



STATE OF DELAWARE  
**DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL**  
89 KINGS HIGHWAY  
DOVER, DELAWARE 19901

Office of the  
Secretary

Phone: (302) 739-9000  
Fax: (302) 739-6242

**NOTICE OF ADMINISTRATIVE PENALTY ASSESSMENT  
AND SECRETARY'S ORDER**

Pursuant to 7 *Del. C.* § 6005

**Order No. 2019-A-0043**

*PERSONALLY SERVED BY AN ENVIRONMENTAL  
PROTECTION OFFICER*

**Issued To:**

Delaware City Refining Company, LLC  
Attn: Jeffery Coleman  
Refinery Manager  
4550 Wrangle Hill Road  
Delaware City, DE 19706

**Registered Agent:**

The Corporation Trust Company  
Corporation Trust Center  
1209 Orange Street  
Wilmington, DE 19801

This Assessment and Secretary's Order serves to notify Delaware City Refining Company, LLC ("Respondent" or "Refinery") that the Secretary of the Department of Natural Resources and Environmental Control ("Department") has found Respondent in violation of 7 *Del. C.* Chapter 60, state air regulations and its permit. Accordingly, the Department is issuing this Notice of Administrative Penalty Assessment and Secretary's Order pursuant to 7 *Del. C.* §6005(b)(3).

***BACKGROUND***

Respondent owns and operates a petroleum refinery located in Delaware City, Delaware, ("Refinery") where it manufactures various petroleum-based products, including gasoline, diesel, and jet fuels, and other marketable petroleum by-products.

The Department issued a Title V Permit in three separate parts to Respondent on April 12, 2018. These permits were issued pursuant to Regulation 1130 (“Title V State Operating Permit Program”) of the State of Delaware’s *Regulations Governing the Control of Air Pollution* (known as 7 DE Admin. Code 1130 and hereinafter referred to as “Regulation 1130”). Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** (“Title V Permit-Part 2”) is the part of the Title V Permit applicable to the violations addressed in this Order. This Order addresses the violations described below.

### **Unpermitted Emissions from the Fluid Coking Unit on January 14, 2019**

Respondent owns and operates a Fluid Coking Unit (“FCU”) at its facility. The FCU is equipped with a carbon monoxide boiler (“COB”) and wet gas scrubber (“WGS”) train as pollution control devices to control carbon monoxide (“CO”), nitrogen oxides (“NO<sub>x</sub>”), sulfur dioxides (“SO<sub>2</sub>”), and particulate matter (“PM”) emissions. The FCU permit is structured to require operation of the FCU with its flue gas routed through the COB and downstream WGS at all times. When the FCU COB and WGS are bypassed, the FCU burner flue gas can be routed in one of two ways. The flue gas can be routed to a Back-Up Incinerator (“BUI”), which is allowed to operate during periods when the COB is offline to control CO and PM emissions. The BUI does not control NO<sub>x</sub> or SO<sub>2</sub> emissions as these pollutants are controlled by the Selective Non-Catalytic Reduction (“SNCR”) System located in the FCU COB and the downstream WGS train respectively. It can take several hours to bring the BUI online in order to follow recommended BUI warm up procedures so when shorter duration unplanned outages occur, the alternative is to send the flue gas to the bypass stack. In the alternative, when the FCU flue gas is routed through the bypass stack, all pollutants are emitted uncontrolled and constitute unpermitted emissions.

According to the Event Incident Report submitted by the Refinery, dated February 13, 2019, the FCU COB tripped offline due to low air flow on January 14, 2019 at 6:56 p.m. and the COB and WGS were bypassed starting at 7:07 p.m. The discharge damper for the forced draft fan (“22-K-403B”) failed in the closed position due to high vibration in the area. An alternate forced draft fan, (“22-K-403A”), was brought online. After this occurred, the damper opened, but would not close. A solenoid and an inlet damper positioner failed and had to be replaced.

The alternate fan was brought back online at 7:53 a.m., on January 15, 2019, and normal operating conditions were restored at 8:57 a.m.

The event lasted 14 hours and released 60,000 lbs. of SO<sub>2</sub>, 4,500 lbs. of ammonia (NH<sub>3</sub>), 11,500 lbs. of hydrogen sulfide (H<sub>2</sub>S), 550 lbs. of hydrogen cyanide (HCN), and 335,000 lbs. of CO. In addition, the incident resulted in a violation of opacity requirements, as well as the emission of CO from the FCU COB that was not burned at a minimum of 1300 °F for at least 0.3 seconds as required by the permit. A Notice of Violation dated May 3, 2019, was issued to Respondent on May 9, 2019, for the violations associated with this event.

### **Unpermitted Emissions from the Crude Unit Area fire on February 3, 2019**

The crude unit is the first fractionating unit operation at the refinery used for distilling crude oil into its various fractions. Within the crude unit, oil is fractionated and separated into groups of hydrocarbon compounds of differing boiling point ranges. Respondent experienced a fire at the crude unit on February 3, 2019, with residual impacts lasting into February 4, 2019.

According to the Event Incident Report dated March 4, 2019, submitted by the Refinery, there was a loss of containment on February 3rd at 12:04 p.m. due to a failed 3 inch pipe used to drain water from the pre-flash tower water draw drum (21-D-12). The thermal insulation and steam tracing for sections of pipe were being replaced, and this water pipe was left inadequately winterized during sub-freezing temperatures for approximately two weeks. Once the line froze, a rupture 12 inches in length occurred and thawing temperatures resulted in a hydrocarbon release and the initial "North" fire. A second "South" fire occurred within 15 minutes of the first. The heat from the initial fire caused a second line to bow and fail creating a 0.46 inch hole in a 6 inch line carrying heavy naphtha. A third leak on a 3 inch low pressure off gas line occurred when a flange was compromised due to heat from the fire. This leak fed into the initial fire location.

The fire caused electrical damage to Flare Gas Recovery Compressor (21-K-3) which was then shut down. Flow to the flare header exceeded the capacity of the remaining compressor, 21-K-1, and flaring began at 12:06 p.m. At approximately 11:24 p.m., flare gas recovery compressor 21-K-1 was shut-down as low line gases were backing up through the knockout drum and feeding into the fire. Once both fires were extinguished by 12:53 a.m., the 21-K-1 compressor was returned to service at 2:22 a.m. on February 4, 2019. Repairs were completed on flare gas recovery compressor, 21-K-3 and it was returned to service at 10:04 a.m., ending the flaring event. The refinery was operating at low rates while the crude unit was down.

Respondent has informed the Department that it is implementing additional winterization training to prevent this oversight in the future. The unit was returned to full service with the gasoline column operational starting on March 5, 2019. According to Respondent's incident report, the incident resulted in the unpermitted release of 842 lbs. of HC, 592 lbs. of SO<sub>2</sub>, 438 lbs. of CO, 80 lbs. of NO<sub>x</sub>, 2 lbs. of H<sub>2</sub>S, and an additional 4,300 lbs. of SO<sub>2</sub> from flaring. A Notice of Violation, dated May 14, 2019, was issued to Respondent on May 17, 2019, for the violations associated with this event.

### **Flaring Related Violations**

The operation of a refinery blowdown system, which includes a flare system, is governed by Respondent's Title V permit. The purpose of the flare system is to safely handle and dispose of combustible gases and vapors that are released during refinery upsets, startups, and shutdowns in order to minimize impacts on the environment.

Although the Respondent is permitted by the Department to utilize the flare system to minimize impacts on the environment, the permit does not allow the emission of pollutants from the flare. Hydrocarbon flaring episodes are of concern to the Department because they have the potential to emit large amounts of criteria pollutants such as NO<sub>x</sub> and SO<sub>2</sub>. The amount of pollution emitted during a flaring episode is entirely dependent on the source of the gases being flared, the duration and rate of the flaring, along with the quantity and sourness (H<sub>2</sub>S content) of the gas emitted from the flare.

From January 1, 2019 through June 30, 2019, Respondent experienced hydrocarbon flaring episodes on 5 days. The specific dates of the incidents covered by this Order, and a brief description of the flaring episodes as detailed in reports from the Refinery, are described below.

#### March 2019

On March 14, 2019, at approximately 1:30 p.m., the Fluid Catalytic Cracking Unit (“FCCU”) COB was shut down due to a tube leak. The facility reduced throughput to the unit and began transitioning to full burn mode, an operating mode which does not require use of the COB to control CO emissions. At 3:27 p.m., the FCCU was in full burn mode, however the unit experienced operational problems. At 4:04 p.m., operators ceased adding process feed into the unit. With the FCCU down, the FCCU wet gas compressors (“WGC”) stalled. The WGCs normally recapture gases sent to the flare line and return them to the FCCU for continued processing. The shutdown of the WGCs caused these gasses to be routed to the flare gas system and intermittent flaring commenced at 4:10 pm. Operators brought one WGC online at 4:17 p.m. and once regenerator dense bed temperatures normalized, process feed was reintroduced into the unit at 4:31 p.m. The second WGC was brought online at 4:47 p.m. Flaring ended at 5:25 p.m. By 6:00 pm, the FCCU was fully stabilized and in full burn operation. Approximately, 4,100 lbs. of SO<sub>2</sub> was released during the flaring episode.

On March 15, 2019, the flow controller for bottoms flow from the Butamer Deisobutanizer Tower was left in manual mode after a pump maintenance event. The isobutane product flow from the overhead line was reduced to correct the streams purity causing liquid to accumulate in the tower bottom. The building liquid level caused the tower pressure to increase until at 12:15 a.m., the vessel’s pressure relief valve lifted to the flare header line. Intermittent flaring occurred until 12:27 a.m. when operations personnel opened the bottoms flow controller to reduce liquid level in the tower. This flaring event resulted in the release of approximately 200 lbs. of SO<sub>2</sub>.

May 2019

Several refinery units discharge into the flare header. Flare recovery compressors recapture these gases and pump them into the low line. The FCU and FCCU wet gas compressors then remove gas from the low line and return them to processing system. The FCU was down for a turnaround, so only the FCCU wet gas compressor was operational to recover gases from the low line. The FCU turnaround was completed and operational personnel were initiating startup procedures. The FCU began venting fuel gas to the low line as part of its startup sequence; however, the Polymerization Unit experienced an unplanned shutdown on May 2nd, resulting in propane being vented to the low line as well. The low line pressure at the flare gas recovery compressors was already close to maximum, so the additional venting of propane caused it to exceed the maximum setpoint, resulting in flaring.

FCU startup continued, and the FCU WGC was returned to service on May 4th. With the FCU operational, it was no longer venting fuel gas to the flare header, lowering the flare header pressure. Flaring stopped at 11:00 p.m. on May 4th, though intermittent flaring continued due to the Polymerization Unit outage. At 6:00 p.m. on May 5th, process feed was introduced into the FCU allowing the FCU WGC to operate more efficiently and resume normal operation. Flaring ended at 8:00 p.m. on May 5th. A total of 275 lbs. of SO<sub>2</sub> was released over the three day period.

A Notice of Violation dated September 5, 2019, was issued to Respondent on September 12, 2019, for the violations associated with the flaring events that occurred in March 2019 and May 2019 as described above.

***FINDINGS OF FACT***

1. Respondent owns and operates a petroleum refinery located in Delaware City, Delaware whose operations are governed by a Title V Permit, issued pursuant to Regulation 1130, in three separate parts on April 12, 2018.

2. Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** (“Title V Permit-Part 2”) is the part of the Title V Permit applicable to the violations addressed in this Order.
3. Respondent experienced a FCU COB outage on January 14, 2019, that resulted in the release of 60,000 lbs. of SO<sub>2</sub>, 4,500 lbs. of NH<sub>3</sub>, 11,500 lbs. of H<sub>2</sub>S, 550 lbs. of HCN, and 335,000 lbs. of CO as well as violation of opacity requirements and the emission of CO from the FCU COB that was not burned at a minimum of 1300 °F for at least 0.3 seconds as required by its permit.
4. Respondent experienced a fire at the crude unit on February 3, 2019, with residual impacts lasting into February 4, 2019, that resulted in the unpermitted release of 842 lbs. of HC, 592 lbs. of SO<sub>2</sub>, 438 lbs. of CO, 80 lbs. of NO<sub>x</sub>, 2 lbs. of H<sub>2</sub>S, and an additional 4,300 lbs. of SO<sub>2</sub> from flaring.
5. Respondent experienced a hydrocarbon flaring event on March 14, 2019, that resulted in the unpermitted release of approximately, 4,100 lbs. of SO<sub>2</sub>.
6. Respondent experienced a hydrocarbon flaring event on March 15, 2019, that resulted in the unpermitted release of 200 lbs. of SO<sub>2</sub>.
7. Respondent experienced a hydrocarbon flaring event beginning May 3, 2019, and ending May 5, 2019, that resulted in the unpermitted release of 275 lbs. of SO<sub>2</sub>.

### ***REGULATORY AND PERMT PROVISIONS***

1. In 7 Del. C. §6003(a)(1) it states:  
*“No person shall, without first having obtained a permit from the Secretary, undertake any activity in a way which may cause or contribute to the discharge of an air contaminant.”*

2. In Section 2.1 of 7 DE Admin. Code 1102, it states:

*“Except as exempted in Section 2.2 of this regulation, no person shall initiate construction, install, alter or initiate operation of any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to receiving approval of his application from the Department or, if eligible, prior to submitting to the Department a completed registration form.”*

3. In Section 2.1 of 7 DE Admin. Code 1111, it states:

*“In New Castle County, no person shall cause or allow the emission of carbon monoxide from any catalytic regeneration of a petroleum cracking system, petroleum fluid coker, or other petroleum process into the atmosphere, unless the carbon monoxide is burned at 1300 °F for 0.3 seconds or greater in a direct-flame afterburner or boiler, or is controlled by an equivalent technique.”*

4. In Section 2.1 of 7 DE Admin. Code 1114, it states in part:

*“No person shall cause or allow the emission of visible air contaminants or smoke from a stationary or mobile source, the shade or appearance of which is greater than 20% opacity for an aggregate of more than three minutes in any one hour or more than 15 minutes in any 24 hour period.”*

5. In Condition 3-Table 1(da.1.i.C) of Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** it states:

*“The Belco pre-scrubber, the amine-based Cansolv regenerative WGS, the caustic polishing scrubber and SNCR system shall be operating properly at all times when the FCU is operating.”*

6. In Condition 3-Table 1(da.1.i.H) of Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** it states in part:

*“This Permit does not authorize emissions exceeding the limits set forth in Condition 3 – Table 1.da.2 through da.10 including emissions during periods of any unplanned shutdown of the FCU, or any unplanned shutdown or bypass of the FCU COB or the Belco prescrubber or WGS. Instead, in the event of any unplanned shutdown of the FCU or any unplanned shutdown or bypass of the FCU COB or Belco prescrubber or the WGS, the Owner/Operator shall bear the burden of demonstrating to the Department’s satisfaction that the Owner/Operator’s continued operation of the FCU should not subject the Owner/Operator to an enforcement action for noncompliance with emission limitations or operating standards included in this Permit or otherwise applicable to the facility under the State of Delaware “Regulations Governing the Control of Air Pollution.” Such demonstration must at a minimum be supported by sufficient documentation and emissions data including all relevant emissions calculations, formulas, and any assumptions made thereof.”<sup>1</sup>*

---

<sup>1</sup> The Department has not received documentation requesting relief from any of the incidents described herein.

7. In Condition 3-Table 1(da.3.i.A) of Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** it states:  
*“SO<sub>2</sub> emissions shall not exceed 25 ppmvd @ 0% O<sub>2</sub> on a rolling 365 day average, 50 ppmvd @ 0% O<sub>2</sub> on a rolling 7 day average, and 182.3 TPY.”*
8. In Condition 3-Table 1(da.5.i.B) of Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** it states:  
*“The Owner/Operator shall not cause or allow the emission of carbon monoxide from the FCU unless it is burned at no less than 1300 °F for at least 0.3 seconds in the FCU COB.”*
9. In Condition 3-Table 1(da.8.i) of Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** it states:  
*“Ammonia emissions from the FCU shall not exceed 2.3 lb/hour and 10.2 TPY.”*
10. In Condition 3-Table 1(da.11.i) of Permit: **AQM-003/00016-Part 2 (Ren 1)(Rev 3)** it states:  
*“The Owner/Operator shall not cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance of which is greater than 20 percent opacity for an aggregate of more than 3 minutes in any 1 hour or more than 15 minutes in any 24 hour period.”*

### **CONCLUSION**

Based on the above, the Department has concluded that Respondent committed the following violations:

1. Respondent is found to be in violation of 7 Del. C. §6003(a)(1), Section 2.1 of 7 DE Admin. Code 1102, Section 2.0 of 7 DE Admin. Code 1111, and Condition 3-Table 1(da.1.i.H); (da.3.i.A); (da.5.i.B) and (da.8.i) of **Permit: AQM-003/00016-Part 2 (Ren 1)(Rev 3)** for the unpermitted release of 60,000 lbs. of SO<sub>2</sub>, 4,500 lbs. of NH<sub>3</sub>, 11,500 lbs. of H<sub>2</sub>S, 550 lbs. of HCN, and 335,000 lbs. of CO on January 14, 2019.

2. During the outage of the FCU COB and consequent bypassing of the WGS train from 7:07 p.m. on January 13, 2019 to 8:57 a.m. on January 14, 2019, Respondent continued to operate the FCU which resulted in the release of air contaminants to the atmosphere. Therefore, Respondent is in violation of Condition 3-Table 1(da.1.i.C) of **Permit: AQM-003/00016-Part 2 (Ren 1)(Rev 3)**.
3. Respondent is found to be in violation of Section 2.0 of 7 DE Admin. Code 1114 and Condition 3-Table 1 (da.11.i) of **Permit: AQM-003/00016-Part 2(Ren 1)(Rev 3)** for allowing the emission of smoke with an opacity greater than 20% for more than three minutes in an hour and 15 minutes in a 24 hour period during the FCU COB outage on January 14, 2019.
4. Respondent is found to be in violation of 7 Del. C. §6003(a)(1) for the unpermitted release of 842 lbs. of HC, 4,892 lbs. of SO<sub>2</sub> (592 lbs. from the fire and an additional 4,300 lbs. from resulting flaring), 438 lbs. of CO, 80 lbs. of NO<sub>x</sub>, and 2 lbs. of H<sub>2</sub>S due to crude unit area fire and its impact from February 3-4, 2019.
5. Respondent is found to be in violation of 7 Del. C. §6003(a)(1) for the unpermitted release during flaring episodes that occurred a total of five days between January 1, 2019, and June 30, 2019. Specifically, Respondent released 4,100 lbs. of SO<sub>2</sub> on March 14, 2019; 200 lbs. of SO<sub>2</sub> on March 15, 2019, and 275 lbs. of SO<sub>2</sub> from May 3, 2019 through May 5, 2019.

### ***ASSESSMENT OF PENALTY AND COSTS***

Pursuant to the provisions of 7 Del. C. §6005(b)(3), this is written notice to Respondent that on the basis of its findings, the Department is assessing Respondent an administrative penalty of \$90,000 for the violations identified in this Assessment and Order. In addition to the penalty assessment, Respondent is hereby assessed costs in the amount of \$2,031.71, pursuant to 7 Del. C. §6005(c), which were incurred by the Department in the investigation and abatement of the noted violations.

Respondent shall submit one check to the Department in the amount of \$90,000 to pay the penalty and one check in the amount of \$2,031.71, to pay the Department's costs within 30 days from the receipt of this Assessment and Order. The check(s) shall be made payable to the "State of Delaware" and shall be directed to: Valerie S. Edge, Deputy Attorney General, Department of Justice, Environmental Unit, 102 W. Water Street, Dover, Delaware 19904.

The Department reserves the right to take additional enforcement actions regarding these and other violations by Respondent, including but not limited to one or more of the following: an action under the authority vested in the Secretary by *7 Del. C. Chapter 60* and *7 DE Admin. Code 1100* to revoke Respondent's air quality permit(s) for the State of Delaware, an action under *7 Del. C. §6005(b)(1)* seeking penalties for past violations, an action under *7 Del. C. §6005(b)(2)* seeking penalties for continuing violations, an action in the Court of Chancery pursuant to *7 Del. C. §6005(b)(2)* seeking a temporary restraining order or an injunction, and the imposition of civil penalties and recovery of the Department's costs and attorney's fees pursuant to *7 Del. C. §§6005(b)(3) & (c)(1)*.

### ***PUBLIC HEARING AND APPEAL RIGHTS***

This Assessment and Order is effective and final upon receipt by Respondent. Pursuant to *7 Del. C. §6008*, any person whose interest is substantially affected by this action of the Secretary may appeal to the Environmental Appeals Board within 20 days of the receipt of the Assessment and Order. In the alternative, Respondent may, pursuant to *7 Del. C. §6005(b)(3)*, request a public hearing on the penalty assessment and Order, within 30 days of receipt of the Assessment and Order. A hearing would be conducted pursuant to *7 Del. C. §6006*, and the Secretary's Order following the hearing would be subject to appeal, pursuant to *7 Del. C. §6008*, by any person substantially affected.

To submit an appeal to the Environmental Appeals Board, there is a \$50.00 filing fee, with a check made payable to the: "Environmental Appeals Board" and sent to:

Department of Natural Resources and Environmental Control  
Office of the Secretary  
Attn: Assistant to the Environmental Appeals Board  
89 Kings Highway  
Dover, DE 19901  
Phone: (302) 739-9000

If you want a hearing and opportunity to contest this Assessment and Order, you must submit your request, in writing, within 30 days of receipt of this Assessment and Order to:

Department of Natural Resources and Environmental Control  
Office of the Secretary  
89 Kings Highway  
Dover, DE 19901  
Phone: (302) 739-9000

Respondent may waive its right to request a hearing or to file an appeal by signing the waiver attached herein and prepaying the penalty. If no hearing is requested or appeal filed as described above and the administrative penalty of \$90,000 and costs in the amount of \$2,031.71 are not paid within the time frame above, DNREC may immediately take action to collect the above amounts.

Date

11/4/19

  
Shawn M. Garvin, Secretary  
Department of Natural Resources  
and Environmental Control

cc: Valerie S. Edge, Deputy Attorney General  
David Fees, P.E., Director

***WAIVER OF STATUTORY RIGHT TO A HEARING***

**Delaware City Refining Company, LLC** hereby waives its right to a hearing and its opportunity to appeal or contest this Assessment and Order and agrees to the following:

1. **Delaware City Refining Company, LLC** will pay the administrative penalty in the amount of \$90,000 by sending a check payable to the "State of Delaware" within 30 days of receipt of this Assessment and Order. The check shall be directed to Valerie S. Edge, Deputy Attorney General, Department of Justice, 102 W. Water Street, Dover, DE 19904; and
2. **Delaware City Refining Company, LLC** will reimburse the Department in the amount of \$2,031.71, which represents the Department's estimated costs. The reimbursement shall be paid within 30 days of receipt of this Assessment and Order. The separate check shall be made payable to the "State of Delaware" and be directed to Valerie S. Edge, Deputy Attorney General, Department of Justice, 102 W. Water Street, Dover, DE 19904.

**Delaware City Refining Company, LLC**

Date: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

