



STATE OF DELAWARE  
DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL

OFFICE OF THE  
SECRETARY

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

Pursuant to 7 Del. C. § 6005

**Order No. 2013-A-0022**

*PERSONALLY SERVED BY AN ENVIRONMENTAL  
PROTECTION OFFICER*

**Issued To:**

Delaware City Refining Company, LLC  
Attn: Mr. Herman Seedorf  
Refinery Manager  
4450 Wrangle Hill Road  
Delaware City, DE 19706

**Registered Agent:**

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

Dear Mr. Seedorf:

This letter is to notify Delaware City Refining Company, LLC., ("Respondent") that the Secretary of the Department of Natural Resources and Environmental Control ("Department") has found Respondent in violation of 7 Del. C. Chapter 60 and accordingly, the Department is issuing this Notice of Administrative Penalty Assessment 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. On June 1, 2010, Respondent purchased the Refinery from the previous owner, The Premcor Refining Group Inc.

Permit: AQM-003/00016 – Part 1 (Renewal 1) (Rev 5) ("Title V Permit-Part 1") and Permit: AQM-003/00016 – Part 2 (Rev 5) ("Title V Permit-Part 2") was issued to Respondent on April 5, 2011. These permits are two of three parts that comprise Respondent's Title V

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permit which was 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 "Reg. 1130"). Among the emission units governed by the Title V Permit, is the operation of the Fluidized Catalytic Cracking Unit ("FCCU") and its related units as well as operation of a refinery blowdown system, which includes a flare system.

### **FCCU PERMIT INSPECTION RELATED VIOLATIONS**

Respondent restarted the FCCU on May 26, 2011, and the unit and its related units, such as the FCCU Carbon Monoxide Boiler ("COB"), wet gas scrubber ("WGS") and COB Bypass system have been in operation since. The FCCU WGS stack is equipped with a Continuous Emissions Monitoring System ("CEMS") which is used to monitor the emissions of certain pollutants, such as nitrogen oxides ("NO<sub>x</sub>") and sulfur dioxide ("SO<sub>2</sub>"). While 40 CFR § 60.104(b)(1) sets an emission standard for SO<sub>2</sub> for the FCCU, Respondent's Title V permit also sets a more stringent standard. When a CEMS is used to demonstrate compliance with the emission standard, 40 CFR § 60.104(d) requires a minimum of 22 valid days of data be obtained from the CEMS for every 30 rolling successive calendar days. Quality assurance/quality control of the CEMS data is vital to insure true demonstration of compliance with those standards. Respondent's Title V permit adopts the process set forth in 40 CFR Part 60, Appendix F for QA/QC of the FCCU SO<sub>2</sub> CEMS (described above) as well as defining what constitutes the CEMS as being out of control. Any data collected during a time period when the CEMS is considered out-of-control, is not valid and cannot be used to demonstrate compliance.

The Department issued Respondent a construction permit **APC-82/0981 – CONSTRUCTION (Amendment 9) (NSPS)** dated February 3, 2011, pursuant to 7 DE Admin. Code 1102 ("Reg. 1102") authorizing certain maintenance, repair and replacement activities designed to facilitate effective and efficient performance of the FCCU. As a result of Respondent's completion of construction activities, the Department conducted a construction to operation inspection of the FCCU and its related units on April 10 through April 12, 2012. As a result of the inspection and records review, several violations were identified.

On October 2, 2011, a tube leak in the FCCU COB resulted in the Facility bypassing the COB until October 25, 2011, when repairs were completed and operation of the COB could resume. This COB outage resulted in the unpermitted release of 2,334 lbs. of carbonyl sulfide ("COS"), 4,285 lbs. of hydrogen cyanide ("HCN"), 40 lbs. of hydrogen sulfide ("H<sub>2</sub>S") and 139 lbs. of ammonia ("NH<sub>3</sub>"). In addition, during the time period the COB was inoperative, opacity from the FCCU WGS was greater than 20% for an aggregate of more than 3 minutes in any 1-hour period or more than 15 minutes in any 24 hour period on seven days: October 6, 7, 9, 10, 11, 12 and 17. Following a review of Respondent's 2011 Title V Annual Compliance Certification and semi-annual report covering the 2<sup>nd</sup> half of 2011, it was discovered that Respondent had not reported the opacity deviations that occurred on October 10 and 11, 2011, as required by its permit.

During the records review portion of the inspection, the Department discovered that Respondent's FCCU SO<sub>2</sub> CEMS was out of control at various times during the 4<sup>th</sup> quarter of

2011 and the 1<sup>st</sup> quarter of 2012, which resulted in the Facility failing to obtain a minimum of 22 days of valid emissions data every 30-rolling successive calendar days for a total of 105 days.

A Notice of Violation addressing the above listed violations was issued to Respondent on May 21, 2012.

### **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.

Title V Permit-Part 1 includes some of Respondent's reporting requirements, including the semi-annual report initially defined in Condition 3(c)(2)(i) and further requires additional reporting of excess emissions or emissions which create a condition of air pollution.

From June 2011 through December 2012, Respondent experienced hydrocarbon flaring episodes on 46 days. The specific dates of the incidents covered by this Order and a brief description of the flaring episodes described below.

#### **June 2011**

On June 3-4, 2011, hydrocarbon flaring occurred when a fuel imbalance was reached during the process unit start-up. Refinery fuel gas and flare recovery systems were unable to keep up with the gas made and excess gas was routed to the flare system. This flaring event resulted in the unpermitted release of 1,533 lbs. of SO<sub>2</sub> to the atmosphere. As start-up operations with pressuring and depressuring of vessels continued on June 4, 2011, the Cracked Naphtha and Hydrodesulfurizer Train 5 also contributed to the flaring event causing the unpermitted release of an additional 239 lbs. of SO<sub>2</sub> to the atmosphere, bringing the total unpermitted release of SO<sub>2</sub> to the atmosphere during the span of June 3-4, 2011, to 1,772 lbs.

On June 13-14, 2011, hydrocarbon flaring occurred when operators were commissioning the Continuous Catalyst Regenerator Reformer's ("CCR") 42-K-2C compressor and its block valves were open. Back pressure from the interstage drum (42-D-3) traveled through the compressor and into the reactor product separator drum (42-D-2). The increased pressure lifted the pressure safety valve and initiated flaring that resulted in the unpermitted release of 192 lbs. of SO<sub>2</sub> to the atmosphere.

On June 15, 2011, the flare recovery compressor, 21-K-1, was removed from service for valve repair. Despite efforts to prevent excess flare header pressure, pre-startup activities at the FCCU and Coker caused an increase in pressure leading to intermittent flaring. This flaring event resulted in the unpermitted release of 497 lbs. of SO<sub>2</sub> to the atmosphere.

On June 23, 2011, hydrocarbon flaring occurred when an interface level problem on the atmospheric column overhead accumulation drum (21-D-2) caused liquid carryover into that unit which in turn tripped one of the recovery compressors. This flaring event resulted in the unpermitted release of 154 lbs. of SO<sub>2</sub> to the atmosphere.

On June 28, 2011, hydrocarbon flaring occurred when, while adding and increasing the flow of natural gas to the refinery fuel gas system, the system over pressurized. It was determined that the valve to the flow indicator was off and therefore there was no indication of flow and too much natural gas was added. This flaring event resulted in the unpermitted release of 485 lbs. of SO<sub>2</sub> to the atmosphere.

### July 2011

On July 1-2, 2011, hydrocarbon flaring occurred during start-up of the Light Straight Run Splitter Column (21-C-401). A leak was detected and shutdown procedures were begun. Operations attempted to de-pressure and de-inventory the unit. However, levels dropped slower than expected. This caused a pressure sensor valve to lift and send gasoline material into the recovery compressor feed drum which tripped the recovery compressor (21-K-1) offline. The ultimate cause was a block valve being left closed which prevented the unit from being effectively depressurized. This flaring event resulted in the unpermitted release of 2,745 lbs. of SO<sub>2</sub> to the atmosphere.

On July 4-5, 2011, hydrocarbon flaring occurred as a result of several separate incidents. On July 4, 2011, the CCR Compressor, 42-K-2C, tripped offline due to a high liquid level in interstage drum 42-D-3 resulting from the malfunction of the level indicator. This flaring event resulted in the unpermitted release of 295 lbs. of SO<sub>2</sub> to the atmosphere. Over the course of July 4-5, 2011, minor flaring incidents occurred as follows: Butane Railcar Loading #1 - butane being vented from the railcar caused a pressure increase at Sphere 122 resulting in the unpermitted release of 72 lbs. of SO<sub>2</sub> to the atmosphere; Butane Railcar Loading #2 – operators attempted to vent butane directly to the refinery low line system, however, because the flare system was experiencing a higher than normal load because of start-up activities, flaring occurred resulting in the unpermitted release of 58 lbs. of SO<sub>2</sub> to the atmosphere; and C4 Selective Hydrogenation Unit – operators attempted a hydrogen sweep of the catalyst bed to the flare recovery system, but again, the higher than normal flare system load resulted in the unpermitted release of 15 lbs. of SO<sub>2</sub> to the atmosphere. Over the two days, these incidents resulted in the unpermitted release of a total of 440 lbs. of SO<sub>2</sub> to the atmosphere.

On July 6, 2011, during start-up of the FCU Wet Gas Compressor (22-K-302B), hydrocarbon flaring occurred resulting in the unpermitted release of 152 lbs. of SO<sub>2</sub> to the atmosphere.

On July 7-8, 2011, hydrocarbon flaring occurred when, after feed was introduced into the FCU following the start-up of the FCU Wet Gas Compressor (22-K-302B), liquid present in the low line system hindered flow from the flare recovery compressors. This flaring event resulted in the unpermitted release of 8,780 lbs. of SO<sub>2</sub> to the atmosphere.

On July 23, 2011, hydrocarbon flaring occurred when, after completing a line wash from Tanks 248 and 72 to Crude Tank 2, operations began charging Tank 2 to the Crude Unit. Light line wash products pushed through the Crude Unit, flooding the gasoline splitter and hydraulically overwhelming the overhead system by pushing liquid into the suction of the flare gas recovery compressors, tripping them offline. Attempts to minimize the incident by switching to Tank 6 failed because the discharge valve was not operational. The refinery had no crude acceptance procedure in place. This flaring event resulted in the unpermitted release of 8,322 lbs. of SO<sub>2</sub> to the atmosphere.

On July 25, 2011, while one of the FCCU's wet gas compressors was out of service for scheduled maintenance, the remaining wet gas compressor (24-K-1) developed a leak at the compressor shaft seal. Operators were unsuccessful in reducing the suction pressure to prevent leakage at the seals. The suction drum vent line to the flare header was opened. A rise in cooling water temperature exacerbated efforts to balance the system and hydrocarbon flaring occurred. This flaring event resulted in the unpermitted release of 108 lbs. of SO<sub>2</sub> to the atmosphere.

#### **August 2011**

On August 20, 2011, hydrocarbon flaring occurred when the surge suppressor to the UPS servicing Boilers 3 and 4 failed and caused a short in the system which tripped the circuit breaker on the primary motor control center. The UPS battery unexpectedly depleted causing the boilers to shut down due to loss of power. This flaring event resulted in the unpermitted release of 836 lbs. of SO<sub>2</sub> to the atmosphere.

#### **September 2011**

On September 9, 2011, hydrocarbon flaring occurred when Recycle Compressor (36-K-1) tripped offline causing the Hydrocracker Reactor (36-R-3) to de-pressurize. It was determined that there was a loose terminal connection at thermocouple 36-TI-3513 giving a faulty temperature indication in the reactor. This flaring event resulted in the unpermitted release of 499 lbs. of SO<sub>2</sub> to the atmosphere.

On September 15, 2011, hydrocarbon flaring occurred when CCR's hydrogen booster compressor (42-K-8B) unexpectedly tripped offline. It was determined that the cause was due to the motor winding cooler being damaged and plugged with debris as well as the backup compressor also tripping shortly after start-up. This flaring event resulted in the unpermitted release of 275 lbs. of SO<sub>2</sub> to the atmosphere.

On September 30, 2011, CCR operators switched the Pressure Swing Absorption unit from 5-bed operation to 10-bed operation. As it progressed through the operating cycle, valves 42-PV-406 and 42-PV-408 malfunctioned and failed in the closed position. The hydrogen feed

back-flowed caused hydrocarbon flaring which resulted in the unpermitted release of 238 lbs. of SO<sub>2</sub> to the atmosphere.

In addition, while Respondent timely reported the June through September 2011 flaring incidents to the Department via the Department's Environmental Emergency Notification and Complaint Number and submitted timely incident reports, it failed to report the incidents that occurred during the first half of 2011 as deviations on its semi-annual report covering said period submitted to the Department on July 27, 2011. This is required per Condition 3.c.2.ii.C of its Title V Permit-Part 1.

#### **October 2011**

On October 3, 2011, hydrocarbon flaring occurred when CCR operators attempted to place the PSA system into 10-bed operation, the feed unexpectedly jumped causing venting to the flare. It was determined that valve 42-PV-501 was stuck in the open position. This flaring event resulted in the unpermitted release of 216 lbs. of SO<sub>2</sub> to the atmosphere.

On October 14, 2011, hydrocarbon flaring occurred when pressure control valve 24-PV-307 opened resulting in over pressure of the fuel system. It was determined that a pressure indicator tap was partially plugged leading to a false low pressure signal. This flaring event resulted in the unpermitted release of 343 lbs. of SO<sub>2</sub> to the atmosphere.

On October 26, 2011, hydrocarbon flaring occurred and resulted in the unpermitted release of 545 lbs. of SO<sub>2</sub> to the atmosphere. While an exact cause was not found, Respondent sampled the flare gas recovery system and analyzed it by gas chromatography. It showed elevated levels of hydrogen in the gas indicating the CCR was the probable source, most likely upstream of the 42-K-8 booster pump.

#### **November 2011**

On November 17-18, 2011, hydrocarbon flaring occurred when a leak developed on the common suction line to water seal pumps 21-P-56A and 21-P-56B that serves flare recovery compressor 21-K-3 and it had to be taken offline for repairs. This flaring event resulted in the unpermitted release of 3,320 lbs. of SO<sub>2</sub> to the atmosphere.

On November 21, 2011, hydrocarbon flaring occurred when flare recovery compressor 21-K-1 tripped offline due to a high liquid level in knockout drum 21-D-10. This flaring event resulted in the unpermitted release of 171 lbs. of SO<sub>2</sub> to the atmosphere.

#### **December 2011**

On December 2, 2011, hydrocarbon flaring occurred when the flare recovery compressor tripped offline due to a loss of compressor wash water caused by the crude unit's water seal pump 21-P-56A motor faulting. This flaring event resulted in the unpermitted release of 213 lbs. of SO<sub>2</sub> to the atmosphere.

On December 22, 2011, hydrocarbon flaring occurred when a pressure safety valve in stripper column 21-C-303 lifted as a result of increased pressure. This was as a result of

operators bypassing and blocking off the crude unit's heat exchanger 21-E-309, due to a leak. This flaring event resulted in the unpermitted release of 191 lbs. of SO<sub>2</sub> to the atmosphere.

On December 24, 2011, hydrocarbon flaring occurred when pressure safety valve 26-PSV-100 in the Poly Unit's Effluent Separator 26-D-2 malfunctioned. It lifted at 275 psig instead of its set pressure of 350 psig. This flaring event resulted in the unpermitted release of 463 lbs. of SO<sub>2</sub> to the atmosphere.

### **February 2012**

On February 6, 2012, hydrocarbon flaring occurred when valve 22-PC-321 opened to release pressure on the suction drum to the flare system. This was caused when, while the FCU Wet Gas Compressor 22-K-302A was offline for scheduled maintenance, a high level alarm in the compressor suction drum activated a shutdown of the other WGC, 22-K-302B. Flaring ended when 22-K-302B was restarted. This flaring event resulted in the unpermitted release of 1,749 lbs. of SO<sub>2</sub> to the atmosphere.

On February 12, 2012, loss of instrument air to a turbine driven feed water pump resulted in the FCU COB tripping offline which in turn caused the FCU WGC to trip due to high level in the suction drum. This incident resulted in unpermitted releases from two units, the FCU COB WGS and the flare system. The FCU COB released 219,261 lbs. of CO; 8,433 lbs. of SO<sub>2</sub>; 6,585 lbs. of H<sub>2</sub>S; 2,658 lbs. of NH<sub>3</sub>; and 313 lbs. of HCN to the atmosphere. Flaring resulted in the unpermitted release of 3,187 lbs. of CO; 60,611 lbs. of SO<sub>2</sub>; and 161 lbs of H<sub>2</sub>S. In addition, the CO emissions from the FCU WGS exceeded permitted limits, opacity was greater than permitted limits, and the furnace temperature fell below permit requirements.

On February 13, 2012, hydrocarbon flaring occurred when refinery low-line and flare header pressures rose as a result of both FCCU WGCs tripped off-line during maintenance on a transformer that services the FCCU. This flaring event resulted in the unpermitted release of 28,252 lbs. of SO<sub>2</sub> to the atmosphere.

### **April 2012**

On April 4, 2012, hydrocarbon flaring occurred when the CCR hydrogen compressors 42-K-2B and 42-K-2C tripped off-line causing excess hydrogen to be sent to the flare header. This flaring event resulted in the unpermitted release of 137 lbs. of SO<sub>2</sub> to the atmosphere.

On April 25, 2012, hydrocarbon flaring occurred when the CCR hydrogen compressors 42-K-2B and 42-K-2C tripped off-line causing excess hydrogen to be sent to the flare header. This flaring event resulted in the unpermitted release of 397 lbs. of SO<sub>2</sub> to the atmosphere.

### **May 2012**

On May 7-10, 2012, hydrocarbon flaring occurred when the Flare Gas Recovery Compressor 21-k-1 was taken off-line for maintenance activities. During that time period, intermittent flaring resulted in the unpermitted release of 3,018 lbs. of SO<sub>2</sub> to the atmosphere.

### July 2012

On July 5, 2012, hydrocarbon flaring occurred three separate times resulting in the total unpermitted release of 241 lbs. of SO<sub>2</sub> to the atmosphere that day. At 1:49 a.m., operators noted a low level condition in drum 27-D-101 during a caustic change out which allowed propane to enter the quench drum 32-D-103 elevating the flare header pressure. Operators closed the drain to 32-D-101 to relieve pressure on the flare header. At 3:38 a.m., the Continuous Catalyst Regenerator Reformer's ("CCR") recontact compressor 42-K-2C tripped due to high liquid level in the 1<sup>st</sup> stage suction drum. Operators blew down the suction drum to end the flaring. Lastly, at 9:53 a.m. operators attempted to shift all of the low line gases from the main refinery gas plant to the FCU gas plant for a test run. The low line pressure increased above the recovery compressor pumping capacity and flaring commenced. Flaring ended when operators reverted to the original configuration.

On July 9, 2012, hydrocarbon flaring occurred when the CCR recontact compressor 42-K-2B tripped. The back up machine, 42-K-2C was started to end the flaring. This flaring event resulted in the unpermitted release of 178 lbs. of SO<sub>2</sub> to the atmosphere.

On July 10, 2012, flaring started when the flare header pressure exceeded 19.5 inches of water. Operators discovered PSV-5A, the 2<sup>nd</sup> stage PSV for recontact compressor 42-K-2A, leaking to the flare header. Flaring ceased when operators started back up compressor 42-K-2B. This flaring event resulted in the unpermitted release of 137 lbs. of SO<sub>2</sub> to the atmosphere.

### August 2012

On August 6, 2012, hydrocarbon flaring occurred when the flare header pressure exceeded 19.5 inches water. Operators discovered the recontact compressor 42-K-2B had tripped offline. Flaring ended when operators started back up compressor 42-K-2C. This flaring event resulted in the unpermitted release of 425 lbs. of SO<sub>2</sub> to the atmosphere.

On August 26, 2012, hydrocarbon flaring occurred when the FCU WGC 22-K-302B, experienced a drop in rpm and when 22-K-302A tripped due to a high liquid level in suction drum 22-D-7. Flaring ended when the flare header pressure dropped below 19.5 inches of water. This flaring event resulted in the unpermitted release of 3,556 lbs. of SO<sub>2</sub> to the atmosphere.

On August 28-29, 2012, hydrocarbon flaring occurred when the flare header pressure exceeded 19.5 inches of water as a result of a tide flop in the Delaware River. Intermittent flaring occurred over the two days for a total of one hour resulting in the unpermitted release of 190 lbs. of SO<sub>2</sub> to the atmosphere.

### October 2012

On October 30, 2012, hydrocarbon flaring occurred when the flare header pressure exceeded 19.5 inches of water as the result of a high level in the FCU weathering drum 22-D-123. Flaring ended when operators lowered the drum level. This flaring event resulted in the unpermitted release of 295 lbs. of SO<sub>2</sub> to the atmosphere.

### November 2012

On November 17, 2012, hydrocarbon flaring occurred when the flare header pressure exceeded 19.5 inches of water as the result of 21-PSV-1088A leaking to the flare header. Flaring ended when operators isolated this PSV. This flaring event resulted in the unpermitted release of 318 lbs. of SO<sub>2</sub> to the atmosphere.

A Notice of Violation for the violations associated with the flaring incidents occurring in the June through September 2011 time period, was issued to Respondent on December 15, 2011. A Notice of Violation for the violations associated with the flaring incidents occurring in the October through December 2011 time period, was issued to Respondent on March 26, 2012. A Notice of Violation for the violations associated with the flaring incidents in the February through May 2012 time period and the those associated with the February 12, 2012 FCU COB outage, was issued to Respondent on August 13, 2012. A Notice of Violation for the violations associated with the flaring incidents occurring in the July 2012 through December 2012 time period, was issued to Respondent on March 19, 2013.

### JANUARY 16, 2013 – JANUARY 28, 2013 FCU COB OUTAGE VIOLATIONS

The FCU is equipped with a COB and WGS train as pollution control devices to control carbon monoxide (“CO”), NO<sub>x</sub>, SO<sub>2</sub> and particulate matter (“PM”) emissions. The FCU is also equipped with a Back-Up Incinerator (“BUI”) which is permitted to operate during periods when the COB is down to control CO and PM emissions. The BUI does not control NO<sub>x</sub> emissions because the NO<sub>x</sub> control device is a selective non-catalytic reduction (“SNCR”) system located in the FCU COB. The BUI also does not control SO<sub>2</sub> emissions as they are controlled in the downstream of the WGS train. The FCU and its related units are currently governed by Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** issued to Respondent on September 7, 2011, pursuant Regulation 1102. The permit, among other things, sets emission limits and operating parameters. The conditions of this permit will be incorporated into Respondent’s Title V Permit.

On January 16, 2013, at 8:55 p.m., Respondent initiated the transfer of flue gas from the FCU COB to the BUI in order to make repairs to the leaking steam tubes in the FCU COB. However, the BUI experienced instrumentation problems and tripped at 9:26 p.m. At 9:50 p.m. the flue gas was once again diverted back through the FCU COB and WGS train. Respondent was able to return the BUI to service at 10:08 a.m. on January 21, 2013, and continued to utilize the BUI until 3:25 p.m. on January 28, 2013, when repairs to the FCU COB were completed and the unit was returned to service.

During the time period between the trip of the BUI at 9:26 p.m. on January 16, 2013 and the successful redirection of the flue gas back to the FCU COB and WGS train at 9:50 p.m. on January 16, 2013, Respondent experienced emissions of 15,700 lbs. of CO; 523 lbs. of H<sub>2</sub>S; 211 lbs. of NH<sub>3</sub>; and 25 lbs. of HCN, all in excess of its permitted limits. In addition, Respondent had an exceedance of the CO emission standard of 500 ppm @ 0% O<sub>2</sub> on an hourly average from 9:00 p.m. and 10:00 p.m. that same day. Finally, between 8:55 p.m. on January 16, 2013,

and 3:25 p.m. on January 28, 2013, Respondent experienced the unpermitted release of 527,000 lbs. of SO<sub>2</sub>.

A Notice of Violation addressing the above listed violations was issued to Respondent on May 28, 2013.

### ***FINDINGS OF FACT***

1. The Department issued Permit: **APC-82/0981 – CONSTRUCTION(Amendment 9)(NSPS)** to Respondent on February 3, 2011, pursuant to 7 DE Admin. Code 1102 (“Regulation 1102”) authorizing certain maintenance, repair, and replacement activities designed to facilitate effective and efficient performance of the FCCU.
2. The Department issued Title V Permit Parts 1 and 2 to Respondent on April 5, 2011 pursuant to 7 DE Admin. Code 1130, Delaware’s *Title V State Operating Permit Program*. Among the emission units governed by this permit is operation of the FCCU and its related units as well as the refinery blowdown system which includes a flare system.
3. The Department issued Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** to Respondent on September 7, 2011, pursuant to Regulation 1102 for the operation of the FCCU and its related units, the COB, WGS train and BUI. The conditions of this permit will be incorporated in the next Title V Renewal Permit.
4. From October 2, 2011 through October 25, 2011, the FCCU COB was bypassed as a result of a tube leak (“FCCU COB outage”) and during that time period, Respondent experienced the unpermitted released of 2,334 lbs. of COS; 4,285 lbs. of HCN; 40 lbs. of H<sub>2</sub>S; and 139 lbs. of NH<sub>3</sub>.
5. During the FCCU COB outage, Respondent also experienced 7 days where opacity from the FCCU WGS was greater than 20% for more than 3 minutes in any 1 hour or more than 15 minutes in any 24 hour period. Those days were October 6, 7, 9, 10, 11, 12 and 17, 2011.
6. Respondent failed to report the opacity exceedances that occurred on October 10 and 11 on both the 2011 compliance certification as well as the 2<sup>nd</sup> half 2011 semi-annual report.
7. During a construction to operation inspection for Permit: **APC-82/0981 – CONSTRUCTION(Amendment 9)(NSPS)**, including records review, the Department discovered that the FCCU SO<sub>2</sub> CEMS was out of control at various times in the 4<sup>th</sup> quarter of 2011 and the 1<sup>st</sup> quarter of 2012 and as a result, had not obtained the minimum of 22 days of valid emission data every 30 rolling successive calendar days for a total of 105 days.

8. Although Respondent's Title V permit allows for the operation of the flare system, whose primary function is to safely burn waste gases from process operations, it does not authorize the emission of any air pollutant from the flares, so that operation of the flares with any emission of air pollutant constitutes the discharge of an air contaminant without a permit.
9. From June 2011, through December 2012, Respondent experienced hydrocarbon flaring episodes on 46 days resulting in the unpermitted release of air pollutants.
10. Respondent failed to report the flaring incidents that occurred in the first half of 2011 as deviations on its semi-annual report submitted to the Department on July 27, 2011.
11. In addition to the unpermitted release of air contaminants to the atmosphere from the flare system on February 12, 2012, Respondent also experienced the unpermitted release of air contaminants to the atmosphere from the FCU COB, as well as several other permit violations resulting from the FCU COB tripping offline.
12. The FCU COB and WGS train are control devices used to reduce CO, NO<sub>x</sub>, SO<sub>2</sub> and PM emissions from the FCU. The BUI is used when the FCU COB and WGS train are not operational, however the BUI is only able to control CO and NO<sub>x</sub> emissions.
13. At 8:55 p.m. on January 16, 2013, Respondent commenced the transfer of flue gas from the FCU COB and WGS train to the BUI in order to perform repairs to leaking steam tubes in the FCU COB.
14. The BUI experienced instrumentation problems and tripped at 9:26 p.m. on January 16, 2013. At 9:50 p.m. on January 16, 2013, the flue gas was once again diverted to the FCU COB and WGS train.
15. The BUI was returned to service at 10:08 a.m. on January 21, 2013, and the flue gas was vented through the BUI from that point until 3:25 p.m. on January 28, 2013, when repairs to the FCU COB were completed.
16. From 9:26 p.m. and 9:50 p.m. on January 16, 2013, Respondent experienced excess emissions of 15,700 lbs. CO; 523 lbs. H<sub>2</sub>S; 211 lbs. NH<sub>3</sub>; and 25 lbs. HCN, all in excess of its permitted limits.
17. From 9:00 p.m. and 10:00 p.m. on January 16, 2013, Respondent exceeded its permitted hourly CO emission standard of 500 ppm @ 0% O<sub>2</sub>.
18. Between 8:55 p.m. on January 16, 2013, and 3:25 p.m. on January 28, 2013, the FCU COB outage resulted in the unpermitted release of a total of 527,000 lbs. SO<sub>2</sub> to the atmosphere.

## **STATUTORY, REGULATORY AND PERMIT PROVISIONS**

1. Forty C.F.R. § 60.104(d) states:

*A minimum of 22 valid days of data shall be obtained every 30 rolling successive calendar days when complying with paragraph (b)(1) of this section.*

2. Seven Del. C. § 6003(a)(1) 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.”*

3. Condition 3(c)(2)(i) of Permit: **AQM-003/00016 – Part 2 (Revision 5)** states:

*“The Owner and/or Operator shall submit to the Department a report of any required monitoring not later than the first day of August (covering the period from January 1 through June 30 of the current calendar year) and the first day of February (covering the period July 1 through December 31 of the previous calendar year) of each calendar year. Each report shall identify any deviations from the monitoring, record keeping, and reporting requirements under this permit; and the probable cause of the deviations; and any corrective actions or preventative measures taken. If no deviations have occurred, such shall be stated in the report.”*

4. Condition 3(c)(3)(i) of Permit: **AQM-003/00016 – Part 2 (Revision 5)** states in part:

*“Compliance with terms and conditions of this permit shall be certified to the Department not later than the first day of February of each year unless the terms or conditions in Condition 3– Table 1 of this permit require compliance certifications to be submitted more frequently. Such certification shall cover the previous calendar year and shall be submitted on Form AQM-1001BB.”*

5. Condition 3, Table 1(e)(10)(i)(A) of Permit: **AQM-003/00016 – Part 2 (Revision 5)** 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.”*

6. Condition 2.2 of Permit: **APC-82/0981 – CONSTRUCTION(Amendment 9)(NSPS)** states:

*“The opacity from the FCCU WGS stack shall not be greater than 20% opacity for an aggregate of more than 3 minutes in any 1 hour or more than 15 minutes in any 24 hour period.”*

7. Condition 3(c)(2)(ii)(C) of Permit: **AQM-003/00016 – Part 1 (Renewal 1) (Rev 5)** states:

*“All emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department in a written report pursuant to Condition 3(c)(2)[i] and/or the specific reporting requirements listed in Condition 3 – Table 1 of this permit.”*

8. Condition 2.1.5.1 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** states:  
*“Emission Limitations: Carbon Monoxide (CO) Emissions: CO: 500 ppmvd @ 0% O<sub>2</sub> on an hourly average, 200 ppmvd @ 0% O<sub>2</sub> on a rolling 365-day average, and 694.4 TPY.”*
9. Condition 2.1.5.3 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** states:  
*“Emission Limitations: Carbon Monoxide (CO) Emissions: The Company 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.”*
10. Condition 2.1.7 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** states:  
*“Emission Limitations: Ammonia (NH<sub>3</sub>) Emissions: NH<sub>3</sub>: 2.3 lb/hour and 10.2 TPY.”*
11. Condition 2.2 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** states:  
*“The opacity from the FCU WGS stack or the back up incinerator stack, when it is operating, shall not be greater than 20% 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 violated 40 C.F.R. § 60.104(d) when the FCCU SO<sub>2</sub> CEMS was out of control at various times during the 4<sup>th</sup> quarter of 2011 and the 1<sup>st</sup> quarter of 2012 and subsequently failed to obtain a minimum of 22 days of valid emission data every 30 rolling successive calendar days for a total of 105 days.
2. Respondent violated 7 Del. C. § 6003(a)(1) during the FCCU COB outage from October 2, 2011 through October 25, 2011, with the unpermitted release of 2,334 lbs of COS; 4,285 lbs of HCN; 40 lbs of H<sub>2</sub>S and 139 lbs of NH<sub>3</sub> into the atmosphere, thereby causing or contributing to the discharge of an air contaminant.
3. Respondent violated Condition 3, Table 1(e)(10)(i)(A) of Permit: **AQM-003/00016 – Part 2 (Revision 5)** and Condition 2.2 of Permit: **APC-82/0981 –**

**CONSTRUCTION(Amendment 9)(NSPS)** when during the FCCU COB outage, it experienced opacity greater than 20% for greater than 3 minutes in any 1 hour or more than 15 minutes in any 24 hour period from the FCCU WGS on October 6, 7, 9, 10, 11, 12 and 17, 2011.

4. Respondent violated Condition 3(c)(2)(i) of Permit: **AQM-003/00016 – Part 2 (Revision 5)** by failing to identify deviations of the opacity emissions standard of the FCCU WGS that occurred on October 10 and October 11, 2011, in the semi-annual report for the first half of 2011.
5. Respondent violated Condition 3(c)(3)(i) of Permit: **AQM-003/00016 – Part 2 (Revision 5)** by failing to certify the opacity exceedances from the FCCU WGS that occurred on October 10 and October 11, 2011, in the 2011 compliance certification.
6. Respondent violated 7 *Del. C.* § 6003(a)(1) with the unpermitted release of CO, SO<sub>2</sub> and H<sub>2</sub>S into the atmosphere from hydrocarbon flaring episodes on the dates described in the Background Section of this Order, thereby causing or contributing to the discharge of an air contaminant.
7. Respondent violated 7 *Del. C.* § 6003(a)(1) with the unpermitted release of CO, SO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub> and HCN into the atmosphere from the FCU COB on February 12, 2012, thereby causing or contributing to the discharge of an air contaminant.
8. Respondent violated Condition 3(c)(2)(ii)(C) of Permit: **AQM-003/00016 – Part 1 (Renewal 1) (Rev 5)** by failing to report as deviations in the semi-annual report for the first half of 2011, the emissions that created a condition of air pollution resulting from the flaring events as described in the Background Section of this Order.
9. Respondent violated Condition 2.1.5.1 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** by exceeding the hourly CO concentration based emission standard of 500 ppm dry @ 0% O<sub>2</sub> for a total of 12 hours when the FCU COB tripped offline on February 12, 2012.
10. Respondent violated Condition 2.1.5.3 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** by emitting CO from the FCU COB for 11 hours and 19 minutes that had not been burned at the minimum 1300 degrees F due to the furnace temperature falling below 1300 degrees F when the FCU COB tripped offline on February 12, 2012.
11. Respondent violated Condition 2.2 of Permit: **APC-81/0829-OPERATION (Amendment 8)(PSD-NSR)** when opacity from the FCU WGS stack was greater than 20% for 11 hours and 59 minutes as a result of the FCU COB tripping offline on February 12, 2012.
12. Respondent violated 7 *Del. C.* § 6003(a)(1) during the FCU COB outage from January 16, 2013 through January 28, 2013, with the unpermitted release of 527,000

lbs of SO<sub>2</sub> into the atmosphere thereby causing or contributing to the discharge of an air contaminant.

13. Respondent violated the hourly average CO limit of Condition 2.1.5.1 of Permit: APC-81/0829-OPERATION (Amendment 8)(PSD-NSR) when operation of the FCU caused emissions of CO to exceed 500 ppm dry at 0% O<sub>2</sub> from 9:00 p.m. and 10:00 p.m. on January 16, 2013.
14. Respondent violated Condition 2.1.5.3 of Permit: APC-81/0829-OPERATION (Amendment 8)(PSD-NSR) when CO was emitted from the FCU without combusting it at 1300 degrees Fahrenheit for a minimum of 0.3 seconds between 9:26 p.m. and 9:50 p.m. on January 16, 2013.
15. Respondent violation of Condition 2.1.5.3 of Permit: APC-81/0829-OPERATION (Amendment 8)(PSD-NSR) also resulted in excess emissions of 523 lbs. of H<sub>2</sub>S and 25 lbs. of HCN between 9:26 p.m. and 9:50 p.m. on January 16, 2013.
16. Respondent violated Condition 2.1.7 of Permit: APC-81/0829-OPERATION (Amendment 8)(PSD-NSR) when operation of the FCU caused NH<sub>3</sub> emissions to exceed the hourly limit of 2.3 lb/hr between 9:26 p.m. and 9:50 p.m. on January 16, 2013, resulting in excess emissions of 211 lbs. of NH<sub>3</sub>.

### ***ASSESSMENT OF PENALTY***

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 \$460,200 for the violations identified in this Assessment and Order and costs according to 7 *Del. C.* § 6005(c). Respondent shall submit a check to the Department in the amount of \$460,200 within 30 days from the receipt of this Assessment and Order for the aforementioned penalty. The check 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-3<sup>rd</sup> Floor, Dover, DE 19904.

### ***PUBLIC HEARING***

This Administrative Penalty Assessment and Order shall become effective and final unless the Department receives from Respondent, no later than 30 days from the receipt of this Notice, a written request for a public hearing on these matters as provided in 7 *Del. C.* § 6005(b)(3) and (c). In the event Respondent requests a hearing, the Department reserves the right to withdraw this Assessment and Order and take additional enforcement actions regarding these and other violations at Respondent's facility, including but not limited to, the imposition of civil penalties and recovery of the Department's costs and attorney's fees. The Department does not otherwise intend to convene a public hearing on these matters, but reserves the right to do so at its discretion.

***PRE-PAYMENT***

Respondent may prepay the administrative penalty of \$460,200 and the Department's estimated costs in the amount of \$69,030 in the manner described in the attached waiver. By doing so, Respondent waives its right to a hearing and the opportunity to appeal or contest the Assessment which shall become a final Order.

If you have any questions, please contact Paul Foster at (302) 323-4542.

Date

7/24/13

  
Collin P. O'Mara, Secretary

cc: Valerie S. Edge, Deputy Attorney General  
Ali Mirzakhali, P.E., Director  
Paul Foster, P.E., Program Manager  
Ravi Rangan, P.E., Engineer  
Dawn Minor, Paralegal  
Jenny Bothell, Enforcement Coordinator  
Dover File

***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 \$460,200 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-3<sup>rd</sup> Floor, Dover, DE 19904; and
2. **Delaware City Refining Company, LLC**, will reimburse the Department in the amount of \$69,030 which represents the Department's estimated costs. The reimbursement shall be paid within 30 days of receipt of this Assessment and Order. The 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-3<sup>rd</sup> Floor, Dover, DE 19904.

**Delaware City Refining Company, LLC**

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

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

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