



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Gateway Energy & Coke Company, LLC c/o SunCoke Energy, Granite
City, Illinois

FROM: Carlo Demma, Physical Scientist (Env.)
AECAB (MN/OH)

THRU: Brian Dickens, Section Supervisor
AECAB (MN/OH)

TO: File

BASIC INFORMATION

Facility Name: SunCoke Energy - Granite City Operations

Facility Location: 2585 Edwardsville Road, Granite City IL 62040

Date of Inspection: May 16, 2023

EPA Inspector(s):

1. Carlo Demma, Physical Scientist (Env.)
2. Valeria Apolinario, Environmental Engineer

Other Attendees:

1. Mark Chrissos, Environmental Engineer, SunCoke Energy
2. Ralph Kremer, General Manager, SunCoke Energy
3. Dan Alexander, Safety Manager, SunCoke Energy

Contact Email Address: mwchrissos@suncoke.com

Purpose of Inspection: EPA conducted this inspection to determine compliance with air pollution requirements of the Illinois State Implementation Plan (IL SIP), and SunCoke Company's Construction Permit No: 06070020. Gateway Energy & Coke Company, LLC c/o SunCoke Energy Company (SunCoke) are subject to requirements of a Consent Decree (CD) which was filed on June 26, 2013.

Facility Type: Stationary heat recovery coal carbonization facility.

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Regulations Central to Inspection: Facility is subject to 40 CFR Part 63, Subpart L. The common tunnel is required to have 0% leaks and must maintain negative pressure. SunCoke Company's Construction Permit No: 06070020 contains charging and pushing, quenching, and individual stack opacity limitations. The June 26, 2013 CD contains requirements for observing and stopping coke oven leaks.

Arrival Time: 1:45PM
Departure Time: 6:00PM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Mark Chrissos unless otherwise noted.

Process Description:

SunCoke operates 120 ovens arranged in three 40-oven batteries at this site, labeled A, B, and C Battery. Coal is placed inside the one hundred twenty (120) nonrecovery coke ovens, and is then heated by recirculating combusted gas, but can also be supplemented by natural gas. The combusted flue gas is directed through heat recovery steam generators (HRSGs) where the residual heat is extracted, and steam is produced. The batteries are referred to as "non-recovery" and are operated under constant negative pressure, with emissions controlled by one a lime spray dryer desulfurization unit and one baghouse that removes entrained ash. Carbon is injected into the gas stream upstream of the spray dryer absorber to remove mercury. All waste gas emissions exhaust through one main stack, and occasionally through some of the seven bypass vent stacks distributed over the three batteries. One HRSG typically serves 20 ovens when gas sharing is not available. The finished coke is pushed from the oven, quenched with water, screened to remove fine material and delivered to the customer.

Staff Interview: SunCoke is currently in the process of completing a HRSG repair on HRSG #7. EPA was informed that SunCoke's current coal quality was 0.9% Sulfur, 7% ash, and 26.99% VM. A full FGD maintenance outage is performed once every two years.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

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EPA completed a tour of the A, B, and C Battery, on both the ground and walking on top of the batteries, notating and photographing indicators of oven health. The main indicators are summarized below. The details of the battery inspection can be found in Appendix A and Appendix B.

- EPA noted these types of coke oven batteries do not have topside port lids, offtake system(s), bypass/bleeder stacks, or collecting mains. All battery common tunnels read negative magnehelic differential pressures.
- EPA noted several instances of damage to the common tunnel and uptakes.
- EPA noted several damaged doors. The facility is subject to the IL SIP 35, IAC 212.443(d)(1), which states no person shall cause or allow visible emissions from more than 10 percent of all coke oven doors at any time.
- EPA noted several inspection bricks near sole flues were missing the Kaowool insulation wrap.
- EPA noted several pressure port openings on the battery where individual pressure gauges from a legacy project were removed and/ or damaged.
- EPA noted visible emissions from an inspection port, which was corrected immediately by adjusting damper position.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- SunCoke's Coke Battery Work Practice Plan.
- All 2022 quarterly deviation reports to present day applicable report (Q1 of 2022 to Present Q of 2023).
- Daily visible emissions observations of charging control device.

Concerns: EPA pointed out multiple indicators of oven health and good air pollution control practices. EPA stated that additional opening and holes in the battery were not intended in the original design of the battery. SunCoke agreed to work expeditiously to resolve the issues.

DIGITAL SIGNATURES

Report Author: **CARLO DEMMA**  Digitally signed by
CARLO DEMMA
Date: 2023.07.13
18:11:30 -05'00'

Section Supervisor: **Brian Dickens**  Digitally signed by Brian
Dickens
Date: 2023.07.14
06:29:50 -05'00'

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APPENDICES AND ATTACHMENTS

1. Appendix A. Digital Image Log
2. Appendix B. Oven Health Indicators Data

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: 2. Valeria Apolinario	2. Archival Record Location: <i>Region 5 Digital Electronic Records Center</i>
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Image Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	IMG_0395.JPG	2023:05:16 16:49:02	Broken individual pressure gauge
2	IMG_0396.JPG	2023:05:16 16:49:06	Broken individual pressure gauge
3	IMG_0397.JPG	2023:05:16 16:53:14	Broken individual pressure gauge
4	IMG_0398.JPG	2023:05:16 16:55:07	Broken individual pressure gauge
5	IMG_0399.JPG	2023:05:16 17:10:49	Damaged Coke Door
6	IMG_0400.JPG	2023:05:16 17:14:54	Damaged Coke Door
7	IMG_0401.JPG	2023:05:16 17:31:01	Damaged Coke Door
8	IMG_0402.JPG	2023:05:16 17:33:17	Damaged Coke Door
9	IMG_0403.JPG	2023:05:16 17:33:34	Damaged Coke Door
10	IMG_0404.JPG	2023:05:16 17:42:08	Damaged Coke Door
11	IMG_0405.JPG	2023:05:16 17:46:50	Damaged Coke Door
12	IMG_0406.JPG	2023:05:16 17:54:23	Common tunnel hole/damage
13	IMG_0408.JPG	2023:05:16 18:04:11	Inspection port damage
14	IMG_0409.JPG	2023:05:16 18:11:14	Damaged individual oven pressure sensor
15	IMG_0410.JPG	2023:05:16 18:15:23	Common tunnel damage
16	IMG_0411.JPG	2023:05:16 18:29:55	Uptake seal shifted / improperly seated
17	IMG_0412.JPG	2023:05:16 18:32:49	Uptake seal shifted / improperly seated
18	IMG_0413.JPG	2023:05:16 18:32:54	Uptake seal shifted / improperly seated

APPENDIX B: OVEN HEALTH INDICATORS DATA

Common Tunnel & Uptakes

Oven Observation	Location	Time	NOTE
C-107	C/S	3:55 PM	HOLE IN COMMON TUNNEL
B-65	P/S	4:55 PM	HOLE IN COMMON TUNNEL; Photo
A-14	C/S	5:25 PM	HOLE IN COMMON TUNNEL
B-60	C/S	n/a	POOR UPTAKE SEAL; SHIFTING; SULFUR SMELL; Photo (2)
A-22	C/S	n/a	HOLE IN COMMON TUNNEL; Photo
B-57	C/S	n/a	POOR UPTAKE SEAL AT TOP AND BOTTOM; SHIFTING; Photo

Magnehelic Differential Pressure

Magnehelic Differential Pressure Observation (d/P)	Location	Time
-0.036	C-81	3:29 PM
-0.07	C-120	3:53 PM
-0.146	B-41	5:00 PM
-0.202	A-1	5:20 PM
-0.048	B-80	5:41 PM

Door Degradation

Oven Observation	Location	NOTE
B-54	C/S	DOOR JAM; LEFT SIDE; Photo
A-26	C/S	DOOR JAM; LEFT SIDE; Photo
A-11	C/S	CURRENT/ON-GOING REPAIR
A-29	P/S	LINTEL DAMAGE; Photo
A-28	P/S	LINTEL DAMAGE; RIGHT SIDE; Photo
A-27	P/S	DOOR JAM; LEFT SIDE; Photo
B-53	P/S	DOOR FRAME; RIGHT SIDE; Photo
B-71	P/S	DOOR; LEFT SIDE; Photo
C-88	C/S	DOOR JAM; RIGHT SIDE
C-89	C/S	DOOR JAM; LEFT SIDE
C-92	C/S	DOOR JAM; LEFT SIDE
C-97	C/S	DOOR JAM; RIGHT SIDE
C-105	C/S	TOP OF DOOR; RIGHT SIDE
C-108	C/S	TOP OF DOOR; LEFT SIDE
C-112	C/S	TOP OF DOOR; RIGHT SIDE

Inspection Bricks

Oven Observation	Location	NOTE
A-19	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; LEFT SIDE; Photo
A-36	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; LEFT SIDE
B-43	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; BOTH SIDES

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B-47	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; RIGHT SIDE
B-51	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; RIGHT SIDE
B-52	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; LEFT SIDE
B-56	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; RIGHT SIDE
B-62	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; RIGHT SIDE
B-75	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; BOTH SIDES
B-79	P/S	MISSING KAE-WOOL ON INSPECTION BRICK; BOTH SIDES

Individual Oven Sensor Issues

Oven Observation	Location	Time	NOTE
C-117	C/S	n/a	SCREEN BROKEN
C-116	C/S	n/a	SCREEN BROKEN
C-115	C/S	n/a	SCREEN BROKEN
C-114	C/S	n/a	INDICATED POSITIVE READING; 0.7 at 3:53PM
C-112	C/S	n/a	FLASHING O-L
C-113	C/S	n/a	SCREEN BROKEN
C-109	C/S	n/a	SCREEN BROKEN
C-107	C/S	n/a	SCREEN BROKEN
C-106	C/S	n/a	FLASHING O-L
C-103	C/S	n/a	SCREEN BROKEN
C-102	C/S	n/a	INDICATED POSITIVE READING; 0.18 at 3:59PM
C-100	C/S	n/a	SCREEN BROKEN
C-99	C/S	n/a	SCREEN BROKEN
C-98	C/S	n/a	SCREEN BROKEN
C-95	C/S	n/a	SCREEN BROKEN
C-86	C/S	n/a	SCREEN BROKEN
C-82	C/S	n/a	SCREEN BROKEN
C-88	C/S	n/a	SCREEN BROKEN
C-89	C/S	n/a	SCREEN BROKEN
C-90	C/S	n/a	SCREEN BROKEN
B-58	C/S	n/a	INDICATED POSITIVE READING; 0.02 at 5:31PM
B-61	C/S	n/a	INDICATED POSITIVE READING; 0.17 at 5:35PM
A-1-56	C/S	n/a	SCREEN BROKEN; 56
A-59	C/S	n/a	SCREEN BROKEN
A-62	C/S	n/a	SCREEN BROKEN
A-66-70	C/S	n/a	SCREEN BROKEN; 5
A-76-80	C/S	n/a	SCREEN BROKEN; 5

Oven Sensor Port Openings

Oven Observation	Location	Time	NOTE
A-6	C/S	n/a	Photo

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A-8	C/S	n/a	
A-16	C/S	n/a	
A-18	C/S	n/a	
A-22	C/S	n/a	
A-24	C/S	n/a	
A-26	C/S	n/a	
A-31	C/S	n/a	
A-32	C/S	n/a	
A-33	C/S	n/a	
A-35	C/S	n/a	
A-37	C/S	n/a	
A-39	C/S	n/a	
A-40	C/S	n/a	
B-42	C/S	n/a	
B-43	C/S	n/a	
B-44	C/S	n/a	
B-46	C/S	n/a	
B-48	C/S	n/a	
B-52	C/S	n/a	
B-54	C/S	n/a	
B-55	C/S	n/a	
B-56	C/S	n/a	
B-57	C/S	n/a	
B-58	C/S	n/a	
B-59	C/S	n/a	
B-60	C/S	n/a	
B-61	C/S	n/a	
B-74	C/S	n/a	
B-77	C/S	n/a	
C-118	C/S	n/a	

Coke Oven Leaks

Oven Observation	Location	Time	NOTE
B-41	P/S	4:59 PM	Inspection port leaking VE's; video
A-22	P/S	5:09 PM	INSPECTION PORT PARTIALLY MELTED; NO VE