

PHILLIPS 66
SAN FRANCISCO REFINERY
1380 San Pablo Avenue
Rodeo, CA 94572

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BAY AREA AIR QUALITY
MANAGEMENT DISTRICT



PROVIDING ENERGY. IMPROVING LIVES.

January 27, 2022

ESDR-062-22
05-B-01-C

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Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

1. RECEIVED IN
ENFORCEMENT: 02/01/2022

Attn: Title V Reports

Subject: **Six-month Monitoring Report for July 1, 2021 through December 31, 2021
Phillips 66 Company - Contra Costa Carbon Plant – Plant No. A0022
BAAQMD Plant No. 22 Title V Section I, Part F**

Director:

Phillips 66 is submitting its Monitoring Report covering the period of July 1, 2021 through December 31, 2021 as required by Section I.F in its Title V permit.

If you have any questions or require additional information on the information contained in this report, please contact Wilma Dreessen at (510) 245-5893.

Sincerely,


Jennifer Ahlskog, Team Leader
Environmental Department

Attachments

cc via email: Ms. Roshni Brahmhatt, Manager, Air Enforcement Section (ENF 2-1)
Enforcement and Compliance Assurance Division,
U.S. Environmental Protection Agency, Region 9 (Brahmbhatt.Roshni@EPA.gov)

Air Enforcement Section (AEO_R9@epa.gov)

**BAAQMD Title V Permit
6 Month Deviation Summary Report
From 7/1/2021 to 12/31/2021
Carbon Plant, A0022**

Certification Statement

I certify under penalty of law that based on the information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

x 
Signature of Responsible Official

Richard Harbison
Print Name

V.P., San Francisco Refinery
Title

01/28/2022
Date

BAAQMD Title V Permit 6 Month Deviation Summary Report

From 7/1/2021 to 12/31/2021

A0022 Phillips 66 Company Contra Costa Carbon Plant

Facility Address:

2101 Franklin Canyon Road

Mailing Address:

2101 Franklin Canyon Road

City: Rodeo

City: Rodeo

State: CA

State: CA

Zip Code: 94572-

Zip Code: 94572-

Contact: Wilma Dreesen

Title: Senior Environmental Cons

Phone (510) 245-5893

Title V deviations for the reporting period are summarized below:

Deviation No: 024-21

Event Started: 7/11/2021 8:52 AM

Stopped: 7/11/2021 9:06 AM

Source Number(s): 2

Abatement Device(s) :

Emission Point(s):

May have resulted in a deviation from:

Permit: 136-9

AQMD:

Other:

Event Description: On July 11, 2021, at 8:52 a.m., the Carbon Plant experienced a sudden and complete power outage that likely caused the Kiln 2 exhaust gas to bypass the baghouse emission control system (A-11) and, instead, be routed through the hot stack at Kiln 2 (S-2). This incident was reported to BAAQMD under Breakdown ID 08A48. The power outage caused a shutdown of the kiln, baghouse, and turbine generator. Fresh green coke feed automatically suspended immediately due to loss of power. The hot stack opened automatically at approximately the same time (as designed) to serve as an emergency relief for any excess exhaust gas that, if not released, could have caused a boiler tube rupture. In addition, the ID fan downstream of the hot stack that pulls kiln exhaust air into and through the baghouse system lost power and shut down on Kiln 2. As a result, we suspect the Kiln 2 exhaust air was pulled up the hot stack based on natural updraft, bypassing the baghouse emission control systems. There were no visible emissions from the hot stack during the event. K-2 kiln had been running green coke feed prior to the power outage. There was no feed to Kiln-1 (S-1) prior to the power loss. The PM emissions are estimated based on the soot blowing and baghouse cleaning emissions data from annual source test data of 40 lbs/hr for each kiln. It is estimated that the hot stack for Kiln 2 was open for approximately 5 minutes when the plant electricity was lost. The estimated excess PM emissions from Kiln 2 is 3 lbs based on the 5 minutes the Kiln 2 hot stack may have been open.

Probable Cause: The Carbon Plant produces electricity from waste heat and through use of a steam turbine generator. The cause of the power outage was a broken rheostat, a variable resistor, within the turbine generator. The rheostat is used to adjust the power factor. The power factor is maintained between a certain normal range to avoid any damage to the generator. When the potentiometer experienced a mechanical failure, it caused swinging excitation current. The swinging excitation current caused a swing in output voltage that disrupted the power being sent to the rest of the plant and exported to PG&E. Per design and for protection of the PG&E system, the swinging voltages tripped the breaker between PG&E and the Carbon Plant, resulting in the plant being islanded from PG&E power. The unexpected failure of the potentiometer was due to the minimal wearing of the resistive element that caused the loss of good contact between the resistive element and the sliding contact that moves along the element.

Corrective actions or preventative steps taken: Fresh feed to Kiln 2 stopped when the power went out, minimizing the amount of particulate matter that can bypass the baghouse. Based on the average residence time for the residual green coke to be moved out of the system, it is estimated that particulate emissions at S-2 stopped and were no longer bypassing the baghouse systems after approximately 5 minutes (i.e., the deviation stopped at 9:06 a.m.). Following investigation of the power outage, power was restored to the plant by approximately July 11, 2021 at 9:12 a.m.

May have resulted in a deviation from:

Deviation No: 040-21

Source Number(s): 1

Permit: 136-9

Event Started: 10/24/2021 11:15 AM

Abatement Device(s):

AQMD:

Stopped: 10/24/2021 12:15 PM

Emission Point(s):

Other:

Event Description: On October 24, 2021, 11:15 a.m., the Carbon Plant experienced a sudden and complete power outage due to PG&E power loss caused by abnormally-heavy rains. PG&E's power outage caused the Kiln 1 exhaust gas to bypass the baghouse emission control system (A-10) and, instead, be routed through the hot stack at Kiln 1 (S-1). This incident was reported to BAAQMD under Breakdown ID 08C57. The power outage caused a shutdown of the kiln, baghouse, and turbine generator. Fresh green coke feed automatically suspended immediately due to loss of power. The hot stack opened automatically at approximately the same time (as designed) to serve as an emergency relief for any excess exhaust gas that, if not released, could have caused a boiler tube rupture. In addition, the ID fan downstream of the hot stack that pulls kiln exhaust air into and through the baghouse system lost power and shut down on Kiln 1. As a result, we suspect the Kiln 1 exhaust air was pulled up the hot stack based on natural updraft, bypassing the baghouse emission control systems. There were no visible emissions from the hot stack during the event. K-1 kiln had been running green coke feed prior to the power outage. There was no feed to Kiln-2 (S-2) prior to the power loss and, thus, it was not impacted by this power loss. The PM emissions are estimated based on the soot blowing and baghouse cleaning emissions data from annual source test data of 40 lbs/hr per kiln. The Kiln 1 hot stack was opened at 11:15 a.m. and new green feed was automatically stopped. However, material in the kiln was present until approximately 12:15 p.m.; therefore, particulate emissions through the hot stack were only possible for 1 hour, if at all. The estimated excess PM emissions from Kiln 1 were approximately 40 lbs based on the minutes the Kiln 1 hot stack may have been open, and the quantity of green coke worked through the kiln.

Probable Cause: On October 24, 2021 there was a significant weather event that impacted the Bay Area. During this event a power surge caused by a PG&E power outage occurred due to strong winds and heavy rains. After a brief electrical loss, the hot stack opened as designed for emergency relief. Power was automatically switched to plant power supplied by the turbine generator. After a couple of minutes, a breaker (52T) in the control room was inadvertently closed in an attempt to further restore facility power. This resulted in tripping the generator breaker causing the plant to lose all power.

Corrective actions or preventative steps taken: Fresh feed to Kiln 1 stopped when the power went out, minimizing the amount of particulate matter that can bypass the baghouse. Based on the average residence time for the residual green coke to be moved out of the system, it is estimated that particulate emissions at S-1 stopped and were no longer bypassing the baghouse systems after approximately 60 minutes (i.e., the deviation stopped at 12:15 p.m.). Following investigation of the power outage, power was restored to the plant by approximately October 24, 2021 at 7:00 p.m. Re-training will take place for board operators on reviewing procedures before opening critical electrical equipment.

**BAAQMD Title V Permit
6 Month Monitoring Report**

A0022 Phillips 66 Company Contra Costa Carbon Plant

Facility Address:

2101 Franklin Canyon Road

Mailing Address:

2101 Franklin Canyon Road

City: Rodeo

City: Rodeo

State: CA

State: CA

Zip Code: 94572-

Zip Code: 94572-

Contact: Wilma Dreessen

Title: Senior Environmental Cons

Phone (510) 245-5893

Inoperable monitors as defined by BAAQMD Regulations 1-522 and 1-523 for the reporting period are summarized below:

Started	Stopped	Deviation #	Source (S#)	Abatement Device (A#)	Emission Point (P#)																																																														
8/14/2021	7:35 AM	8/16/2021	10:55 AM	<input checked="" type="checkbox"/> 028-21	1																																																														
<table border="1"> <thead> <tr> <th colspan="2">Fuel</th> <th colspan="2">Opacity/LTA</th> <th colspan="2">Lead Steam Flow</th> <th colspan="2">Wind Speed</th> <th colspan="2">Wind Dir.</th> <th colspan="2">pH</th> <th colspan="2">Temp.</th> <th colspan="2">VOC.</th> <th colspan="2">Gauge Press.</th> </tr> <tr> <th>CEM</th> <th>GLM</th> <th>SO2</th> <th>CO</th> <th>H2S</th> <th>TRS</th> <th>NH3</th> <th>O2</th> <th>CO2</th> <th>H2O</th> <th>Lead</th> <th>Steam</th> <th>Flow</th> <th>Wind</th> <th>Speed</th> <th>Wind</th> <th>Dir.</th> <th>pH</th> <th>Temp.</th> <th>VOC.</th> <th>Gauge</th> <th>Press.</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>						Fuel		Opacity/LTA		Lead Steam Flow		Wind Speed		Wind Dir.		pH		Temp.		VOC.		Gauge Press.		CEM	GLM	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Lead	Steam	Flow	Wind	Speed	Wind	Dir.	pH	Temp.	VOC.	Gauge	Press.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<p>Event Description: The SO2 analyzer failed validation on 8/14/21 at 7:35 a.m. due to blockage in the sample system. The system was disassembled, cleaned, revalidated and returned to service on 8/16/21 at 10:55 a.m.</p>																																																																			
12/18/2021	7:20 AM	12/20/2021	9:45 AM	<input checked="" type="checkbox"/> 055-21	1																																																														
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<p>Event Description: The SO2 analyzer failed validation on 12/18/21 at 7:20 a.m. due to excessive moisture. The zero span was elevated during validation. Maintenance activities were performed on the CEMs which included changing sample filter, tubing cleaning from rotameters, manual calibration, and alarm check. The CEMs was returned to service on 12/20/21 at 9:45 a.m.</p>																																																																			

Started 12/25/2021 7:10 AM Stopped 12/27/2021 9:15 AM Deviation # 057-21 Source (S#) 2 Abatement Device (A#) Emission Point (P#)

12/25/2021 7:10 AM 9:15 AM 057-21 2

Fuel		Opacity/		Wind		Gauge																
CEM	GLM	Gas	Parametric	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	LTA	Lead	Steam	Flow	Wind Dir.	Wind Speed	pH	Temp.	VOC.	
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Event Description: The SO2 analyzer failed validation on 12/25/21 at 7:10 a.m. The analyzer was revalidated and returned to service on 12/27/21 at 9:15 a.m.