Therefore, each time the dryer burner must be restarted, the emergency vent valve is opened for a period of ten (10) minutes. Normally, by the time the burner can be restarted, 30 to 60 minutes have elapsed and estimated dryer emissions are negligible, and distillation process emissions are redirected to the distillation scrubber prior to

attempting to restart the burner. These are not excess emissions associated with these events and they are not separately recorded.

Dryer Operating Trend Data

Table 6 identifies the total time that the distillation process emissions are directed to the distillation scrubber. This data is simply tracked to allow calculation of facility emissions because the distillation process emissions are included in the RTO emissions when being treated in the RTO, but must be counted separately when treated in the distillation scrubber.

Table 7 shows the total amount of time the centrifuges are exhausted directly to the atmosphere rather than being treated by the RTO. These events do not represent an emission deviation.

Trend charts for several dryer operating parameters are attached to this quarterly report to provide an indication of the various dryer/RTO operating conditions throughout the quarter. Additional data on any specific period can be provided upon request from the IEPA. The following trend data is provided:

- Figure 1 - Dryer Emergency Vent Valve Position: This chart shows the position of the dryer emergency vent valve. A value of 1.0 indicates that the vent is closed. A value of 0 indicates the vent is open to the atmosphere. Each indication of an open vent is listed in Tables 2 and 3 (in the event that it is caused by a deviation event) or in Table 6 (in the event that it is shut down due to a high demand for wet cake).
- Figure 2 – RTO Combustion Chamber Temperature (°F)
- Figure 3 – Cyclone Differential Pressure (inches water column)
- Figure 4 – Dryer Inlet and Outlet Temperature (°F)
- Figure 5 – Dryer Natural Gas Consumption (scfm)

2.7 Storage Tanks

There were no deviations from permit requirements for this equipment during this reporting period.

2.8 Loading Rack/Blend Skid

There were no deviations from permit requirements resulting in excess emissions for this equipment during this reporting period.

2.9 Leaking Components

There were no visible leaks detected from monitored equipment this quarter. A semi-annual leaking components report for the first six (6) months of 2019, provided by Montrose, is included as Exhibit 1. When necessary, prompt repair of leaks assures minimal emissions as a result of the leak.

2.10 Cooling Tower

There were no deviations from permit requirements for this equipment during this reporting period.

2.11 Roadway/Fugitive Dust

There were no deviations from permit requirements for this equipment during this reporting period.

2.12 Standby Stationary Compression Ignition Engine

There were no deviations from permit requirements for this equipment during this reporting period.

2.13 Corn Oil Extraction System

There were no deviations from permit requirements for this equipment during this reporting period.

2.14 Biodiesel Production Plant

There were no deviations from permit requirements for this equipment during this reporting period.

3.0 Signature by Responsible Official

Authorized Representative Signature:

Ray Baker, General Manager

Signature 

Date 7/26/19

Phone: (815) 369-9173

TABLES

TABLE 1

2ND QUARTER 2019 DRYER SUMMARY

Table 1.
 2nd Quarter 2019 Summary of DGS Dryer Operation and Production
 Permit No. 03030054 - Dryer/RTO Construction Permit
 Adkins Energy LLC - Lena, Illinois

Parameter	Units	1st Quarter 2019	Apr-19	May-19	Jun-19	Comments
Calendar Days in Month	days	31	30	31	30	
Total Hours in Quarter	hrs	2,184	720	744	720	Total days x 24 hours/day
Total Days Dryer Operated	days	90	31	29	31	Extra days where dryer is voluntarily down for market reasons are excluded
Planned Rotary Dryer Hours	hrs	2,180	744	672	744	Operating days x 24 hours/day
Actual Rotary Dryer Hours	hrs	2,072	674	680	708	Reported operating hours excluding lead interruptions (dryer shutdowns)
Approximate On-Line Percentage	%	95.0%	90.6%	102.6%	98.2%	Actual operating hours / planned operating hours
Total HCl Consumed	kg/kuhr	84,916	27,462	27,440	29,615	Measured natural gas consumption at dryer
Average HCl Consumption	kg/kuhr	40.89	41.3	39.8	41.8	
DDGS Production (11.8% m)	tons	24,213	7,757	7,959	8,517	Calculated production confirmed by sales and inventory records.
Average DDGS Production	tons/hr	11.65	11.51	12.03	12.03	Calculated production / actual operating hours.
Average Wet Feed Rate (85.7% m)	tons/hr	29.20	29.8	29.8	30.1	Current dry solids in DDGS produced to equivalent wet feed (wet solids plus 17.9%)
DDGS Transfer Conveyor	tons	24,212	7,757.2	7,958.7	8,516.8	Features amount produced is amount transferred to storage silos
Dryer Emergency Vent Open	hrs/min	01:30	00:00	00:00	01:30	Total time dryer emergency vent is open.
Dust Scrub Vent to Dryer Emergency Vent	hrs/min	00:00	00:00	00:00	00:00	Time dust scrubber is vented to atmosphere through dryer emergency vent.
DDGS Limitout	tons	25,220	9,320.42	7,800.86	8,098.97	Amount sold.
DDGS Inventory (end of month)	tons	1,289	1,610.08	651.28	1,299.09	Amount produced - amount sold

2nd Quarter 2019
 SUMMARY OF DRYER/RTO QUARTERLY EMISSIONS
 Adkins Energy LLC - Lena, Illinois

Parameter	Units	Quantity		Rotary Dryer		Total Rotary Dryer/RTO		Permitted Dryer/RTO		Permitted Ring Dryer/RTO	
		kg/hr	tonnage	kg/hr	tonnage	kg/hr	tonnage	kg/hr	tonnage	kg/hr	tonnage
DDGS Transfer PM Emissions	kg/hr	0.003	0.003	-	-	0.82	0.003	-	-	0.08	0.25
DDGS Limitout PM Emissions	kg/hr	3.80	0.530	-	-	1,059.25	0.530	5.88	0.82	5.88	0.82
FMAPM10	kg/hr	2.86	2.758	1.95	0.001	6,512.14	2.758	5.00	21.90	124.20	0.002
Carbon Monoxide	kg/hr	1.47	1.523	18.79	0.006	3,081.69	1.531	6.00	26.20	900.72	0.450
Nitrogen Oxides	kg/hr	3.80	3.808	-	-	7,871.70	3.808	6.50	26.47	410.40	0.205
Sulfur Dioxide	kg/hr	0.20	0.207	-	-	414.30	0.207	7.50	32.85	119.88	0.050
Total VOC (H2S+MBSF)	kg/hr	1.72	1.778	87.58	0.024	3,450.18	1.910	4.48	19.53	182.00	0.091
Acetaldehyde (HAP)	kg/hr	0.05	0.049	1.15	0.001	99.03	0.050	0.53	2.31	41.04	0.021
Acrolein (HAP)	kg/hr	0.03	0.000	0.82	0.000	1.48	0.001	-	-	9.72	0.005
Formaldehyde (HAP)	kg/hr	0.01	0.012	1.84	0.001	28.00	0.013	-	-	8.64	0.004
Methanol (HAP)	kg/hr	0.12	0.121	0.60	0.003	243.25	0.122	-	-	23.78	0.012
Total Other HAPs	kg/hr	0.18	0.182	4.80	0.002	369.78	0.185	-	-	42.12	0.021

Dryer Natural Gas Consumption and DOGS Production/Sales

Day	Drum Dryer Natural Gas Usage		DOGS Rate	DOGS Production	DOGS Inventory	DOGS Inventory	Ring Dryer Natural Gas Usage		Ring Dryer Operation hrs
	thems	MMBtu					thems	MMBtu	
06/07/19	8,785	879	11.00	24.00	254.00	1,115.26	-	-	-
06/08/19	9,944	994	11.40	24.00	213.60	1,388.86	-	-	-
06/09/19	10,180	1,018	11.40	24.00	213.60	1,218.16	-	-	-
06/10/19	10,371	1,037	11.40	24.00	213.60	448.34	24	3	1.00
06/11/19	9,420	942	10.40	24.00	249.60	309.50	183.22	24	12
06/12/19	9,336	934	11.00	22.50	241.50	685.49	121	4	4
06/13/19	11,588	1,159	11.40	24.00	213.60	361.72	40	21	1.00
06/14/19	11,607	1,161	11.80	24.00	243.20	1,059.78	-	-	-
06/15/19	11,531	1,153	11.80	24.00	243.20	1,039.98	-	-	-
06/16/19	11,024	1,024	10.40	24.00	249.60	1,132.37	-	-	-
06/17/19	7,318	732	11.40	21.00	239.40	1,049.09	501	50	3.00
06/18/19	10,508	1,051	11.80	24.00	253.20	639.71	-	-	-
06/19/19	9,483	948	12.80	24.00	307.20	483.01	-	-	-
06/20/19	11,004	1,100	13.20	24.00	316.80	522.37	-	-	-
06/21/19	11,004	1,104	13.20	24.00	316.80	252.99	-	-	-
06/22/19	9,601	960	12.60	21.50	270.90	822.88	-	-	-
06/23/19	10,576	1,058	12.60	24.00	302.40	1,153.86	-	-	-
06/24/19	8,936	894	13.00	22.00	286.00	996.91	-	-	-
06/25/19	8,974	887	13.40	24.00	321.60	848.45	5	0	1.00
06/26/19	10,417	1,042	12.40	24.00	297.60	519.92	3,871	367	11.00
06/27/19	9,350	935	12.40	24.00	297.60	296.07	-	-	-
06/28/19	9,966	997	12.40	24.00	297.60	112.45	-	-	-
06/29/19	10,393	1,039	12.40	24.00	297.60	410.05	-	-	-
06/30/19	10,460	1,046	12.40	24.00	297.60	707.65	-	-	-
06/01/19	10,572	1,057	13.40	24.00	307.60	631.47	-	-	-
06/02/19	8,763	878	13.40	24.00	321.60	373.78	-	-	-
06/03/19	8,865	887	10.60	24.00	254.40	610.59	1,546	155	-
06/04/19	7,628	763	11.40	21.00	239.40	403.71	528.48	2,639	254
06/05/19	9,667	967	11.40	24.00	288.00	126.59	-	-	-
06/06/19	9,818	982	12.00	24.00	288.00	693.09	-	-	-
07/01/19	-	-	-	24.00	288.00	981.09	-	-	-
TOTALS	268,147	29,815	12.03	708.00	8,518.80	1,269.09	8,766	877	17.00
Average	-	-	-	95.2%	8,098.07	-	-	-	-

TABLE 2

DRYER VENT DEVIATION EVENTS

TABLE 3

**UNCONTROLLED DRYER
EMISSIONS TO ATMOSPHERE**

TABLE 4
PROCESS SCRUBBER DEVIATION LOG

TABLE 5

PROCESS SCRUBBER DEVIATION EMISSIONS

TABLE 6

PROCESS SCRUBBER ON-LINE TIMES

TABLE 7

CENTRIFUGE EVENTS TO ATMOSPHERE

TABLE 8

ROTARY DRYER EMISSION RATE DATA

Table 8.
Summary of Emission Rate Data Used for Quarterly Report for
Permit No. 03030054 - Dryer/RTO Construction Permit
Adkins Energy LLC - Lena, Illinois

Parameter	Units	Distillation Scrubber Compliance Test August 2003		Dryer / RTO Compliance Test August 2004		Dryer / RTO Compliance Test May 2016		Uncontrolled Dryer Emissions (lb/hr) Measured at RTO Inlet			Note A	Note B	Note C
		Scrubber Inlet	Scrubber Outlet	RTO Inlet	RTO Outlet	RTO Inlet	RTO Outlet	Inlet Temp at Shutdown	Inlet Temp at 3 min.	Inlet Temp at 16 min.	Estimated of Dryer Emergency Shutdown Emissions for first 3 min	Estimated of Dryer Emergency Shutdown Emissions for next 12 min	Estimated of Dryer Emergency Shutdown Emissions for next 45 min
Measured Emissions													
Particulate Matter	lb/hr	NA	NA	3.57	2.66	3.57	2.66	3.57	1.20	0.77	0.06	0.04	0.02
CO	lb/hr	NA	NA	50.38	1.47	50.38	1.47	50.38	16.97	10.66	0.84	0.51	0.18
NOx	lb/hr	NA	NA	NA	3.60	NA	3.60	NA					
SO2	lb/hr	NA	NA	NA	< 0.20	NA	< 0.20	NA					
Total VOC (M25A/MSF)	lb/hr	85.33	1.09	122.10	1.72	195.61	2.94	195.61	65.91	42.19	3.28	1.98	0.70
Acetic Acid (HAP)	lb/hr	4.62	0.42	10.20	0.05	3.33	0.05	3.33	1.12	0.72	0.05545	0.03370	0.01196
Acetic Acid	lb/hr	< 0.01	< 0.01	49.06	0.26	17.41	0.26	17.41	-	-	-	-	-
Acrolein (HAP)	lb/hr	-	-	0.06	< 0.0003	2.66	< 0.0400	2.66	0.90	0.57	0.04436	0.02696	0.00956
Ethanol	lb/hr	134.26	0.07	50.07	1.12	74.60	1.12	74.60	-	-	-	-	-
Ethyl acetate	lb/hr	0.09	0.03	0.03	< 0.10	6.59	< 0.10	6.59	-	-	-	-	-
Formaldehyde (HAP)	lb/hr	-	-	1.52	< 0.01	5.32	< 0.08	5.32	1.79	1.15	0.08871	0.05392	0.01913
Formic Acid	lb/hr	< 0.00	< 0.00	< 0.04	< 0.04	< 2.43	< 0.04	< 2.43	< 0.00	< 0.00	-	-	-
2-Furaldehyde	lb/hr	< 0.00	< 0.00	0.21	0.01	0.50	0.01	0.50	-	-	-	-	-
Lactic Acid	lb/hr	< 0.02	< 0.18	29.59	< 0.10	6.91	< 0.10	6.91	-	-	-	-	-
Methanol (HAP)	lb/hr	< 0.06	< 0.00	1.71	< 0.12	2.00	< 0.03	2.00	0.67	0.43	0.03327	0.02022	0.00717
Total HAPs	lb/hr	4.68	0.42	13.48	0.18	13.31	0.20	13.31	4.48	2.87	0.22178	0.13480	0.04782

DDGS Material Handling PM Emissions	
DDGS Transfer PM Emissions	Based on .005 gpf from baghouses and 140 by rate. 0.000266
DDGS Loadout PM Emissions	Based on USEPA lb/ton uncontrolled emission factor. 0.042000

- A. During the first three minutes after burn shutdown temps drop from operating temp to approximately 250F that emissions during first 3 minutes are equal to the full uncontrolled emission rate.
- B. Assume emissions during next 12 mins (minutes 4 through 15) are the average of uncontrolled emissions.
- C. Assume emissions for next 45 minutes are emissions at 160F.
- D. After initiation of shutdown the dryer discharge flow rate will decrease to about 5000 cfm (6 thompson) as emissions are assumed to be the emissions at 160F x (5,000 cfm/44,500 cfm) which was the average R during the compliance test (44,500 acfm).
- E. All air 90 minutes with the burner off - emissions are negligible because dryer fans are off when duct temp.
- F. Temp Vs. Time relationship for dryer shutdown taken from dryer inlet temperature trend chart for the dryer 2004 at 1:54 AM.

TABLE 9

ESTIMATED ROTARY DRYER SHUTDOWN EMISSIONS

**Table 9. Estimated Dryer Shutdown Emissions
Adkins Energy LLC - Lena, Illinois**

Total Dryer shutdown emissions table for periods of time when dryer vents directly to atmosphere and burner shuts down.										
Duration Time (hh:mm)	PM10 (lbs)	CO (lbs)	NOx (lbs)	SO2 (lbs)	Total VOM (M25A/MSF) (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Formaldehyde (lbs)	Methanol (lbs)	Total HAPs (lbs)
00:01	0.06	0.84	-	-	3.26	0.06	0.04	0.09	0.03	0.22
00:02	0.12	1.68	-	-	6.52	0.11	0.09	0.18	0.07	0.44
00:03	0.18	2.52	-	-	9.78	0.17	0.13	0.27	0.10	0.67
00:04	0.21	3.03	-	-	11.76	0.20	0.16	0.32	0.12	0.80
00:05	0.25	3.54	-	-	13.74	0.23	0.19	0.37	0.14	0.93
00:06	0.29	4.05	-	-	15.73	0.27	0.21	0.43	0.16	1.07
00:07	0.32	4.56	-	-	17.71	0.30	0.24	0.48	0.18	1.20
00:08	0.36	5.07	-	-	19.69	0.33	0.27	0.54	0.20	1.34
00:09	0.40	5.58	-	-	21.67	0.37	0.29	0.59	0.22	1.47
00:10	0.43	6.09	-	-	23.65	0.40	0.32	0.64	0.24	1.61
00:11	0.47	6.60	-	-	25.63	0.44	0.35	0.70	0.26	1.74
00:12	0.50	7.11	-	-	27.61	0.47	0.38	0.75	0.28	1.88
00:13	0.54	7.62	-	-	29.60	0.50	0.40	0.81	0.30	2.01
00:14	0.58	8.13	-	-	31.58	0.54	0.43	0.86	0.32	2.15
00:15	0.61	8.64	-	-	33.56	0.57	0.46	0.91	0.34	2.28
00:16	0.63	8.82	-	-	34.26	0.58	0.47	0.93	0.35	2.33
00:17	0.65	9.00	-	-	34.97	0.59	0.48	0.95	0.36	2.38
00:18	0.67	9.19	-	-	35.67	0.61	0.49	0.97	0.36	2.43
00:19	0.68	9.37	-	-	36.37	0.62	0.49	0.99	0.37	2.47
00:20	0.70	9.55	-	-	37.07	0.63	0.50	1.01	0.38	2.52
00:21	0.72	9.73	-	-	37.78	0.64	0.51	1.03	0.39	2.57
00:22	0.74	9.91	-	-	38.48	0.65	0.52	1.05	0.39	2.62
00:23	0.76	10.09	-	-	39.18	0.67	0.53	1.07	0.40	2.67
00:24	0.77	10.27	-	-	39.89	0.68	0.54	1.09	0.41	2.71
00:25	0.79	10.45	-	-	40.59	0.69	0.55	1.10	0.41	2.76
00:26	0.81	10.63	-	-	41.29	0.70	0.56	1.12	0.42	2.81
00:27	0.83	10.82	-	-	42.00	0.71	0.57	1.14	0.43	2.86
00:28	0.85	11.00	-	-	42.70	0.73	0.58	1.16	0.44	2.90
00:29	0.86	11.18	-	-	43.40	0.74	0.59	1.18	0.44	2.95
00:30	0.88	11.36	-	-	44.10	0.75	0.60	1.20	0.45	3.00
00:31	0.90	11.54	-	-	44.81	0.76	0.61	1.22	0.46	3.05
00:32	0.92	11.72	-	-	45.51	0.77	0.62	1.24	0.46	3.10
00:33	0.93	11.90	-	-	46.21	0.79	0.63	1.26	0.47	3.14
00:34	0.95	12.08	-	-	46.92	0.80	0.64	1.28	0.48	3.19
00:35	0.97	12.26	-	-	47.62	0.81	0.65	1.30	0.49	3.24
00:36	0.99	12.44	-	-	48.32	0.82	0.66	1.31	0.49	3.29
00:37	1.01	12.63	-	-	49.03	0.83	0.67	1.33	0.50	3.34
00:38	1.02	12.81	-	-	49.73	0.85	0.68	1.35	0.51	3.38
00:39	1.04	12.99	-	-	50.43	0.86	0.69	1.37	0.51	3.43
00:40	1.06	13.17	-	-	51.13	0.87	0.70	1.39	0.52	3.48
00:41	1.08	13.35	-	-	51.84	0.88	0.71	1.41	0.53	3.53
00:42	1.10	13.53	-	-	52.54	0.89	0.71	1.43	0.54	3.57
00:43	1.11	13.71	-	-	53.24	0.91	0.72	1.45	0.54	3.62
00:44	1.13	13.89	-	-	53.95	0.92	0.73	1.47	0.55	3.67
00:45	1.15	14.07	-	-	54.65	0.93	0.74	1.49	0.56	3.72
00:46	1.17	14.25	-	-	55.35	0.94	0.75	1.51	0.56	3.77
00:47	1.18	14.44	-	-	56.06	0.95	0.76	1.53	0.57	3.81
00:48	1.20	14.62	-	-	56.76	0.97	0.77	1.54	0.58	3.86

**Table 9. Estimated Dryer Shutdown Emissions
Adkins Energy LLC - Lena, Illinois**

Total Dryer shutdown emissions table for periods of time when dryer vents directly to atmosphere and burner shuts down.										
Duration Time (hh:mm)	PM/ PM10 (lbs)	CO (lbs)	NOx (lbs)	SO2 (lbs)	Total VOM (M25AMSf) (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Formaldehyde (lbs)	Methanol (lbs)	Total HAPs (lbs)
00:49	1.22	14.80	-	-	57.46	0.98	0.78	1.56	0.59	3.91
00:50	1.24	14.98	-	-	58.16	0.99	0.79	1.58	0.59	3.96
00:51	1.26	15.16	-	-	58.87	1.00	0.80	1.60	0.60	4.00
00:52	1.27	15.34	-	-	59.57	1.01	0.81	1.62	0.61	4.05
00:53	1.29	15.52	-	-	60.27	1.03	0.82	1.64	0.62	4.10
00:54	1.31	15.70	-	-	60.98	1.04	0.83	1.66	0.62	4.15
00:55	1.33	15.88	-	-	61.68	1.05	0.84	1.68	0.63	4.20
00:56	1.35	16.07	-	-	62.38	1.06	0.85	1.70	0.64	4.24
00:57	1.36	16.25	-	-	63.09	1.07	0.86	1.72	0.64	4.29
00:58	1.38	16.43	-	-	63.79	1.08	0.87	1.74	0.65	4.34
00:59	1.40	16.61	-	-	64.49	1.10	0.88	1.75	0.66	4.39
01:00	1.42	16.79	-	-	65.19	1.11	0.89	1.77	0.67	4.44
01:01	1.43	16.79	-	-	65.27	1.11	0.89	1.78	0.67	4.44
01:02	1.45	16.79	-	-	65.35	1.11	0.89	1.78	0.67	4.45
01:03	1.47	16.79	-	-	65.43	1.11	0.89	1.78	0.67	4.45
01:04	1.49	16.79	-	-	65.51	1.11	0.89	1.78	0.67	4.46
01:05	1.51	16.79	-	-	65.59	1.12	0.89	1.78	0.67	4.46
01:06	1.52	16.79	-	-	65.67	1.12	0.89	1.79	0.67	4.47
01:07	1.54	16.79	-	-	65.75	1.12	0.89	1.79	0.67	4.47
01:08	1.56	16.79	-	-	65.83	1.12	0.90	1.79	0.67	4.48
01:09	1.58	16.79	-	-	65.91	1.12	0.90	1.79	0.67	4.48
01:10	1.60	16.79	-	-	65.98	1.12	0.90	1.80	0.67	4.49
01:11	1.61	16.79	-	-	66.06	1.12	0.90	1.80	0.67	4.49
01:12	1.63	16.79	-	-	66.14	1.12	0.90	1.80	0.67	4.50
01:13	1.65	16.79	-	-	66.22	1.13	0.90	1.80	0.68	4.50
01:14	1.67	16.79	-	-	66.30	1.13	0.90	1.80	0.68	4.51
01:15	1.68	16.79	-	-	66.38	1.13	0.90	1.81	0.68	4.51
01:16	1.70	16.79	-	-	66.46	1.13	0.90	1.81	0.68	4.52
01:17	1.72	16.79	-	-	66.54	1.13	0.91	1.81	0.68	4.53
01:18	1.74	16.79	-	-	66.62	1.13	0.91	1.81	0.68	4.53
01:19	1.76	16.79	-	-	66.70	1.13	0.91	1.81	0.68	4.54
01:20	1.77	16.79	-	-	66.77	1.14	0.91	1.82	0.68	4.54
01:21	1.79	16.79	-	-	66.85	1.14	0.91	1.82	0.68	4.55
01:22	1.81	16.79	-	-	66.93	1.14	0.91	1.82	0.68	4.55
01:23	1.83	16.79	-	-	67.01	1.14	0.91	1.82	0.68	4.56
01:24	1.85	16.79	-	-	67.09	1.14	0.91	1.83	0.68	4.56
01:25	1.86	16.79	-	-	67.17	1.14	0.91	1.83	0.69	4.57
01:26	1.88	16.79	-	-	67.25	1.14	0.91	1.83	0.69	4.57
01:27	1.90	16.79	-	-	67.33	1.15	0.92	1.83	0.69	4.58
01:28	1.92	16.79	-	-	67.41	1.15	0.92	1.83	0.69	4.59
01:29	1.93	16.79	-	-	67.49	1.15	0.92	1.84	0.69	4.59
01:30	1.95	16.79	-	-	67.56	1.15	0.92	1.84	0.69	4.60

TABLE 10

**FERMENTATION (CO₂) SCRUBBER
DEVIATION LOG**

TABLE 11

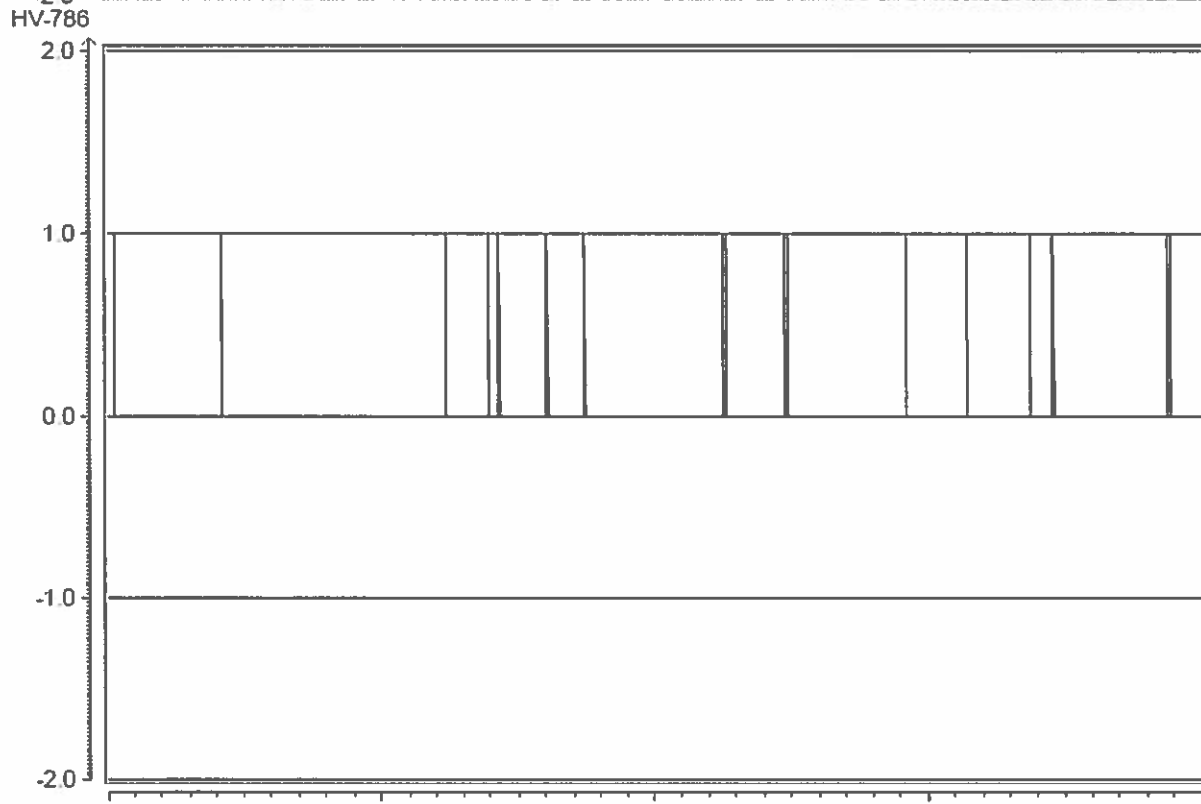
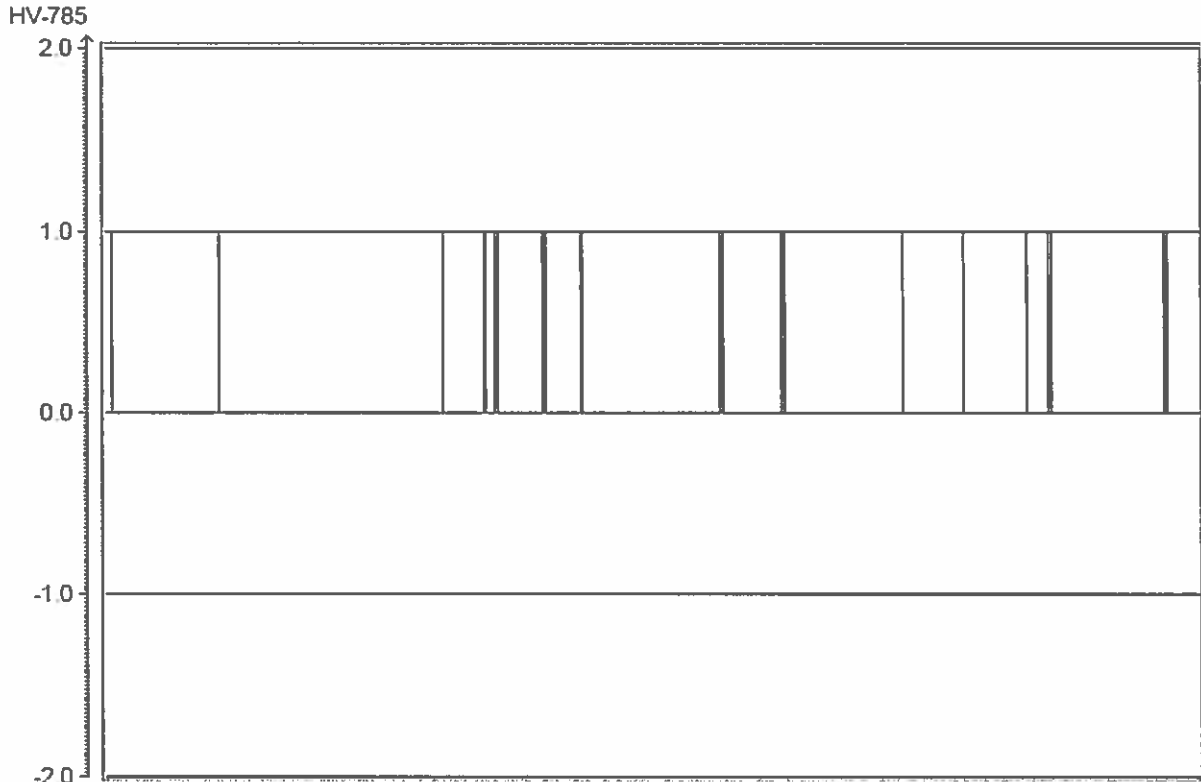
**FERMENTATION (CO₂) SCRUBBER
VENT STACK OPEN**

FIGURES

FIGURE 1

ROTARY DRYER EMERGENCY VENT VALVE POSITION

**Figure 1. Rotary Dryer and RTO Emergency Vent Valve Position
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois**



04/01/19 12:00:00 000 AM 6:00:00 000 PM 12:00 00 000 PM 6:00 00 000 AM 12:00 00 000 AM

FIGURE 2

**ROTARY DRYER RTO COMBUSTION CHAMBER
TEMPERATURE (°F)**

**Figure 2. Rotary Dryer RTO Combustion Chamber Temperature (°F)
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois**

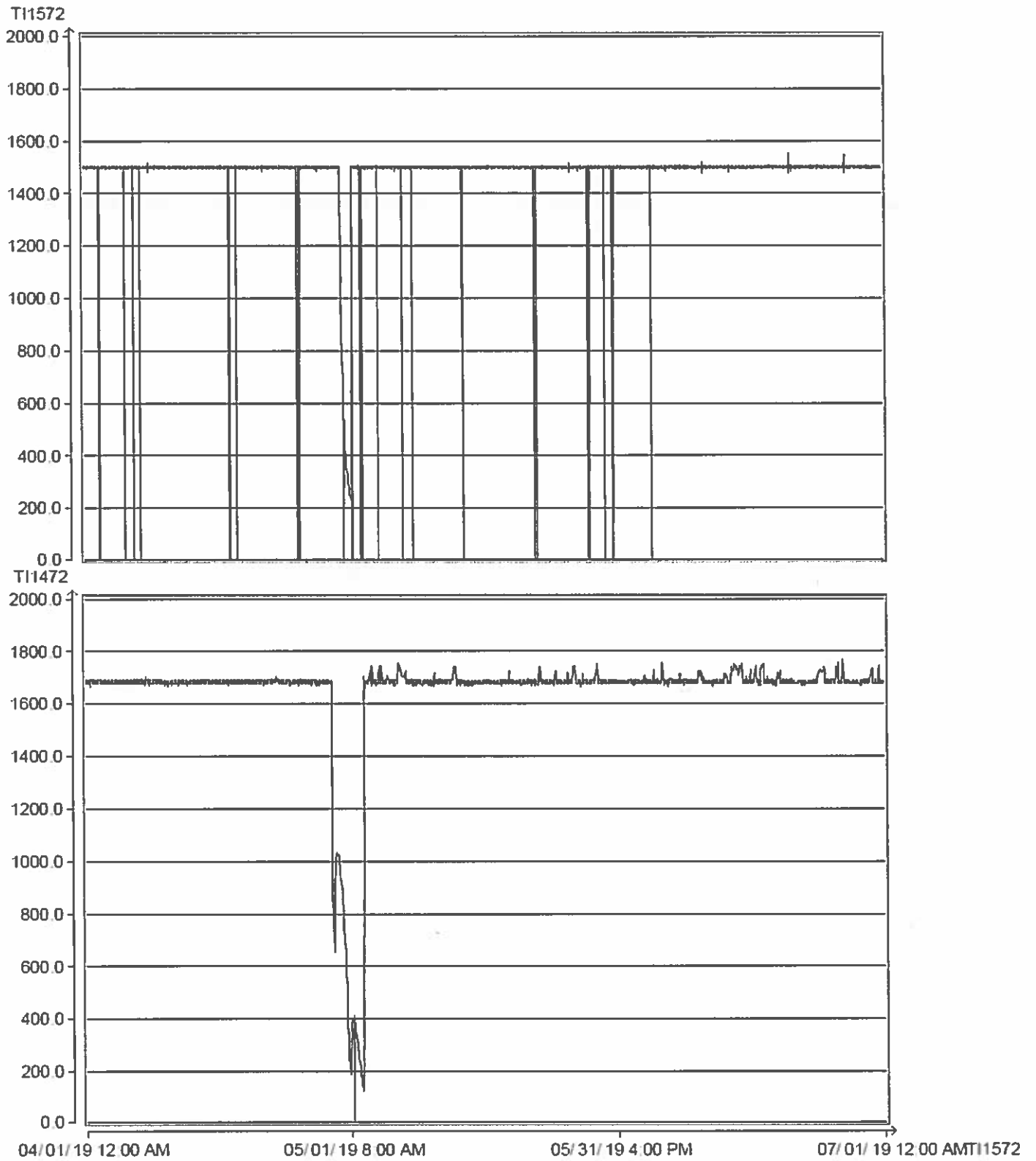


FIGURE 3

**ROTARY DRYER CYCLONE DIFFERENTIAL PRESSURE
(INCHES IN WATER COLUMN)**

**Figure 3. Rotary Dryer Cyclone Differential Pressure (in. WC)
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois**

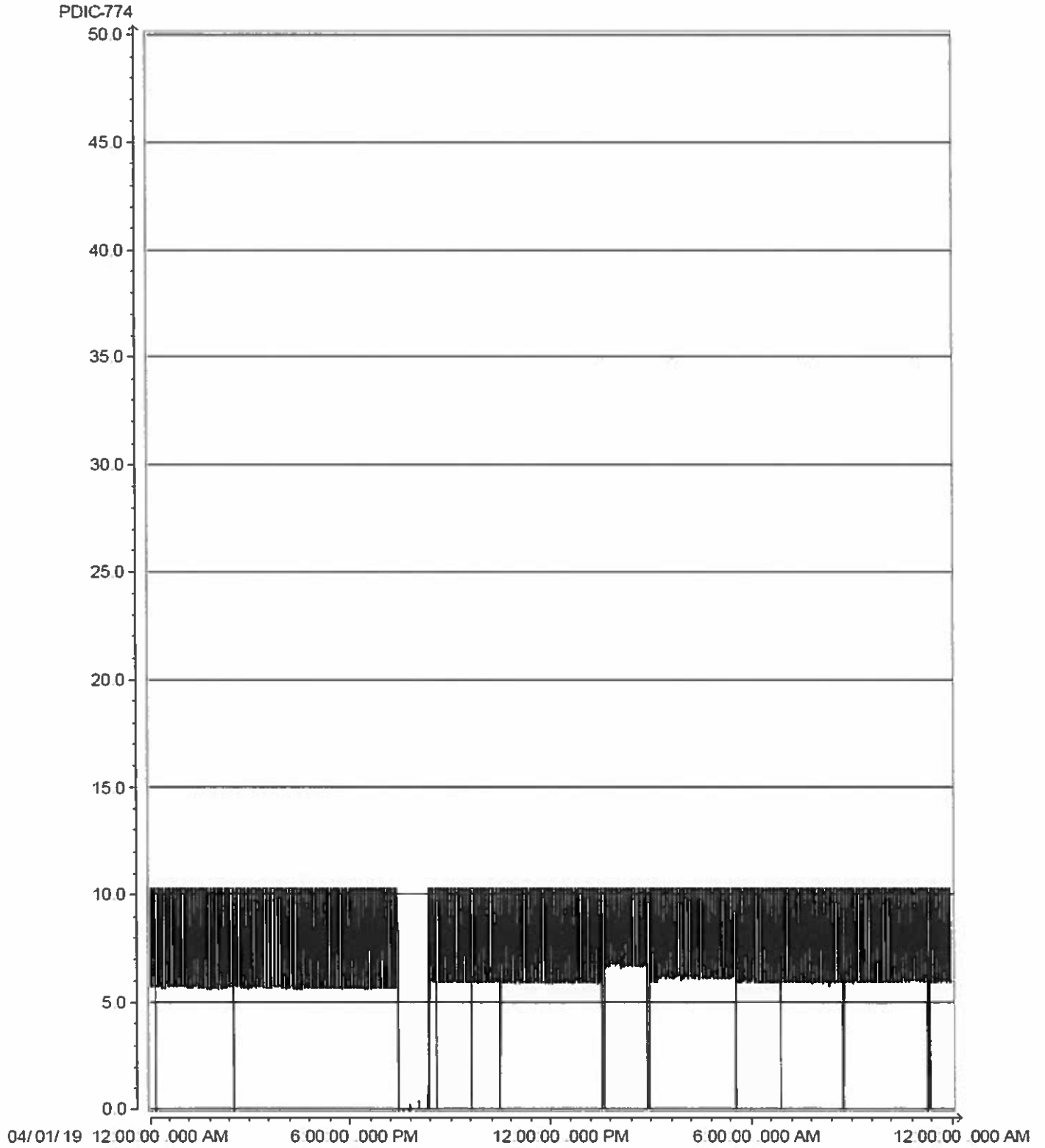


FIGURE 4

**ROTARY DRYER INLET AND OUTLET TEMPERATURE
(°F)**

**Figure 4. Rotary Dryer Inlet and Outlet Temperature (°F)
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois**

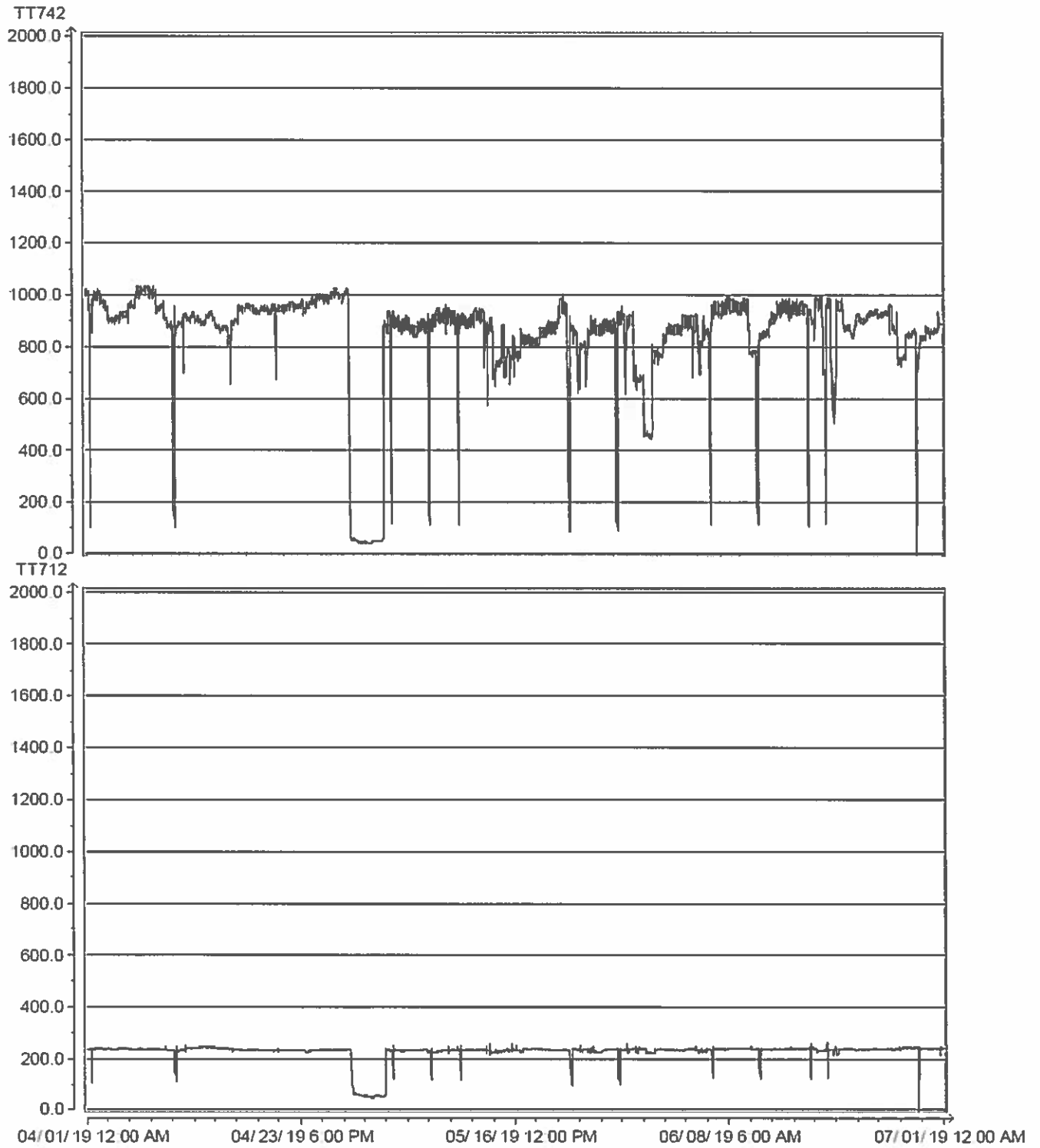


FIGURE 5

**ROTARY DRYER NATURAL GAS CONSUMPTION
(SCFM)**

**Figure 5. Rotary Dryer Natural Gas Consumption (cfm)
Second Quarter 2019
Adkins Energy LLC - Lena, Illinois**

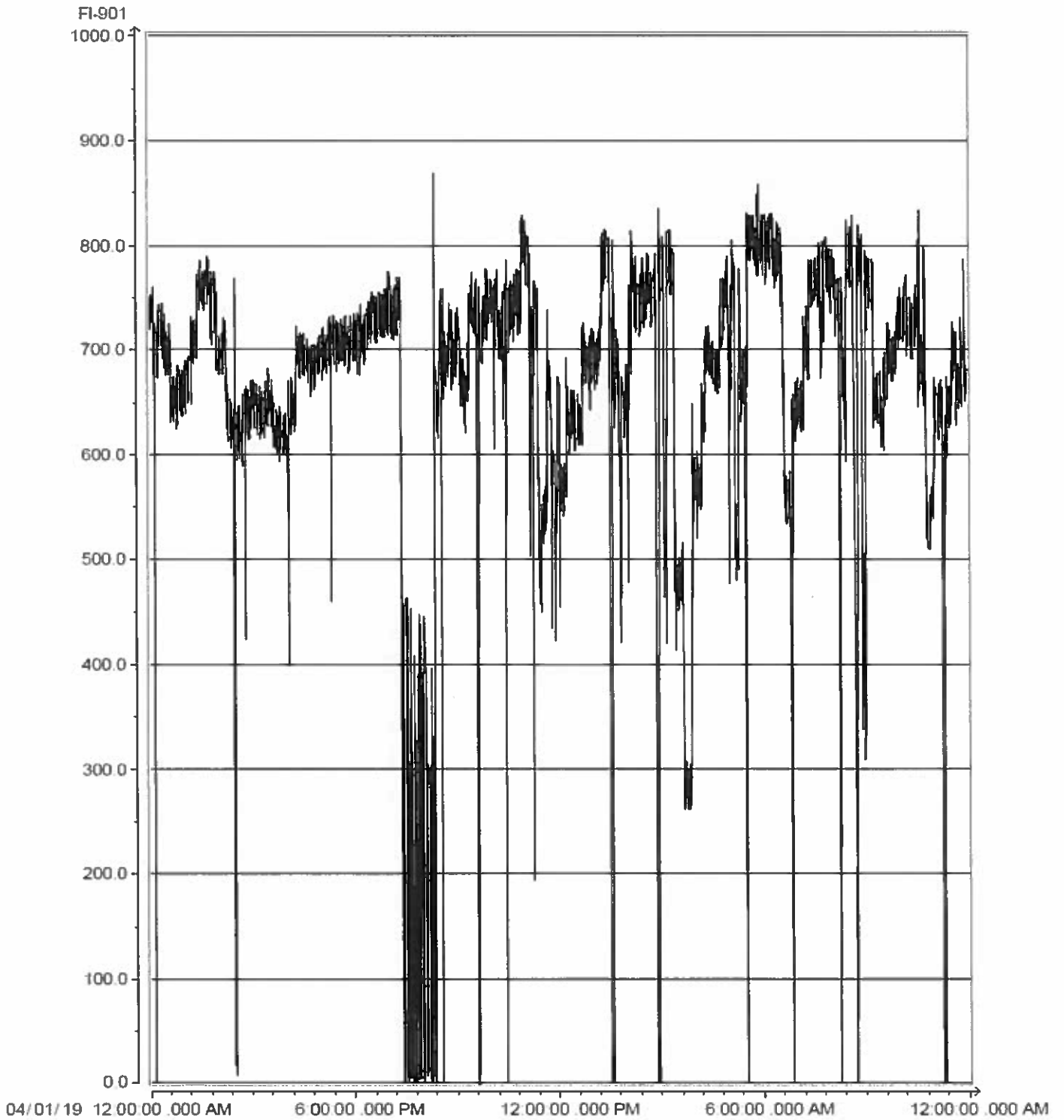


FIGURE 6

FERMENTATION SCRUBBER TEMPERATURE

Figure 6. Fermentation Scrubber Temperature (Deg F)
Second uarter 2019
Adkins Energy LLC – Lena, Illinois

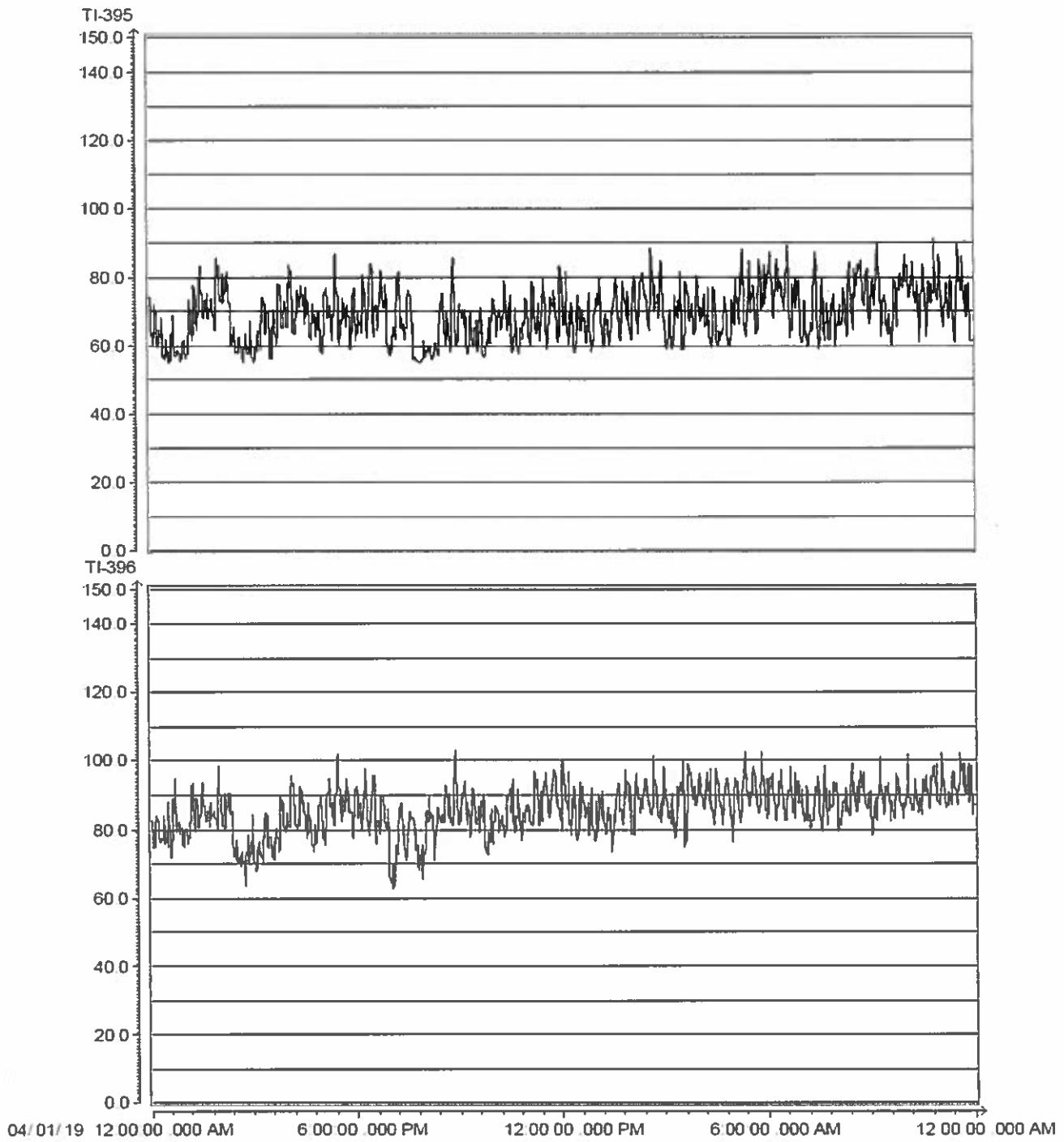


FIGURE 7

**FERMENTATION SCRUBBER WATER FLOW AND
PRESSURE**

Figure 7. Fermentation Scrubber Water Flow and Pressure
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois

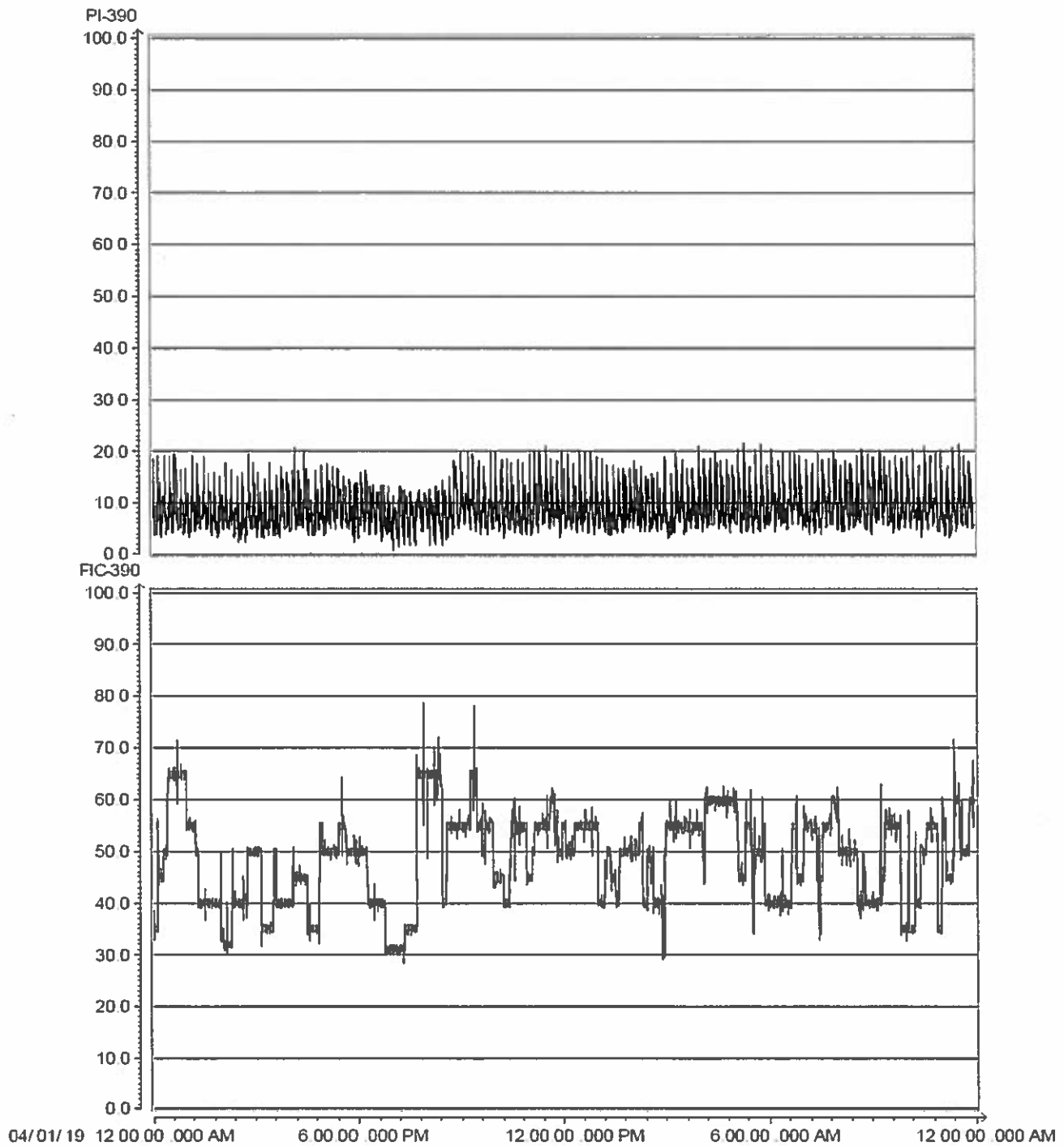


FIGURE 8

DISTILLATION SCRUBBER TEMPERATURE

**Figure 8. Distillation Scrubber Temperature (Deg F)
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois**

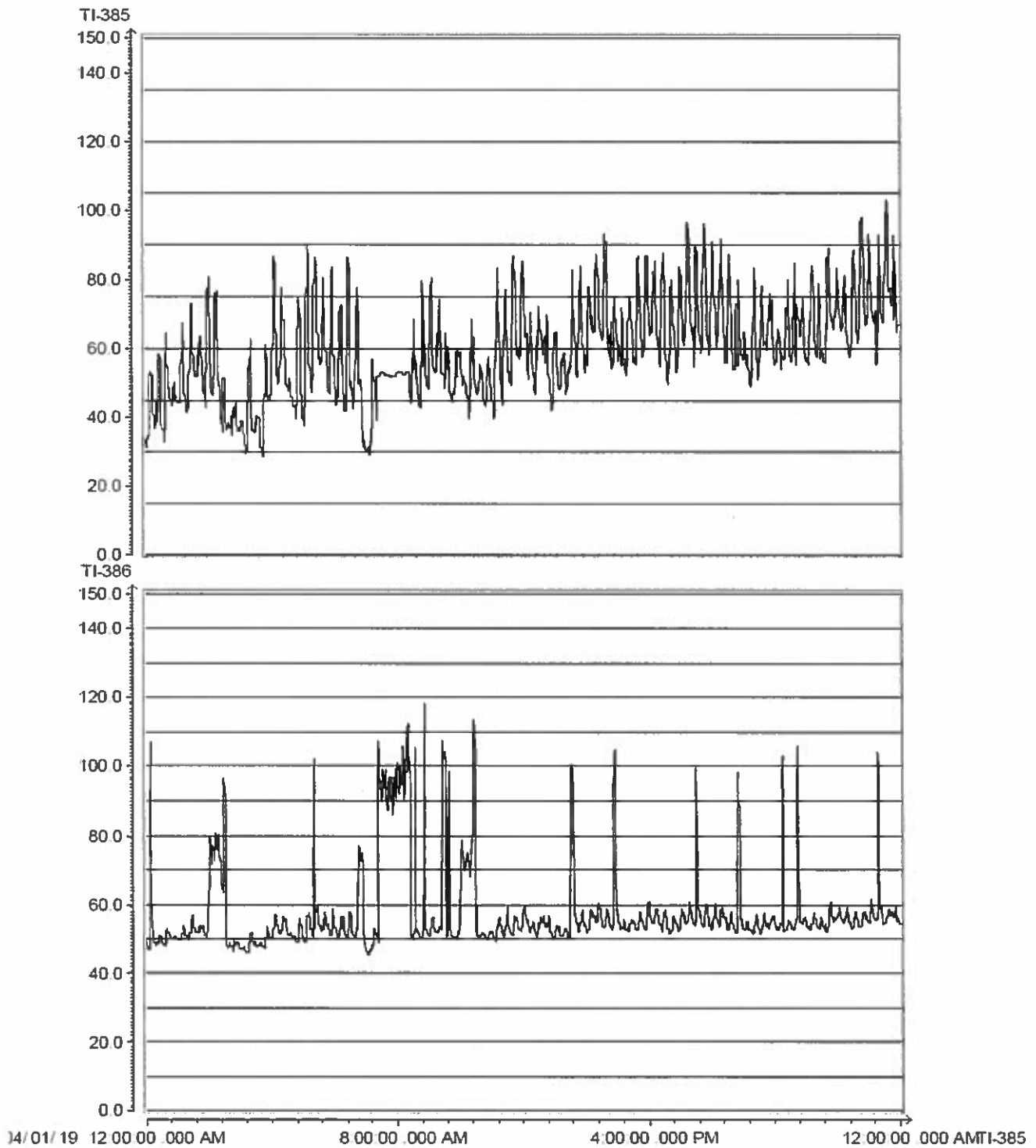


FIGURE 9

**DISTILLATION SCRUBBER WATER FLOW AND
PRESSURE**

Figure 9. Distillation Scrubber Water Flow & Pressure
Second Quarter 2019
Adkins Energy LLC – Lena, Illinois

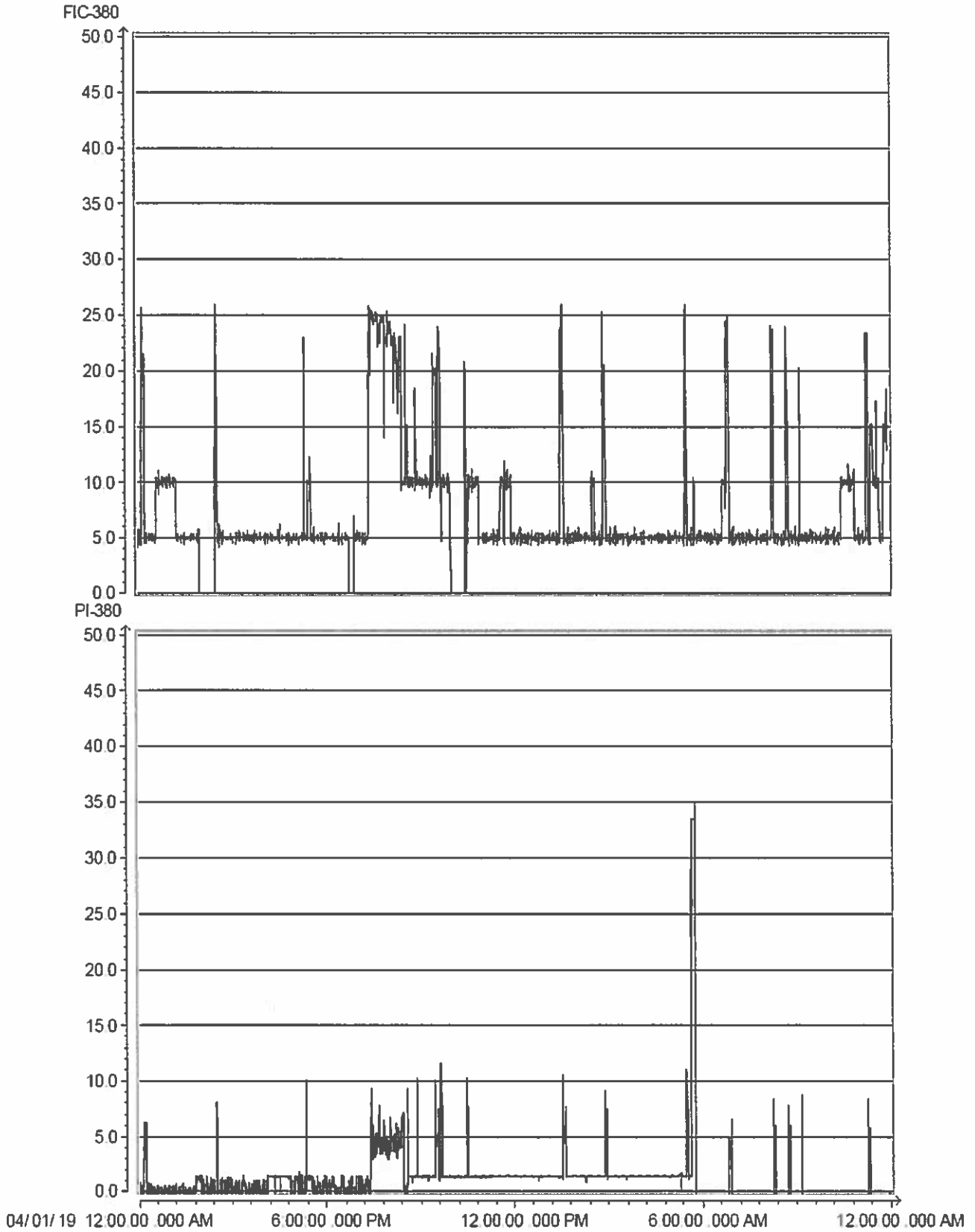


EXHIBIT 1

**MONTROSE SEMI-ANNUAL LEAKING COMPONENTS
SUMMARY REPORT**



Adkins Energy
4350 W Galena Road
Lena, IL 61048

Report Period 01/01/2019 - 06/30/2019

Process Unit: PLANT

Monitoring Program: NSPS-VV

SEMIANNUAL SUMMARY REPORT

LEAK REPORT

	01/01/2019 - 01/31/2019 (314 In Unit)	02/01/2019 - 02/29/2019 (314 In Unit)	03/01/2019 - 03/31/2019 (314 In Unit)	04/01/2019 - 04/30/2019 (314 In Unit)	05/01/2019 - 05/31/2019 (314 In Unit)	06/01/2019 - 06/30/2019 (314 In Unit)
Valves						
Monitored	303	0	0	303	11	0
Leaks Detected	0	0	0	0	0	0
Leaks Not Repaired within 15 Days	0	0	0	0	0	0
Pumps						
Monitored	17	17	17	17	17	17
Leaks Detected	0	0	0	0	0	0
Leaks Not Repaired within 15 Days	0	0	0	0	0	0

EQUIPMENT COUNTS

	Beginning Counts	Added	Removed	Ending Counts
Valves	314	0	0	314
Pumps	18	0	0	18

Total Components Beginning of Reporting Period: 332
Total Components End of Reporting Period: 332
Total Components Monitored: 331
Total Leaks: 0

Total Components Added: 0
Total Components Deleted: 0
Total Monitoring Events: 719
Total Leaks Not Repaired within 15 Days: 0



Adkins Energy
4350 W Galena Road
Lena, IL 61048

Report Period 01/01/2019 - 06/30/2019

Process Unit: PLANT

Monitoring Program: NSPS-VVA

SEMIANNUAL SUMMARY REPORT

LEAK REPORT

	01/01/2019 - 01/31/2019 (114 In Unit)	02/01/2019 - 02/29/2019 (117 In Unit)	03/01/2019 - 03/31/2019 (117 In Unit)	04/01/2019 - 04/30/2019 (117 In Unit)	05/01/2019 - 05/31/2019 (117 In Unit)	06/01/2019 - 06/30/2019 (117 In Unit)
Valves						
Monitored	117	3	0	117	0	0
Leaks Detected	0	0	0	0	0	0
Leaks Not Repaired within 15 Days	0	0	0	0	0	0
Pumps						
Monitored	2	2	2	2	2	2
Leaks Detected	0	0	0	0	0	0
Leaks Not Repaired within 15 Days	0	0	0	0	0	0

EQUIPMENT COUNTS

	Beginning Counts	Added	Removed	Ending Counts
Valves	114	3	0	117
Pumps	3	0	0	3

Total Components Beginning of Reporting Period:	117	Total Components Added:	3
Total Components End of Reporting Period:	120	Total Components Deleted:	0
Total Components Monitored:	119	Total Monitoring Events:	249
Total Leaks:	0	Total Leaks Not Repaired within 15 Days:	0



Adkins Energy
4350 W Galena Road
Lena, IL 61048

Report Period 01/01/2019 - 06/30/2019

Process Unit: BIODIESEL Monitoring Program: NSPS-VVA

SEMIANNUAL SUMMARY REPORT

LEAK REPORT

	01/01/2019 - 01/31/2019 (356 In Unit)	02/01/2019 - 02/29/2019 (356 In Unit)	03/01/2019 - 03/31/2019 (356 In Unit)	04/01/2019 - 04/30/2019 (356 In Unit)	05/01/2019 - 05/31/2019 (356 In Unit)	06/01/2019 - 06/30/2019 (356 In Unit)
Valves						
Monitored	321	0	30	321	5	0
Leaks Detected	0	0	0	0	0	0
Leaks Not Repaired within 15 Days	0	0	0	0	0	0
Pumps						
Monitored	20	20	20	20	20	20
Leaks Detected	0	0	0	0	0	0
Leaks Not Repaired within 15 Days	0	0	0	0	0	0

EQUIPMENT COUNTS

	Beginning Counts	Added	Removed	Ending Counts
Valves	356	0	0	356
Pumps	21	0	0	21

Total Components Beginning of Reporting Period:	377	Total Components Added:	0
Total Components End of Reporting Period:	377	Total Components Deleted:	0
Total Components Monitored:	376	Total Monitoring Events:	797
Total Leaks:	0	Total Leaks Not Repaired within 15 Days:	0