



West Virginia E-Filing Notice

CC-20-2024-C-773

Judge: Stephanie Abraham

To: W. Calwell
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NOTICE OF FILING

IN THE CIRCUIT COURT OF KANAWHA COUNTY, WEST VIRGINIA
CATHY DARLENE FLINT v. UNION CARBIDE CORPORATION
CC-20-2024-C-773

The following complaint was FILED on 7/15/2024 3:37:13 PM

Notice Date: 7/15/2024 3:37:13 PM

Cathy S. Gatson
CLERK OF THE CIRCUIT COURT
Kanawha County
P.O. Box 2351
CHARLESTON, WV 25301

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COVER SHEET

E-FILED | 7/15/2024 3:37 PM
CC-20-2024-C-773
Kanawha County Circuit Clerk
Cathy S. Gatson

GENERAL INFORMATION

IN THE CIRCUIT COURT OF KANAWHA COUNTY WEST VIRGINIA
CATHY DARLENE FLINT v. UNION CARBIDE CORPORATION

First Plaintiff: Business Individual Government Other

First Defendant: Business Individual Government Other

Judge: Stephanie Abraham

COMPLAINT INFORMATION

Case Type: Civil

Complaint Type: Tort

Origin: Initial Filing Appeal from Municipal Court Appeal from Magistrate Court

Jury Trial Requested: Yes No **Case will be ready for trial by:** 12/1/2025

Mediation Requested: Yes No

Substantial Hardship Requested: Yes No

Do you or any of your clients or witnesses in this case require special accommodations due to a disability?

- Wheelchair accessible hearing room and other facilities
- Interpreter or other auxiliary aid for the hearing impaired
- Reader or other auxiliary aid for the visually impaired
- Spokesperson or other auxiliary aid for the speech impaired
- Other: _____

I am proceeding without an attorney

I have an attorney: W. Calwell, 500 Randolph St , Charleston, WV 25302

SERVED PARTIES (only first 10 parties are listed)

Name: UNION CARBIDE CORPORATION
Address: CT Corporation System 5098 Washington St., W, STE 407, Charleston WV 25313
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: THE DOW CHEMICAL COMPANY
Address: CT Corporation 5098 Washington St., W, STE 407, Charleston WV 25313
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: COVESTRO LLC
Address: Corporation Service Company 209 West Washington St., Charleston WV 25302
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: BAYER CROPSCIENCE LP
Address: Corporation Service Company 209 West Washington St., Charleston WV 25302
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: SPECIALTY PRODUCTS US, LLC
Address: CT Corporation System 5098 Washington St., W, STE 407, Charleston WV 25313
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: AVENTIS CROPSCIENCE USA HOLDING LP
Address: Corporation Service Company 251 Little Falls Dr., Wilmington DE 19808
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: ARCO CHEMICAL COMPANY
Address: CT Corporation System 1627 Quarrier St., Charleston WV 25311
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: LYONDELL CHEMICAL COMPANY
Address: CT Corporation System 5098 Washington St., W, STE 407, Charleston WV 24313
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: RHONE-POULENC AG COMPANY INC.
Address: The Corporation Trust Company Corporation Trust Center 1209 Orange St., Wilmington DE 19801
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

Name: ALTIVIA SERVICES, LLC
Address: 1100 Louisiana St. Suite 4800, Houston TX 77002
Days to Answer: 30 **Type of Service:** Filer - Secretary of State

IN THE CIRCUIT COURT OF KANAWHA COUNTY, WEST VIRGINIA

CATHY DARLENE FLINT,

Plaintiff,

v.

Civil Action No. _____

UNION CARBIDE CORPORATION,

A foreign corporation;

THE DOW CHEMICAL COMPANY,

A foreign corporation;

**COVESTRO LLC, f/k/a BAYER MATERIAL SCIENCE, f/k/a BAYER POLYMERS,
LLC,**

A foreign corporation;

BAYER CROPSCIENCE LP,

A foreign corporation;

SPECIALTY PRODUCTS US, LLC,

A foreign corporation;

AVENTIS CROPSCIENCE USA HOLDING LP,

A foreign corporation;

ARCO CHEMICAL COMPANY,

A foreign corporation;

LYONDELL CHEMICAL COMPANY,

A foreign corporation;

RHONE POULENC INSTITUTE PLANT, f/k/a RHONE POULENC AG COMPANY,

A foreign corporation having its principal place of business in Charleston, West Virginia;

ALTIVIA SERVICES, LLC,

A foreign corporation having its principal place of business in Institute, West Virginia;

BROUGHTON FOODS LLC, f/k/a BROUGHTON FOODS COMPANY,

A foreign corporation;

**MID-ATLANTIC TECHNOLOGY, RESEARCH & INNOVATION CENTER,
INCORPORATED,**

A West Virginia corporation;

CHARLESTON AREA MEDICAL CENTER, INC.,

A West Virginia corporation;

VANDALIA HEALTH, INC., d/b/a CAMC Health System

A West Virginia corporation; and

THOMAS HEALTH SYSTEM, INC.

A West Virginia corporation;

Defendants.

COMPLAINT

Now comes Plaintiff Cathy Darlene Flint, ("Plaintiff"), and for her complaint alleges as follows:

INTRODUCTION

1. Plaintiff brings this action against Union Carbide Corporation, a wholly owned subsidiary of The Dow Chemical Company, (hereafter UCC or Union Carbide); The Dow Chemical Company, as successor by merger to Union Carbide and in its own right, (hereafter Dow); Covestro LLC (f/k/a Bayer Material Science, f/k/a Bayer Polymers, LLC) (hereafter Covestro); Bayer Cropscience LP, (hereafter Bayer CS); Specialty Products US, LLC (hereinafter Specialty Products); Aventis CropsScience USA Holding LP (hereafter Aventis); ARCO Chemical Company (hereafter Arco); Lyondell Chemical Company, as successor by merger with Arco and in its own right (hereafter Lyondell); Rhone Poulenc Institute Plant (f/k/a Rhone Poulenc AG Company) (hereafter Rhone Poulenc); ALTIVIA Services, LLC (hereafter Altivia); Broughton Foods, LLC (f/k/a Broughton Foods Company) (hereafter Broughton); Mid-Atlantic Technology, Research & Innovation Center, Inc. (hereafter MATRIC); Charleston Area Medical Center, Inc.; (hereafter CAMC); Vandalia Health, Inc., (d/b/a CAMC Health System) (hereafter Vandalia); and Thomas Health System, Inc. (hereafter Thomas Health), for damages resulting from Defendants' dangerous, negligent, harmful, and reckless emission of Ethylene Oxide gas.

2. Ethylene Oxide (hereafter "Ethylene Oxide" or "EtO") is a powerful cancer-causing gas. The United States Environmental Protection Agency (EPA), the National Toxicology Program, the World Health Organization (WHO), and the International Agency for Research on Cancer (IARC) all classify EtO as a known human carcinogen. This compound is

an intermediate product which is further processed to make various industrial and commercial products including, but not limited to, poly vinyl chloride plastics and ethylene glycol-based antifreeze. EtO has been used and/or continues to be used to manufacture these products at the chemical manufacturing plants and research facilities in Institute and South Charleston, West Virginia.

3. EtO is also used as a sterilizer by many industries due to its potent nature to destroy the DNA and thus killing viruses, fungi, and other potentially harmful microbes. It has a wide application of use for items that need to be sterilized which cannot use less dangerous processes such as heat and steam due to degradation and/or destruction heat and steam would cause on those items. This use of EtO has been employed by the Defendants CAMC and Thomas Health to sterilize medical devices. Additionally, Broughton used EtO in sterilization of their processing of milk for consumption. The use of an EtO sterilization process by the named non-chemical processing Defendants results in the emission of EtO into the environment through venting processes utilized to potentially shield workers in the sterilization processes from the harmful DNA mutating properties of EtO in Charleston and South Charleston, West Virginia.

4. Defendant Union Carbide manufactured large volumes of EtO at its Institute, West Virginia facility until at least 1972, making use of it at its Institute and South Charleston plants as well as selling it to other Defendants for their manufacturing processes. Once Union Carbide no longer manufactured EtO locally, Union Carbide imported the product from its own manufacturing plants in Texas and Louisiana, for its own use in South Charleston and for sale to other entities, including the remaining chemical manufacturing Defendants' use in Institute and/or South Charleston, West Virginia.

5. Ethylene Oxide is highly reactive and corrosive resulting in the need for special equipment for its manufacture, transport, storage and use, yet the Defendants have allowed many points of emission of EtO gas, including from equipment used to ship and unload the product, from connections in pipe sections, from flare stacks and other purposeful venting into the Kanawha Valley and in the processes which use EtO as an intermediate product and/or used as a sterilizer. This toxic gas is released into the atmosphere by Defendants operating manufacturing facilities and sterilizing facilities in both controlled and uncontrolled releases. These releases have occurred for several decades and are continuing up to the present time.

6. The Plaintiff alleges that the conduct of the non-chemical processing Defendants is based upon a well established legal theory of liability which does not require expert testimony supporting a breach of the applicable standard of care for patient treatment. The basis of this allegation is set forth herein. W. Va. Code §55-7B-6(c). Attached hereto as Exhibit 7 is a *Certificate of Presuit Notice*, the Notices of Claim without exhibits and U.S. Certified Mail return receipts. The Defendant Thomas has not responded to the notice. Plaintiff received notice from CAMC counsel of forfeiture of its statutory right to pre-litigation mediation."

7. Plaintiff is a resident of Charleston, West Virginia, and has lived at 2814 Blaine Boulevard, in Charleston, West Virginia at all times relevant herein since 1995. Blaine Boulevard is directly across the Kanawha River from the Union Carbide South Charleston Plant, including Blaine Island, which is the site of many chemical manufacturing facilities of some of the Defendants. Plaintiff is the owner of the property at 2814 Blaine Boulevard and other lots along the riverbank. Prior to residing there, Plaintiff visited the neighborhood on a regular basis beginning in the 1980s.

8. Plaintiff has been exposed to large volumes of toxic, cancer-causing EtO gas, inhaling harmful amounts of EtO simply by living at her home, spending time in her yard, the riverbank, and neighborhood, as well as boating on the Kanawha River fronting Blaine Boulevard, all in plain view of the chemical manufacturing Defendants' facilities. However, the Plaintiff was not just exposed to the releases from the chemical manufacturing Defendants located in South Charleston. The emissions from the Institute chemical facilities and the sterilizing facilities contributed to the overall exposure of EtO as the Plaintiff went about daily life and work in the Kanawha Valley.

9. As a result of the combined exposure from the Defendants, members of the Kanawha Valley, such as the Plaintiff, have a severely increased risk of developing an EtO related cancer or related diseases. The EPA Environmental Justice Screening and Mapping Tool (Version 2.2) identifies the Plaintiff's home as being in the 95th to 100th percentile of Air Toxics Cancer Risks (National Percentiles). *See Exhibit 1.* According to the EPA National Air Toxic Assessment AirToxScreen Mapping Tool (2018 emissions) 77.18% of the risk assessed by the Air Toxic assessment tool comes from EtO for the Plaintiff's census tract. *See Exhibit 2.*

10. Once dispersed in the air, EtO is colorless and is odorless in all but the highest concentrations. Therefore, community members of the Kanawha Valley like the Plaintiff can neither see nor smell the gas, but it has been in the air all around the communities of the Kanawha Valley in which the people living in those communities breathe. Such exposure continues to the present time.

11. There is no safe level of EtO exposure for humans. The risk from continuous exposure to such carcinogens is linear with a non-threshold level.¹ Meaning, no threshold

¹ Susan Buchanan, *et al.*, *Levels of Ethylene Oxide Biomarker in an Exposed Residential Community*, 17 Int. J. Environ. Res. Public Health 8646, (2020).

amount exists at which the members' communities of the Kanawha Valley, like the Plaintiff, could reasonably be exposed and not be at risk.

12. As the result of Plaintiff's exposure to EtO, she suffers from multiple myeloma, a cancer of plasma cells. Plaintiff was diagnosed with multiple myeloma in or about 2018 and has received treatment for that condition since that time, including chemotherapy, stem cell treatment and ongoing chemotherapy and blood monitoring. Plaintiff's disease is most likely incurable and will require medical follow up, monitoring and treatment during her lifetime. Any hope for remission would rely on new, unproven and potentially dangerous interventions.

13. The Plaintiff's continuing exposure to EtO, in addition to her current diagnosis, further places her at greater risk of developing other cancers and/or having additional complications associated with exposure.

14. As the direct and proximate result of the wrongful conduct of the Defendants which allowed the continuous, extensive emissions of EtO over many years, the Plaintiff has suffered from multiple myeloma and the attendant physical and emotional complications thereof, including the damages as set forth below.

15. The Plaintiff did not know, and had no reason to know, that her multiple myeloma resulted from her exposure to EtO until 2023, shortly before the filing of this Complaint.

16. The Plaintiff seeks general and compensatory damages including pain and suffering, medical expenses, loss of enjoyment of life, diminished life expectancy, and diminished property value. The Plaintiff further seeks punitive damages.

PARTIES

17. Plaintiff is a citizen of West Virginia and lives in Kanawha County. Plaintiff has been exposed to and inhaled harmful levels of EtO gas as a result of Defendants' use, storage,

and transport of EtO in their operations of chemical manufacturing and sterilization practices in the Kanawha Valley, Defendants Union Carbide Corporation's and The Dow Corporations' manufacture, sale, distribution and transport of EtO.

18. Union Carbide Corporation (hereafter "UCC" or "Union Carbide") is a New York corporation with its principal place of business in Seadrift, Texas, and is a wholly owned subsidiary of Defendant The Dow Chemical Company. UCC owns the site at the South Charleston plant located at 437 MacCorkle Avenue, SW, South Charleston, West Virginia (Blaine Island). UCC, along with other Defendants, own and operate facilities which use and emit ETO, Additionally, UCC has owned the entirety of the Institute plant site located on Route 25, Institute, West Virginia; currently owns and operates facilities at the Institute plant located on Route 25, Institute, West Virginia which use ETO, and is the premises owner of certain rail docking facilities at the Institute plant which receives EtO shipments for manufacturing use in the Kanawha Valley. UCC was the owner of the West Virginia Regional Technology Park located at 1740 Union Carbide Drive, South Charleston, West Virginia that housed smaller industrial research facilities, including their own, utilizing EtO during relevant times of this complaint. UCC is a manufacturer of EtO used, stored, and transferred in Kanawha County, West Virginia, having previously manufactured EtO in Kanawha County, West Virginia and currently manufacturing EtO in Louisiana and/or Texas before shipping it to West Virginia, where it is used, stored, and transported by Defendants.

19. The Dow Chemical Company is a Delaware corporation with its principal place of business in Midland, Michigan and is a manufacturer of EtO in Louisiana and/or Texas which is shipped to West Virginia and used, stored, and transferred in Kanawha County, West Virginia, by Defendants. The Dow Chemical Company is also the parent company of Union Carbide

Corporation by merger, wholly owns and controls Union Carbide Corporation, and participates directly in the air quality permitting process for EtO in the Kanawha Valley. Dow employees, agents and servants participate in managing environmental regulatory responsibilities regarding EtO emissions from Union Carbide and Dow premises. These include transmittal documents from Dow employees to the West Virginia Division of Environmental Protection, preparation of various reports, and participation in monitoring programs. Dow's logo appears on fence line monitoring equipment. Dow's actions disclose active participation in the management of emissions of EtO from Union Carbide premises. As recently as January 24, 2024, a Dow employee prepared and submitted to the West Virginia DEP an NSPS Db Semi-annual Report for Union Carbide, South Charleston. *See* Exhibit 3. The report came from a Dow employee and included the Dow logo. The Plaintiff alleges Dow is liable for the conduct of Union Carbide and also is liable in its own right for the emissions of EtO into the atmosphere from the South Charleston and Institute plants.

20. Covestro LLC is a Delaware corporation with its principal place of business in Pittsburgh, Pennsylvania. It owns and operates a chemical manufacturing facility at the South Charleston, West Virginia plant located at 437 MacCorkle Avenue, SW, South Charleston, West Virginia, and is the successor of Bayer Material Science LLC and Bayer Polymers LLC. As Bayer Material Science LLC and Bayer Polymers, LLC, Covestro also operated a chemical manufacturing facility at the Institute plant site, located on Route 25, Institute, West Virginia and a research facility at the West Virginia Regional Technology Park located at 1740 Union Carbide Drive, South Charleston, West Virginia.

21. Defendant Bayer CropScience LP is a Delaware limited partnership with its principal place of business in St. Louis, Missouri, and by name change and/or merger is a

successor to Bayer Advanced LLC and to Aventis CropScience USA LP. Bayer CS owned the Institute plant site located on Route 25, Institute, West Virginia on which multiple chemical manufacturing facilities are located that used and emitted EtO. It also operates a manufacturing facility which has used and emitted EtO at the Institute plant located on Route 25 in Institute, West Virginia.

22. Defendant Aventis CropsScience USA LP is a Delaware limited partnership with its principal place of business in Swiftwater, Pennsylvania. Aventis owned the Institute plant site located on Route 25, Institute, West Virginia housing several manufacturing facilities that used and emitted EtO while also operating their own facility that used and emitted EtO at this site.

23. Defendant Specialty Products US, LLC is a Delaware limited liability company with its principal place of business in Wilmington, Delaware. It owns and operates a manufacturing facility that uses and emits EtO at the Institute plant located on Route 25 in Institute, West Virginia.

24. ARCO Chemical Company is a Delaware corporation with its principal place of business in Channelview, Texas. Arco owned and operated manufacturing facilities which used and emitted EtO at the South Charleston plant facility located at 437 MacCorkle Avenue, SW, South Charleston, West Virginia. It also owned and operated a research facility that utilized EtO and emitted EtO at the West Virginia Regional Technology Park located at 1740 Union Carbide Drive, South Charleston, West Virginia.

25. Defendant Lyondell Chemical Company is a Delaware corporation with its principal place of business in Houston, Texas, and by name change and/or merger is the successor to Arco Chemical Company. Lyondell owned and operated facilities utilizing and emitting EtO at the Institute plant site located on Route 25, Institute, West Virginia. It also

owned and operated a research facility that utilized and emitted EtO at the West Virginia Regional Technology Park located at 1740 Union Carbide Drive, South Charleston, West Virginia.

26. Rhone Poulenc AG Company Inc. is a Delaware corporation with its principal place of business in Charleston, West Virginia, and by name change is the successor to Rhone Poulenc AG Company. It owned the Institute plant site located on Route 25, Institute, West Virginia where multiple chemical manufacturing facilities utilized and emitted EtO. Rhone Poulenc has also owned and operated facilities located at the Institute plant site utilizing and emitting EtO during all time relevant to this complaint.

27. Defendant Altviva Services, LLC is a Delaware limited liability company with its principal place of business in Houston, Texas. It owns the majority of the Institute plant site housing several chemical manufacturing facilities utilizing and emitting EtO, located on Route 25, Institute, West Virginia. Altviva also owns and operates a facility which uses and emits EtO.

28. Defendant Broughton Foods, LLC, is a Dallas, Texas corporation with its principal office in Charleston, West Virginia, and by name change is the successor to Broughton Foods Company. It owns and operates a dairy processing center in Charleston, West Virginia that has historically utilized and emitted EtO in its sterilizing processes.

29. Defendant Mid-Atlantic Technology and Innovation Center is a West Virginia corporation with its principal office in South Charleston, West Virginia. It owns and operates a research facility which utilizes and produces waste of EtO in the West Virginia Regional Technology Park at 1740 Union Carbide Drive, South Charleston, West Virginia.

30. Defendant Vandalia Health, Inc., d/b/a CAMC Health System. is a West Virginia corporation with its principal office in Charleston, Kanawha County, West Virginia. Vandalia

provides administrative support, waste management and remediation services for CAMC Health System according to the West Virginia Secretary of State. The venting process used by CAMC would be classified as waste management and remediation services and, therefore, under the control of Vandalia.

31. Defendant Charleston Area Medical Center, Inc., is a West Virginia corporation with its principal office in Charleston, Kanawha County, West Virginia. CAMC owns and operates hospitals utilizing Ethylene Oxide sterilizers in the Kanawha Valley. Their sterilization practices have emitted Ethylene Oxide into the environment of the Kanawha Valley.

32. Defendant Thomas Health System, Inc. is a West Virginia corporation with its principal office in South Charleston, Kanawha County, West Virginia. It owns and operates hospitals in the Kanawha Valley and is an emitter of EtO through the use of sterilization facilities at one or more of its locations in South Charleston and Charleston, West Virginia.

JURISDICTION AND VENUE

33. This Court has jurisdiction over the Defendants because each operates industrial or sterilizing facilities in Kanawha County, West Virginia, have offices and locations in Kanawha County, West Virginia, and through their regular business operations in Kanawha County, they intentionally and regularly avail themselves of the markets and jurisdiction in Kanawha County. Defendants have received substantial revenue and profits from the use and/or manufacture of products using EtO in Kanawha County through their regular business operations. This Court has personal jurisdiction over each of the Defendants. The Defendants Vandalia, CAMC, Thomas Health, and MATRIC are West Virginia corporations and therefore are citizens of Kanawha County, West Virginia.

34. Venue is proper because a substantial part of the events and omissions giving rise to this action occurred in Kanawha County, West Virginia. Defendants' operations in Charleston, South Charleston and Institute, Kanawha County, emitted EtO, causing harm to the community of the Kanawha Valley, and in particular, the Plaintiff.

STATEMENT OF FACTS

Ethylene Oxide

35. Ethylene Oxide is a gas used in the manufacture of antifreeze, surfactants, solvents, detergents, polyurethane foam, adhesives and other chemicals and polymers, as well as in the sterilization and fumigation of other products. Ethylene Oxide is also used to sterilize medical instruments.

36. Most of the EtO used by Defendants involved in chemical manufacturing using EtO in Institute and/or South Charleston, West Virginia was manufactured by UCC and/or by Dow. UCC is among the world's leading producers of EtO, and manufactured EtO at its Institute, West Virginia plant until at least 1972. Any EtO used by the chemical manufacturing Defendants in Kanawha County but not produced in Institute was shipped from UCC and/or Dow plants in Texas and/or Louisiana.

37. As a result of the operations of the chemical manufacturing Defendants in which they use, transport, and store EtO, large volumes of toxic, cancer-causing EtO gas is released. The chemical manufacturing Defendants' facilities report to have and continue to emit tons of EtO gas, contaminating the air in surrounding communities of the Kanawha Valley.

38. The non-chemical processing Defendants likewise emitted EtO from their sterilizers into the air and therefore contributed to the total amount of EtO to which the Plaintiff

was exposed increasing the risk of persons in the Kanawha Valley, such as the Plaintiff, of developing cancer and other EtO related diseases.

39. The non-chemical processing Defendants released EtO into the environment at all times relevant herein. The 2008 National Emissions Inventory identifies CAMC General Hospital and Thomas Memorial Hospital, predecessor to Thomas Health, as emitters of EtO. The 2014 National Emissions Inventory identifies CAMC General Hospital as an emitter of EtO. The Attachment I, Emissions Unit Table, to the July 2015 Regulation 13 Permit, Class II Administrative Update, identifies three EtO sterilizers as “existing.” *See* Exhibit 4. By letter dated May 11, 2016, CAMC notified the West Virginia Department of Environmental Protection that the three sterilizers at CAMC Women’s Children’s Hospital were no longer present at the facility. *See* Exhibit 5. By letter dated April 14, 2017, the West Virginia Department of Environmental Protection acknowledged a Class I Update Permit which stated two sterilizers at CAMC General had been removed. *See* Exhibit 6. These emissions added to the EtO in the atmosphere around the Plaintiff’s home, workplace and in her community, and therefore contributed to her opportunity for exposure to EtO, and emissions from those sources contributed to her multiple myeloma.

40. The non-chemical processing Defendants reported emissions were not in furtherance of medical treatment provided to the Plaintiff. The West Virginia Medical Act provides as follows:

§55-7B-2 Definitions:

(e) “Health care” means:

- (1) Any act, service, or treatment provided under, pursuant to, or in the furtherance of a physician’s plan of care, a health facility’s plan of care, medical diagnosis, or treatment;
- (2) Any act, service, or treatment performed or furnished, or which should have been performed or furnished, by any health care provider or person supervised by or acting under the direction of a health care provider or licensed professional for, to, or on

- behalf of a patient during the patient's medical care, treatment, or confinement, including, but not limited to, staffing, medical transport, custodial care, or basic care, infection control, positioning, hydration, and similar patient services; and
- (3) The process employed by health care provider and health care facilities of the appointment, employment, contracting, credentialing, privileging, and supervision of health providers.

41. The conduct of the non-chemical processing Defendants in emitting EtO in the communities in which they are located as reported by the non-chemical processing Defendants to Federal and State government agencies does not fall under the definitions set forth above. The definition clearly contemplates medical care as directed to an individual patient. The exposed community members, like the Plaintiff, in their homes and as they went about everyday life in the Kanawha Valley were not exposed in the course of patient care. Rather the exposure to the community is an act of negligence for failure to implement programs and processes that would either reduce or eliminate their emissions of EtO.

42. The Plaintiff further alleges that the conduct of the non-chemical processing Defendants in emitting EtO was not specific patient care for the Plaintiff. The cause of action against the non-chemical processing Defendants is based on well established legal theories of liability, as set forth below which do not require expert testimony supporting a breach of the applicable standard of care. You are referred to the allegations herein for the basis of the liability of the non-chemical processing Defendants.

43. The emissions from all the Defendants could and should have been controlled by various means, with no impact on chemical production or sterilization processes. Alternative emissions controls included catalytic oxidizer pollution control systems, scrubber systems and other methods of controlling emissions.

44. Since people cannot see or smell EtO in the air except in extreme concentrations, persons in the Kanawha Valley, like the Plaintiff, have been unknowingly exposed to

carcinogenic EtO for decades while all of the Defendants knew, or should have known, that the EtO being released is dangerous, toxic, carcinogenic, mutagenic, and harmful to local residents.

Human Cost of Exposure to Ethylene Oxide

45. Acute inhalation exposure to high concentrations of EtO can cause headache, dizziness, nausea, fatigue, respiratory irritation, vomiting and other types of gastrointestinal distress. Long-term exposure to EtO at virtually any level increases the risk of cancers, including but not limited to breast, pancreatic and lymphohematopoietic, such as non-Hodgkin lymphoma, myeloma, lymphocytic leukemia.² In addition to these cancers, chronic exposure increases the risk of developing neuromuscular-associated disorders including, but not limited to, Parkinson's Disease and brain tumors. There are also links to increased rates of miscarriage, developmental complications, and infertility.

46. Exposure to EtO has been widely studied and its negative health effects are well documented.

47. The primary exposure pathway is through inhalation. It is readily taken up by the lungs, efficiently absorbed into the blood stream, and is then easily distributed throughout the body. Its general absorption rate is 75%, meaning a full 75% of inhaled EtO gas enters the vascular system and travels throughout the body.³

48. As it travels through the body, due to the high reactivity of the compound, EtO forms adducts – a chemical attachment to a biological substance – to both blood cells and to sites on DNA strands found in all the cells of the body. When attached to blood cells, EtO reacts to proteins associated with and within the blood cell. In every cell of the body, EtO attaches to DNA primarily to the N7-(2-hydroxyethyl) guanine (7HEG) site, as well as the N3-(2-

² <https://www.epa.gov/sites/default/files/2016-09/documents/ethylene-oxide.pdf>

³ <https://www.atsdr.cdc.gov/toxprofiles/tp137.pdf>

hydroxyethyl)adenine and O6-(2-hydroxyethyl)guanine.⁴ Ethylene Oxide's attachment to blood proteins and DNA sites can be cleaned off through processes the body has developed due to a natural existence of EtO in humans. However, the body cannot maintain this cleaning process when there is exposure from outside sources at any concentration in conjunction with the natural biological occurrence of EtO.

49. Once EtO has adducted to the proteins in the blood and on DNA, it begins to interrupt the replication of new blood cells and new DNA strands. This results in serious health consequences in humans, including DNA mutations and improper cell signaling resulting in lymphatic and hematopoietic cancers as well as other health issues mentioned previously herein.

50. The EPA has classified EtO as a human carcinogen and considers any human exposure to EtO, however small, to create a cancer risk.⁵ The EPA has published that "EtO carcinogenicity has a mutagenic mode of action."⁶ This is primarily due to the EtO adduction to DNA making EtO a powerful mutagen.⁷

51. These harmful properties of EtO have been widely known for decades.⁸ Scientists and regulatory authorities have been studying the damaging health effects of EtO since at least the 1940s. By the 1970s and 1980s, it was known that EtO causes point mutations, chromosomal aberrations, interruption in the sister chromatid exchange, DNA adducts, strand breaks, and

⁴ *Id.*

⁵ *Id.*

⁶ U.S. Environmental Protection Agency, National Center for Environmental Assessment. (EPA/635R-16/350Fc) *Evaluation of Inhalation Carcinogenicity of Ethylene Oxide*. Environmental Protection Agency (2016, December).

⁷ *Id.*

⁸ "The potential danger of ethylene oxide (EtO*) to human health has been discussed for several years. Although its mutagenic action has been known for a long time (1), it was not until 1967, when cytogenetic studies of workers occupationally exposed to EtO were published that serious attention was paid to its potential cancer risk." References omitted. Kolman, *et al.*, *Genotoxic effects of ethylene oxide and their relevance to human Cancer: Carcinogenesis* vol.7 no.8 pp.1245-1250, 1986

heritable translocations. This genetic damage caused by the toxic compound EtO results in cancers, neuromuscular disorders, and reproductive complications in animals and humans alike.

52. Defendants had notice and knowledge of the hazards associated with EtO emissions from their facilities prior to Plaintiff's exposure to Defendants' emissions of EtO in Kanawha County, West Virginia. At a minimum, beginning in or around 1937 Union Carbide's Chemical Hygiene Fellowship tested all compounds and/or products used and/or made in house, including but not limited to EtO, to determine the outcome of human health effects through dermal, ingestion, and inhalation. Union Carbide shared its research with regulating agencies in the United States⁹ and around the same time, the scientific community began producing results showing strong mutagenic properties of EtO in animal models. By the early 1960s, published scientific literature had established EtO's negative human toxicological outcomes.¹⁰

53. In 1977 the National Institute of Occupational Safety and Health (NIOSH) recommended that EtO be considered as mutagenic and potentially carcinogenic to humans, that occupational exposure be minimized, and that alternate sterilization procedures be used.¹¹ The following year, NIOSH conducted a mortality study of workers exposed to EtO at Defendant Union Carbide's South Charleston and Institute facilities.¹² Following these studies and through additional laboratory studies on animals, NIOSH reconfirmed its concerns in 1981 that EtO was a potential occupational carcinogen.¹³

⁹ Robert D. Stief, *A History of Union Carbide Corporation, From 1890s to the 1990s*, (1998).

¹⁰ C. Hogstedt. *A Cohort Study of Mortality and Cancer Incidence in Ethylene Oxide Production Workers*. 36 *Brit. J. of Ind. Med.*, 276-280 (1979).

¹¹ U.S. Department of Health, Education, and Welfare, National Institute for Occupational Safety and Health. (NIOSH 77-200) *Special Occupational Hazard Review with Control Recommendations – Use of Ethylene Oxide as a Sterilant in Medical Facilities*. (1977, August).

¹² U.S. Department of Commerce, National Institute for Occupations Safety and Health. (IWS-67-10) *Indepth Industrial Hygiene Report of Ethylene Oxide Exposure at Union Carbide Corporations South Charleston, West Virginia*. (1979, August).

¹³ Center for Disease Control, Current Intelligence Bulletin 35, May 1981, EtO: Evidence of Carcinogenicity, <https://www.cdc.gov/niosh/docs/81-130/default.html>

54. As early as 1985, the U.S. Department of Health and Human Services (DHHS) published the Fourth Annual Report on Carcinogens and classified EtO as reasonably anticipated to be a human carcinogen. In another report by the DHHS in conjunction with the WHO Task Force on EtO that same year identified EtO as a mutagen and recommended EtO “levels in the environment should be kept as low as feasible.”¹⁴

55. By the early 1990’s the WHO, through their specialized cancer research agency, the International Agency for Research on Cancer (IARC), published an independent report that EtO definitively causes cancer in humans and classified EtO as Group 1 carcinogen.¹⁵ IARC assigns this classification when there is enough scientific evidence to conclude that the compound can cause cancer in humans.

56. NIOSH subsequently published an epidemiological study of EtO which analyzed over 18,000 employees working with EtO at 14 different industrial facilities through 1998. The study found sufficient evidence to support a causal link between exposure to EtO and increased mortality from lymphatic and hematopoietic cancers.¹⁶

57. Union Carbide trademarked a product called Carboxide which was 10% EtO and 90% carbon dioxide as an effective fungicide and bactericide in 1930. Union Carbide knew or should have known that EtO was a dangerous product, which would upon release from the equipment used for the storage, transport, and manufacturing of other products on its premises travel well beyond the plant site. Union Carbide knew or should have known from its research and marketing of Carboxide that EtO would expose persons living around the subject premises to

¹⁴ International Programme on Chemical Safety, United Nations Environmental Programme, International Labour Organization, World Health Organization, & WHO Task Force on Ethylene Oxide. (EHC – 55) *Ethylene Oxide*. (1985).

¹⁵ World Health Organization, International Agency for Research on Cancer. (IARC 60) *IARC Monographs on the Evaluation of Carcinogenic Risk to Humans – Some Industrial Chemicals*. (1994).

¹⁶ Steenland, K; Stayner, L; Dedden, J. (2004). Mortality analyses in a cohort of 18,235 ethylene oxide exposed workers: Follow up extended from 1987 to 1998. *Occup Environ Med* 61:2-7.

inhalation of EtO, and that as a consequence they would suffer increased risk of disease. Union Carbide knew at least since 1930 that EtO alone and in combination with other products, was used as a fungicide, insecticide and biocide, and that when used in such a manner would require various safety measures, including removal of persons in the area, sealing of structures in which it was used, and other methods to protect bystanders. Union Carbide sold and marketed EtO for the express purpose of killing fungi, viruses and biological organisms by damaging the DNA of those organisms, and knew or should have known that it should not be released into the environment. Union Carbide knew or should have known that EtO should not have been released into the environment in the vicinity of homes, schools, and places occupied by the general public. The knowledge Union Carbide had of the hazards of EtO to life is imputed to its subsequent owners, subsidiaries and partners, including but not limited to Dow.

Defendants' Emissions of Ethylene Oxide

58. Defendants, through their use, transport, and storage of EtO for their manufacturing and/or sterilization processes in the Kanawha Valley, emit harmful volumes of EtO gas every year. The chemical manufacturing Defendants benefit from the import of EtO from plants in other states by Defendants Dow and UCC, whose production of EtO in the Kanawha Valley until at least 1972 also emitted harmful volumes of EtO gas each year.

59. Defendants utilizing EtO in their manufacturing have emitted multiple tons of EtO gas into the air every year from facilities, including but not limited to, the South Charleston plants located on Blaine Island. These emissions contaminate the air in communities in proximity to the South Charleston facilities, including Blaine Boulevard, where the Plaintiff lives in the North Charleston area, less than a quarter mile from the South Charleston facilities.

60. Defendants located at the Institute plant site utilizing EtO in their manufacturing have added to the total exposure by similarly emitting multiple tons of EtO per year into the air. These facilities are a little more than five (5) miles from Blaine Boulevard and the massive exposures from the site have not stayed within the confines of the site but have traveled throughout the Kanawha Valley increasing the risk of exposure to the toxic EtO for members of the community like the Plaintiff.

61. Defendants utilizing EtO in their research activities at the West Virginia Regional Technology Park have added to the total exposure by emitting EtO in their transport, use and storage of the compound adding to the contamination in the Kanawha Valley increasing the communities' risk associated with exposure.

62. The non-chemical processing Defendants have further added to the total exposure by adding to the volume of EtO in the Kanawha Valley through their own emissions from their import, storage and use of EtO at their sterilizing facilities increasing the risk for members of the community like the Plaintiff.

63. The EtO emitted by Defendants remains in the air for months. This toxic compound has a half-life of 69 days in the summer and 149 days in winter.¹⁷ During this time the toxic compound becomes concentrated in atmospheric inversions and moves through neighboring communities through prevailing winds. As a result, EtO remains in the air that Plaintiff breathes long after it has been emitted.¹⁸ The total emissions from the Defendants created an unsafe environment for most of the persons living in the Kanawha Valley.

¹⁷ Susan Buchanan, *et al*, *Levels of Ethylene Oxide Biomarker in an Exposed Residential Community*, 17 Int. J. Environ. Res. Public Health 8646, (2020).

¹⁸ World Health Organization, International Agency for Research on Cancer. (IARR 97) *1,3- Butadiene, Ethylene Oxide and Vinyl Halides (Vinyl Fluoride, Vinyl Chloride, and Vinyl Bromide)*. (2008).

64. In addition, EtO is heavier than air, meaning that it can linger and travel along the ground. A CDC-commissioned study established that residents living within a half mile of an emitting facility have high levels of blood adduct biomarkers, equal to only 5-25% of the total U.S population.¹⁹ Yet another study established that EtO emissions can travel up to 21 miles from an emitting facility.²⁰ Consequently, Defendants' releases of EtO have lingered at breathing level in the communities along the Kanawha River for a considerable time causing ongoing and prolonged harm to Plaintiff.

65. Ethylene Oxide's ability to be transported in air, its presence at breathing height, the longevity of its half-life, and the sheer volume of EtO emitted historically by Defendants, has created significant and chronic exposure to most of the Kanawha Valley and severe exposure for communities like Plaintiff's, within a quarter mile of emission sources and in quantities similar to an on-site work environment.

66. Since people cannot see or smell EtO when it is in the air, the members of the Kanawha Valley, including the Plaintiff, have been unknowingly exposed to carcinogenic EtO for decades while Defendants knew, or should have known, that the EtO they were releasing was dangerous, toxic, carcinogenic, mutagenic, and harmful to local residents.

Air Quality

67. Scientific analysis demonstrates that Defendants' EtO emissions have exposed Plaintiff to hazardous levels of EtO for decades. As early as 1994, the United States, through the Clean Air Act, designated EtO as a Hazardous Air Pollutant (HAP). This designation created mandatory monitoring and controls of emissions by manufacturing and sterilizing facilities.

¹⁹ Susan Buchanan, *et al*, *Levels of Ethylene Oxide Biomarker in an Exposed Residential Community*, 17 Int. J. Environ. Res. Public Health 8646, (2020).

²⁰ Tara I. Yacovitch, *et al.*, *Ethylene oxide monitor with part-per-trillion precision for in situ measurements*, 16 Atmos. Meas. Tech., 1915-1921, (2023).

68. The EPA's 2014 National Air Toxics Assessment ("NATA") published in 2016 demonstrated severe cancer risks in the area surrounding the South Charleston plant and the Institute plant due to the chemical manufacturing Defendants' emissions. The 2014 NATA places the cancer risks of the census tracts measured in and around the Kanawha Valley between the Institute and South Charleston plants as the highest in West Virginia and among the highest in the country.

69. As a result of Defendants' emission of EtO, Plaintiff has lived in an area which demonstrated some of the highest cancer risks in the United States. The EPA, through NATA, in 2018 estimated that the exposure to EtO emitted by the industrial Defendants increased the cancer risk to the point that 2 out of every 10 residents in Plaintiff's census area are likely to develop cancer.²¹

70. While NATA reveals shockingly high risks of cancer across a large area near emission sites identified through EPA mandated reporting, these risks are likely understated as they do not reflect the totality of Defendants' emissions. This is primarily due to fugitive leaks – unscheduled releases of EtO during transport, storage, or use of the compound not reported. These leaks often occur at transferring sites and weak connections in pipelines found in sterilizing facilities and chemical manufacturing sites alike.

71. Thousands of residents have been and continue to be exposed to elevated levels of EtO throughout the decades of manufacture and/or use in the Kanawha Valley by the Defendants, as the affected areas around chemical manufacturing and sterilizing facilities are highly populated with homes, businesses, schools, and other community facilities.

²¹ <https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results>

72. Defendants operated without sufficient pollution controls to limit and/or eliminate either fugitive emissions or known controlled releases of toxic EtO. As a result, the Defendants have exposed thousands of residents in neighboring areas to a carcinogenic, mutagenic chemical that materially diminished their health, increased their likelihood of damaged DNA and their likelihood of developing cancer, neuromuscular diseases, and reproductive issues, and/or caused them to suffer from cancer like the Plaintiff herein named.

73. Defendants knew that: (1) their facilities operated without sufficient pollution control systems necessary to reduce the releases of EtO; (2) the release of EtO spreads well beyond the property boundaries of all of the Defendants; and (3) ongoing exposure to EtO, a known carcinogen, would unnecessarily diminish the health of nearby residents and increase the likelihood that nearby residents would develop cancer.

74. Defendants wrongfully failed to implement control processes that would eliminate EtO emissions, failed to adopt alternative processes that would eliminate EtO emissions, and failed to warn the Plaintiff that the air was contaminated with toxic levels of EtO.

75. Defendants' conduct contaminated the air Plaintiff breathes every day, and exposed Plaintiff to unsafe air. As a result, Plaintiff has inhaled toxic carcinogenic gas every day when at home, a place one should feel safe from harm.

76. Despite knowledge that EtO was designated by the EPA in the 1990s as a Hazardous Air Pollutant (HAP) and of its carcinogenic effects for decades during the course of its operations, the chemical manufacturing Defendants in this action failed to act on effective controls for fugitive or controlled emissions until 2023 and did so only after requests by the West Virginia Department of Environmental Protection.

77. As a result of Defendants' emissions of EtO, Plaintiff has suffered exposure to EtO.

78. EtO is a proven human mutagen and carcinogen and is unsafe for humans at any level of exposure.

79. Plaintiff has been diagnosed with and continues to suffer from multiple myeloma, a hematological cancer that is directly related to exposure to EtO.

COUNT I

STRICT LIABILITY ABNORMALLY DANGEROUS ACTIVITY

80. Plaintiff repeats, realleges, and incorporates by reference the allegations contained in all paragraphs above as if fully set forth herein.

81. Defendants' use, storage, transport, and/or manufacture of EtO and attendant emissions of EtO into the environment, including as set forth above, constitute an abnormally dangerous activity²² in that such activity:

- (a) caused the existence of a high degree of risk of some harm to the person, land or chattels of others;
- (b) caused the likelihood that the harm in the form of cancer and other diseases, including but not limited to Parkinson's Disease and damage to DNA that results from exposure to EtO will be great;
- (c) caused the inability to eliminate the risk by the exercise of reasonable care;
- (d) was and is an activity which is not a matter of common usage;
- (e) was inappropriate to the communities surrounding the chemical manufacturing Defendants and non-chemical processing Defendants; and
- (f) its value to the community is outweighed by its dangerous attributes. Defendants' emissions of EtO through use, storage, transport, and/or manufacture constitutes an ultrahazardous activity.

²² The Plaintiff is asserting a count based on *Peneschi v. National Steel Corp.*, 170 W.Va. 511.

82. Because these activities are abnormally dangerous Defendants are strictly liable for any injuries proximately resulting therefrom.

83. As a direct and proximate result of Defendants' ultrahazardous activities, Plaintiff was significantly exposed to EtO and suffered from multiple myeloma and the attendant damages set forth herein, and will continue to suffer injury, damage, and loss, including diminution of property value, as set forth herein.

84. Wherefore, the Plaintiff demands of and from the Defendants damages in such amount as the jury may award.

COUNT II

NUISANCE

85. Plaintiff repeats, realleges, and incorporates by reference the allegations contained above as if fully set forth herein.

86. At all times relevant hereto, Defendants knew EtO to be hazardous and harmful to human beings.

87. At all times relevant hereto, Defendants knew EtO to be transported by air currents across their facilities to neighboring properties, and to properties located significant distances from their facilities and properties.

88. At all times relevant herein, Defendants knew their EtO emissions drifted to, were present in, and collected in the environment of neighborhoods near their facilities.

89. Defendants knew or should have known that the levels of EtO gas emitted from their facilities would have a deleterious effect upon the health, safety, and well-being of people living in nearby areas.

90. The Plaintiff, as a resident of Blaine Boulevard, spent a significant amount of her time and money creating and maintaining a homeplace for her son and now-deceased husband. The Plaintiff put her non-work life into furnishing, maintaining, and enjoying a comfortable place for herself and her family.

91. The Plaintiff had an inherent right of enjoyment of her homeplace which included being safe from intrusive, dangerous, and ultimately life-threatening emissions of EtO from the Defendants' facilities.

92. Plaintiff further has a common right to breathe clean air without dangerous levels of carcinogens such as EtO.

93. Defendants' unreasonable use and emission of EtO substantially and unreasonably infringes upon and transgresses Plaintiff's public and private rights of the enjoyment of the environment of her home and property.

94. Defendants' operations caused those who live in the surrounding area to breathe air containing high levels of EtO on a routine and constant basis, causing a substantially elevated risk of neuromuscular disorders, poor reproductive outcomes, damaged DNA, and cancer.

95. As a proximate result of Defendants' operation of their facilities, Plaintiff and the general public's common right to breathe clean air without dangerous levels of carcinogens such as EtO was eliminated and/or severely diminished.

96. As a proximate result of the Defendants' operations at their facilities, EtO continuously invaded and contaminated the areas surrounding Plaintiff's home, thereby exposing them to EtO.

97. As a proximate result of Defendants' use and emission of EtO, Plaintiff sustained and will continue to suffer injury, damage, and loss.

98. The conduct of the Defendants allowing emissions of EtO has created a nuisance and a health hazard. The release of EtO constitutes a nuisance.

99. A private nuisance is a substantial and unreasonable interference with the private use and enjoyment of another's land.

100. An interference with the private use and enjoyment of another's land is unreasonable when the gravity of the harm outweighs the social value of the activity alleged to cause the harm. The Plaintiff's enjoyment of her home as a place of refuge and comfort, the result of her lifetime of work and employment, was destroyed by the EtO released by the Defendants which contaminated her air and property. This harm outweighs the social value of the activity of emitting EtO to the atmosphere, an essentially valueless activity.

101. As the direct and proximate result of the wrongful conduct of the Defendants, including but not limited to maintaining a nuisance, the Plaintiff suffered the disease of multiple myeloma, diminished value of the Plaintiffs' property and interference with her peaceful and quiet enjoyment of her property.

102. Wherefore, the Plaintiff demands of and from the Defendants, and each of them, jointly and severally, damages in such amount as may be awarded. The Plaintiff further demands of and from the abatement of the nuisance created, and costs and attorneys' fees in such amount as may be awarded.

COUNT III

CONTINUING NUISANCE

103. Plaintiff repeats, realleges, and incorporates by reference the allegations contained in all paragraphs above as if fully set forth herein.

104. By the aforementioned actions, the Defendants, each of them, created a condition tending to both cause damage to Plaintiff's person and property and create a danger of future damage. In light of the conditions thereby created, the Defendants' use of her property was not and are not lawful or reasonable but instead constitute a nuisance.

105. As a direct and proximate result of the continuing nuisance caused by the Defendants, as aforesaid, the Plaintiff has been injured and damaged in her person and property and, because the nuisance is continuing and ongoing, the Plaintiff will in the future be so damaged.

106. Wherefore, the Plaintiff demands of and from the Defendants, and each of them, jointly and severally, damages in such amount as may be awarded. The Plaintiff further demands of and from the abatement of the nuisance created, and costs and attorneys' fees in such amount as may be awarded.

COUNT IV

ABSOLUTE NUISANCE

107. Plaintiff repeats, realleges, and incorporates by reference the allegations contained above as if fully set forth herein.

108. At all times relevant hereto, Defendants knew EtO to be hazardous and harmful to human beings. EtO at all times relevant herein had no safe level of exposure,

109. At all times relevant hereto, Defendants knew EtO to be transported by air currents across their facilities to neighboring properties, and to properties located significant distances from their facilities and properties.

110. At all times relevant herein, Defendants knew their EtO emissions drifted to, were present in, and collected in the environment of neighborhoods near their facilities. The

Defendants knew that the ordinary nearby resident did not have the means to detect exposure to EtO, did not have the means to protect themselves from exposure to EtO and had no knowledge of the mutagenic and other harmful effects of EtO on human cells. Such residents did not have the ability to monitor or detect cellular damage from EtO, which was specialized knowledge only available to the Defendants and not commonly known.

111. Defendants knew that the levels of EtO gas emitted from their facilities would have a deleterious effect upon the health, safety, and well-being of people living in nearby areas.

112. The Plaintiff, as a resident of Blaine Boulevard, spent a significant amount of her time and money creating and maintaining a homeplace for her son and now-deceased husband. The Plaintiff put her non-work life into furnishing, maintaining, and enjoying a comfortable place for herself and her family.

113. The Plaintiff had an inherent right of enjoyment of her homeplace which included being safe from intrusive, dangerous, and ultimately life-threatening emissions of EtO from the Defendants' facilities.

114. Plaintiff further has a common right to breathe clean air without dangerous carcinogens such as EtO.

115. Defendants' emission of EtO infringes upon and transgresses Plaintiff's public and private rights of the enjoyment of the environment of her home and property.

116. Defendants' operations caused those who live in the surrounding area to breathe air containing high levels of EtO on a routine and constant basis, causing a substantially elevated risk of neuromuscular disorders, poor reproductive outcomes, damaged DNA, and cancer.

117. As a proximate result of Defendants' operation of their facilities, Plaintiff and the general public's common right to breathe clean air without dangerous levels of carcinogens such as EtO was eliminated and/or severely diminished.

118. As a proximate result of the Defendants' operations at their facilities, EtO continuously invaded and contaminated the areas surrounding Plaintiff's home, thereby exposing them to EtO.

119. As a proximate result of Defendants' use and emission of EtO, Plaintiff sustained and will continue to suffer injury, damage, and loss.

120. The conduct of the Defendants allowing emissions of EtO has created a nuisance and a health hazard. The release of EtO constitutes an absolute nuisance. The emissions of EtO under these conditions into residential communities constituted an absolute nuisance. The physical nature of EtO renders it a danger to others, who have no means to detect exposure, measure its impact on their cells, or remedy or prevent the effects of mutagenetic and carcinogenic injury to their DNA. It is an absolute nuisance because it is impossible for any individual to protect themselves in any way from its injurious nature.

121. An absolute nuisance is an interference with the private use and enjoyment of another's land. The Defendants are liable for all harm to the Plaintiff flowing from their maintenance of an absolute nuisance.

122. The Plaintiff's enjoyment of her home as a place of refuge and comfort, the result of her lifetime of work and employment, was destroyed by the EtO released by the Defendants which contaminated her air and property. The emissions of EtO were and are in further of an absolute nuisance and the Defendants are liable for all damages flowing from this absolute nuisance.

123. As the direct and proximate result of the wrongful and unlawful conduct of the Defendants, including but not limited to maintaining an absolute nuisance, the Plaintiff suffered the disease of multiple myeloma, diminished value of the Plaintiffs' property and interference with her peaceful and quiet enjoyment of her property.

124. Wherefore, the Plaintiff demands of and from the Defendants, and each of them, jointly and severally, damages in such amount as may be awarded. The Plaintiff further demands of and from the abatement of the absolute nuisance created, and costs and attorney's fees in such amount as may be awarded.

COUNT V

NEGLIGENT CONDUCT

125. Plaintiff repeats, realleges, and incorporates by reference the allegations contained in all paragraphs above as if fully set forth herein.

126. The conduct of the Defendants as set forth herein was negligent and careless.

127. At all times relevant herein, the Defendants, and each of them, knew or should have known that EtO was a dangerous product, which would upon release from the equipment used for the storage, transport, and manufacturing of other products on its premises travel well beyond the plant site. The Defendants knew or should have known that its conduct would expose persons living around the subject premises to the inhalation of EtO, and that as a consequence they would suffer increased risk of disease. The Defendants, and each of them, knew or should have known at all times relevant herein, that EtO alone and in combination with other products, was used as a fungicide, insecticide and biocide, and that when used in such a manner would require various safety measures, including removal of persons in the area, sealing of structures in which it was used, and other methods to protect bystanders. Union Carbide sold

and marketed EtO for the express purpose of killing fungus, biological organisms and other life forms and knew or should have known that it should not be released into the environment. The Defendants, and each of them, knew or should have known under certain conditions EtO would be retained and released by various other products. Including but not limited to all the foregoing, the Defendants, and each of them, knew or should have known that EtO should not have been released into the environment in the vicinity of homes, schools, and places occupied by the general public.

128. All Defendants, and each of them, have failed in at least one if not all of the following: to exercise care in the manufacture, handling and use of EtO, thereby allowing EtO to escape its equipment and premises and expose the Plaintiff as set forth herein. This lack of due care resulted in the exposure to EtO by the Plaintiff over many years, and as a consequence caused her to suffer multiple myeloma. The conduct of the Defendants, and each of them, as aforesaid, has increased the risk of cancer in the vicinity of their premises by more than one case in a million, in violation of regulatory standards necessary to protect health and safety.

129. As the direct and proximate result of the negligent conduct of the Defendants, acting jointly and severally, as set forth above, which allowed the continuing controlled and uncontrolled emissions of EtO over many years, the Plaintiff suffers the disease of multiple myeloma and the attendant physical and emotional complications thereof. Plaintiff seeks general and compensatory damages including past and future pain and suffering, emotional distress, past and future medical expenses, past and future loss of enjoyment of life, and diminished life expectancy.

130. Wherefore, the Plaintiff demands of and from the Defendants damages in such amount as may be awarded.

COUNT VI

PUNITIVE DAMAGES

130. Plaintiff repeats, realleges, and incorporates by reference the allegations contained in all paragraphs above as if fully set forth herein.

131. The conduct of the Defendants as set forth herein was gross, willful, and in reckless disregard of their civil obligations and the rights of others. The damages suffered by the Plaintiff were the result of the conduct that was carried out by the Defendants with a conscious, reckless, and outrageous indifference to the health, safety, and welfare of others.

132. As the direct and proximate result of the conscious, reckless, and outrageous indifference to the health, safety, and welfare of others, the Plaintiff suffered the disease of multiple myeloma, and the attendant damages as set forth herein.

133. Wherefore, the Plaintiff demands of and from the Defendants for punitive damages such amount as may be awarded.

PRAYER

Wherefore, Plaintiff prays for the Court to enter judgment against the Defendants for the following:

- a. For an award of general and special compensatory damages for past and future pain and suffering, medical expense, inconvenience, loss of enjoyment of life, diminished life expectancy, and other loss;
- b. For an award of punitive damages as allowed by law and in an amount to be determined;
- c. For abatement of the nuisance as set forth above;
- d. For an award of attorneys' fees, costs, and litigation expenses, as allowed by law;

- e. For prejudgment interest on all amounts awarded as may be allowed by law; and
- f. Such other and further relief as this Court may deem just and proper.

JURY TRIAL DEMAND

PLAINTIFF DEMANDS A JURY TRIAL ON ALL ISSUES SO TRIABLE.

**CATHY DARLENE FLINT,
Plaintiff,**

By Counsel

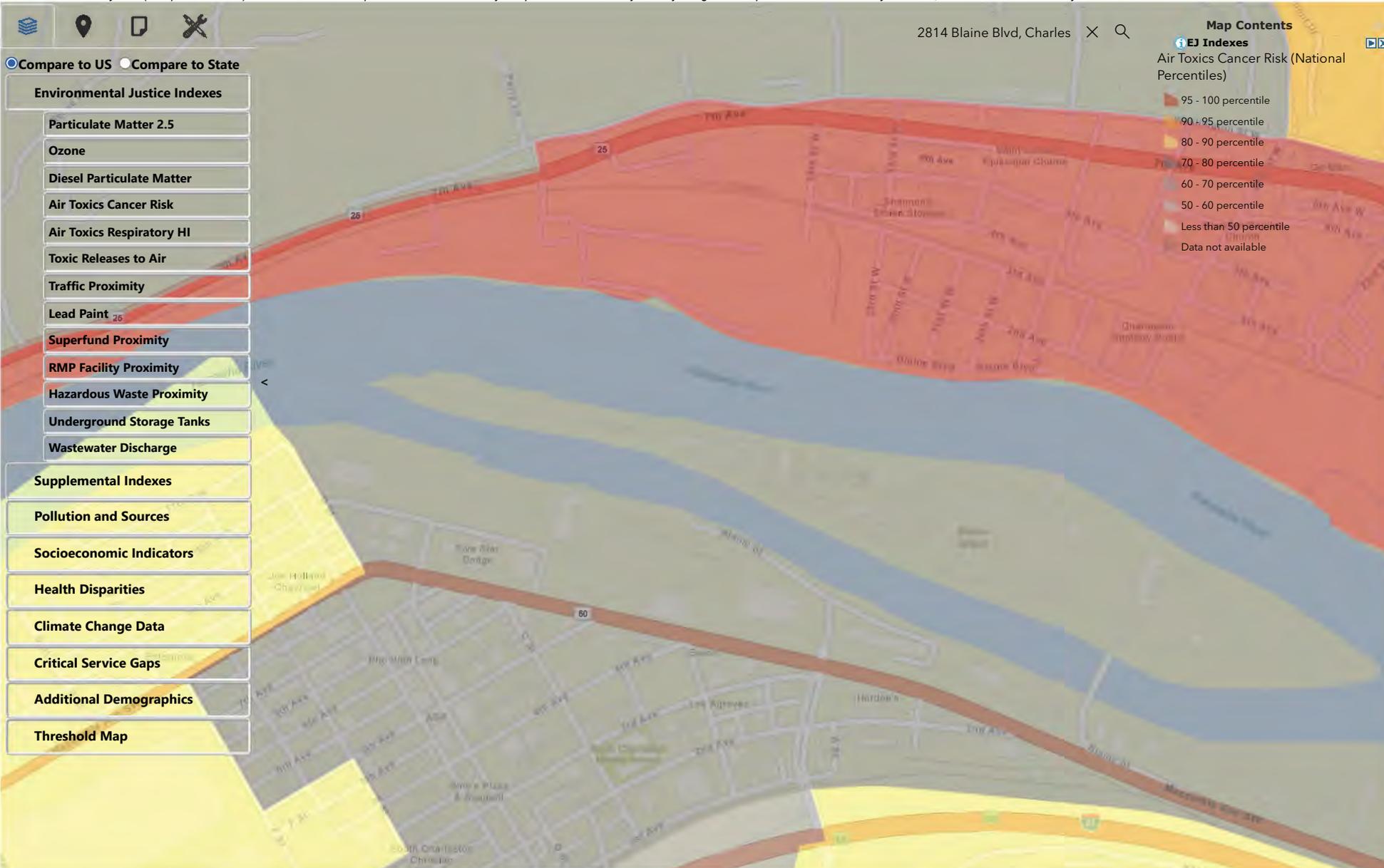
/s/ W. Stuart Calwell

W. Stuart Calwell, Esquire (WV State Bar No. 595)
John H. Skaggs, Esquire (WV State Bar No. 3432)
D. Christopher Hedges, Esquire (WV State Bar No. 7894)
Calwell Luce diTrapano PLLC
Law and Arts Center West
500 Randolph Street
Charleston, WV 25302
Phone: (304) 343-4323
Fax: (304) 344-3684

Counsel for Plaintiff

Please note: Territory data (except Puerto Rico) is not available as comparable to the US. It is only comparable to the territory itself by using the 'Compare to State' functionality. Likewise, some of the indicators may not be available for territories.

X



 AirToxScreen Mapping Tool (based on 2018 emissions)

Zoom to State(s)
None

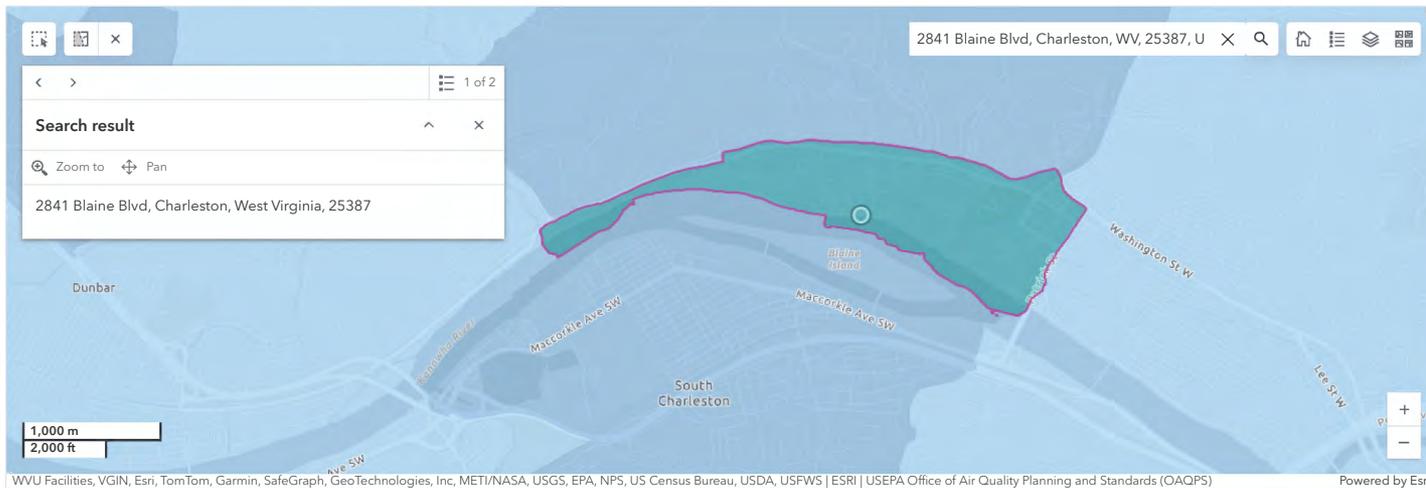
Zoom to County(s)
None

Select Minimum Risk to Include
No number selected

Select Only Tracts With Chan...
None

To get started:

- Select tract(s) on map using selector tool in upper left corner of map. When tract(s) are selected, associated lists and charts will appear under the map.
- Zoom to a specific area using the search tool in the upper right of map by typing in a place name or by using the State and County selector tools above the map.
- Filter tracts by risk level using the Risk Level selector tool above the map.
- Filter tracts with risk changes since the analysis was performed by using the Risk Change selector tool at the upper right of the dashboard. To display a popup containing more information about the risk change, click on the tract without a selector tool chosen (toggle off by clicking again on the



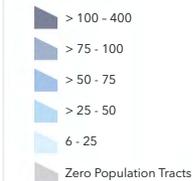
Legend

Tract Changes (click in the tract for more info)



Cancer Risk (2018)

Total Risk (in a million)



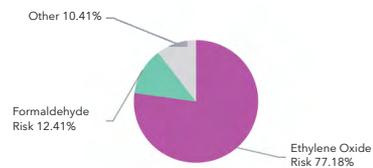
Facility Level Emissions (2018)

Tract Location Data

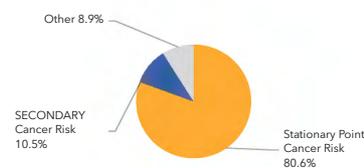
EPA Region: EPA Region 3
State: WV
County: Kanawha
Tract ID:54039000100
Total Risk (per million): 200
Area (m2): 1,925,055
Population (2010 Census): 1,361

Location Air Toxic Source

Risk by Air Toxic



Risk by Source Type



Facility Emissions (tons)

No data

EXHIBIT

2



2H23 NSPS Subpart Db Semi-annual Report - Union Carbide Corporation - South Charleston, WV

1 message

Fedczak, Jay (JP) <JPFedczak@dow.com> Thu, Jan 25, 2024 at 7:20 AM
To: DEP Air Quality Reports <DEPAirQualityReports@wv.gov>, "R3_ECADAIRMAIL@epa.gov" <R3_ECADAIRMAIL@epa.gov>
Cc: "Hebert, John (JA)" <JAHebert@dow.com>, "Marino, Ana (AG)" <AGMarino@dow.com>, "Litton, Clarence (CL)" <Litton2@dow.com>, "Perry, Daniel (DA)" <DAPerry@dow.com>, "Ramsey, Richard (RC)" <ramseyrc@dow.com>, "Riggins, Tyler (T)" <JTRiggins@dow.com>, "Gore, Jarron (JA)" <JAGore@dow.com>, "Songer, Iris (IJ)" <iris.songerj@dow.com>, "Fedczak, Jay (JP)" <JPFedczak@dow.com>, "Ebert, Lily (LJ)" <LEbert@dow.com>

Please see attached.

Jay Fedczak, P.E.

EH&S Delivery Manager

Union Carbide Corporation

A Wholly Owned Subsidiary of The Dow Chemical Company

South Charleston, WV 25303

O: 304-747-1354, Email: JPFedczak@dow.com



General Business

 2H2023 NSPS Db Semi-Annual Report - Union Carbide Corporation - South Charleston - WV.pdf
1038K

EXHIBIT

3



Union Carbide Corporation
P. O. Box 8361
437 MacCorkle Avenue, SW
South Charleston, WV 25303
USA

January 25, 2024

Ms. Laura M. Crowder, Director
WV Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, West Virginia 25304
Via e-mail to DEPAirQualityReports@wv.gov

Ms. Kris Hall, Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
U. S. Environmental Protection Agency, Region III
1650 Arch Street - 3ED21
Philadelphia, PA 19103
Via email to R3_ECADAIRMAIL@epa.gov

Subject: Union Carbide Corporation (UCC) – South Charleston Facility
Permit R30-03900003-2018
NSPS 40 C.F.R. 60, Subpart Db Reporting – Boilers 26 and 27
Semi-annual 2nd Half of Calendar Year 2023

Dear Ms. Crowder and Ms. Hall,

As required by Conditions 4.5.2 of Permit R30-03900003-2018 for Boilers 26 and 27 located at UCC South Charleston Facility, attached are the 40 C.F.R. 60 Subpart Db semi-annual reports.

Based on information and belief formed after reasonable inquiry, the statements and information in the documents are true, accurate and complete.

If there are any questions regarding this submittal, please contact Jay Fedczak at (304) 747-1354.

Sincerely,

Ana Marino
Responsible Care Leader for
West Virginia Operations

Enclosures

Union Carbide Corporation
South Charleston, WV Facility
40 CFR 60 Subpart Db Semi-Annual Report for 26 Boiler
Second Half 2023 (July 1, 2023 – December 31, 2023)

The following report contains the 10 items listed in 40 CFR 60, Subpart Db, §60.49b, Paragraph (g).

- (1) Calendar date.

The calendar dates for the boiler data are from July 1, 2023 through December 31, 2023.

- (2) The average hourly nitrogen oxides emission rates (expressed as NO₂) (lb/million Btu heat input) measured or predicted.

The average hourly nitrogen oxides emission rates for 26 Boiler were measured and recorded. The average daily nitrogen oxide emission rates are attached and are all below permit limits. The units are in lb/million Btu heat input. The data is from the CEMS.

- (3) The 30 day average nitrogen oxides emission rates (ng/J or lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.

The attached 30-day rolling average nitrogen oxides emissions rates (in lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days is attached. The attached data is from the CEMS.

- (4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under § 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.

As evidenced by the attached data, there were zero days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under § 60.44b.

- (5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

There were no steam generating unit operating days for which pollutant data was not obtained during the reporting period.

- (6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

There were no times when emission data was excluded during the reporting period.

- (7) Identification of “F” factor used for calculations, method of determination, and type of fuel combusted.

The primary fuel for 26 Boiler is natural gas. The “F” factor for natural gas is 8,710 dscf/10⁶ Btu, based on Table 19-2 in 40 CFR 60 Appendix A, Method 19. The vent stream from a process unit (Propylene Oxide Process Vent Gas or POV) and natural gas liquid condensate (COND) may be combusted in 26 Boiler. The “F” factor used for calculations when POV and/or COND are burned, in conjunction with natural gas, is prorated based on the heat input of each feed stream. The default values of POV and COND are 10,876 dscf/10⁶ Btu and 8,927 dscf/10⁶ Btu, respectively.

- (8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

The pollution concentration did not exceed full span of the continuous monitoring system at any time.

- (9) Description of any modification to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3.

None.

- (10) Results of daily CEMS drift tests and the quarterly accuracy assessments as required under Appendix F, Procedure 1.

The daily CEMS drift tests results indicated that no daily drift tests out of 135 steam-generating days in the second half of 2023 had a component outside the allowable deviation, with 0 daily drift tests indicating an out-of-control period. Copies of the quarterly accuracy assessments results are attached. The annual relative accuracy test assessment report was provided by cover letter dated April 18, 2023.

26 Boiler Second Half 2023

Pollutant	NOx			
Company	Union Carbide Corporation			
	<u>South Charleston, WV</u>			
Emission Limitation	Regulation	Limit	Units	Period
	40 CFR 60	0.2	lb/mm Btu	Rolling 30 Day Average
Total Source Operating Time	<u>3,212</u> hours			

Reporting Period:	<u>7/1/2023</u>	to	<u>12/31/2023</u>
Monitor Manufacturer:	<u>Teledyne</u>		
Model Number:	<u>T200M - 420</u>		
Date of Last Certification or Audit:	<u>March 9, 2023</u>		
Process Unit(s) Description:	<u>26 Boiler</u>		

Emissions Data Summary	
1. Days when 30-day rolling average exceeded limits listed by cause:	
	40 CFR 60
a. Startup/Shutdown	<u>0</u>
b. Soot Blowing	<u>0</u>
c. Control Equipment Problems	<u>0</u>
d. Process Problems	<u>0</u>
e. Other Known Causes	<u>0</u>
2. Total Duration	<u>0</u>
3. Percent Excess Emission	<u>0.0</u> %
 % Excess = 100*(Total Duration/Total Source Operating Time)	

CEMS Performance Summary	
1. CEMS Downtime in reporting period due to:	
a. Monitor Equipment Malfunction	<u>0</u> hours
b. Other Equipment Malfunction	<u>0</u> hours
c. Quality Assurance Calibration	<u>0</u> hours
d. Other Known Causes	<u>0</u> hours
e. Unknown Causes	<u>0</u> hours
2. Total CEMS Downtime	<u>0</u> hours
3. Percent CEMS Downtime	<u>0.00%</u>
 %Downtime = 100*(Total CEMS Downtime/Total Source Operating Time)	

Monthly Summary By Day Report

Unit 26



From: 07/01/2023 00:00 To: 07/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 08/01/2023 07:46 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 26 NOxRun, LbPerMBtu	Unit 26 BlrOPhrs, Hr	Unit 26 NOxValidData, hrs	Unit 26 NOxVldDataDays, Days	Unit 26 NOx30BOD, LbPerMBtu	Unit 26 Steam, MLB	Unit 26 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
07/01/2023	0.028	24.0	24.0	30.0	0.067	684.0	871,430.0
07/02/2023	0.031	24.0	24.0	30.0	0.066	708.4	895,630.0
07/03/2023	0.030	24.0	24.0	30.0	0.065	796.6	997,590.0
07/04/2023	0.059	24.0	24.0	30.0	0.064	1,645.7	1,912,720.0
07/05/2023	0.064	24.0	24.0	30.0	0.064	1,798.5	2,062,840.0
07/06/2023	0.075	24.0	24.0	30.0	0.064	2,001.8	2,271,459.2
07/07/2023	0.066	24.0	24.0	30.0	0.064	1,904.0	2,170,850.0
07/08/2023	0.068	24.0	24.0	30.0	0.064	1,852.8	2,116,740.0
07/09/2023	0.064	24.0	24.0	30.0	0.064	1,881.1	2,144,400.0
07/10/2023	0.072	24.0	24.0	30.0	0.064	1,863.8	2,121,711.4
07/11/2023	0.047	24.0	24.0	30.0	0.064	1,291.3	1,538,060.0
07/12/2023	0.030	24.0	24.0	30.0	0.063	1,032.3	1,264,480.0
07/13/2023	0.021	24.0	24.0	30.0	0.061	879.1	1,091,480.0
07/14/2023	0.035	24.0	24.0	30.0	0.060	1,069.4	1,283,980.0
07/15/2023	0.026	24.0	24.0	30.0	0.058	804.1	993,460.0
07/16/2023	0.028	24.0	24.0	30.0	0.057	800.8	993,370.0
07/17/2023	0.030	24.0	24.0	30.0	0.055	803.1	993,910.0
07/18/2023	0.048	24.0	24.0	30.0	0.055	1,847.1	2,086,710.0
07/19/2023	0.028	24.0	24.0	30.0	0.053	798.2	993,710.0
07/20/2023	0.024	24.0	24.0	30.0	0.052	798.1	993,050.0
07/21/2023	0.029	24.0	24.0	30.0	0.050	800.0	993,730.0
07/22/2023	0.028	24.0	24.0	30.0	0.049	791.7	992,710.0
07/23/2023	0.033	24.0	24.0	30.0	0.048	799.7	992,220.0
07/24/2023	0.034	24.0	24.0	30.0	0.046	806.1	993,150.0
07/25/2023	0.030	6.0	6.0	30.0	0.045	187.4	233,321.2
07/26/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
07/27/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
07/28/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
07/29/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
07/30/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
07/31/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
Monthly Avg/Sum*:	0.041	582.0 *	582.0 *	930.0 *	1.732 *	28,645.1 *	34,002,711.8 *
Daily Min:	0.021	0.0	0.0	30.0	0.045	0.0	0.0
Daily Max:	0.075	24.0	24.0	30.0	0.067	2,001.8	2,271,459.2
Jul 2023 - Jul 2023	0.041	582.0	582.0	930.0	1.732	28,645.1	34,002,711.8
QTD:	0.041	582.0 *	582.0 *	930.0 *	1.732 *	28,645.1 *	34,002,711.8 *
YTD 2023:	0.064	4,557.0 *	4,546.0 *	6,322.0 *	14.204 *	387,341.3 *	443,341,180.5 *

Monthly Summary By Day Report

Unit 26



From: 08/01/2023 00:00 To: 08/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 09/01/2023 09:21 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 26 NOxRun, LbPerMBtu	Unit 26 BlrOpHrs, Hr	Unit 26 NOxValidData, hrs	Unit 26 NOxVldDataDays, Days	Unit 26 NOx30BOD, LbPerMBtu	Unit 26 Steam, MLB	Unit 26 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
08/01/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/02/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/03/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/04/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/05/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/06/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/07/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/08/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/09/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/10/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/11/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/12/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/13/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/14/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/15/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/16/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/17/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/18/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/19/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/20/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/21/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/22/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/23/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/24/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/25/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/26/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/27/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/28/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/29/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/30/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
08/31/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
Monthly Avg/Sum*:	-	0.0 *	0.0 *	930.0 *	1.395 *	0.0 *	0.0 *
Daily Min:	-	0.0	0.0	30.0	0.045	0.0	0.0
Daily Max:	-	0.0	0.0	30.0	0.045	0.0	0.0
Aug 2023 - Aug 2023	-	0.0	0.0	930.0	1.395	0.0	0.0
QTD:	0.041	582.0 *	582.0 *	1,860.0 *	3.127 *	28,645.1 *	34,002,711.8 *
YTD 2023:	0.064	4,557.0 *	4,546.0 *	7,252.0 *	15.599 *	387,341.3 *	443,341,180.5 *

Monthly Summary By Day Report

Unit 26



From: 09/01/2023 00:00 To: 09/30/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 10/02/2023 09:47 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 26 NOxRun, LbPerMBtu	Unit 26 BlrOPhrs, Hr	Unit 26 NOxValidData, hrs	Unit 26 NOxVldDataDays, Days	Unit 26 NOx30BOD, LbPerMBtu	Unit 26 Steam, MLB	Unit 26 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
09/01/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/02/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/03/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/04/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/05/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/06/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/07/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/08/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/09/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/10/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/11/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/12/2023	0.000	0.0	0.0	30.0	0.045	0.0	0.0
09/13/2023	0.031	14.0	14.0	30.0	0.044	465.0	627,364.0
09/14/2023	0.057	24.0	24.0	30.0	0.043	1,567.6	1,808,360.0
09/15/2023	0.070	24.0	24.0	30.0	0.044	2,039.8	2,301,040.0
09/16/2023	0.070	24.0	24.0	30.0	0.043	2,198.4	2,472,960.0
09/17/2023	0.060	24.0	24.0	30.0	0.044	2,624.8	2,929,210.0
09/18/2023	0.065	24.0	24.0	30.0	0.045	2,532.2	2,820,270.0
09/19/2023	0.069	24.0	24.0	30.0	0.046	2,460.1	2,756,790.0
09/20/2023	0.070	24.0	24.0	30.0	0.048	2,380.7	2,665,010.0
09/21/2023	0.068	24.0	24.0	30.0	0.048	2,356.3	2,632,780.0
09/22/2023	0.070	24.0	24.0	30.0	0.048	2,324.4	2,600,120.0
09/23/2023	0.070	24.0	24.0	30.0	0.048	2,414.7	2,700,400.0
09/24/2023	0.070	24.0	24.0	30.0	0.048	2,235.1	2,512,750.0
09/25/2023	0.069	24.0	24.0	30.0	0.048	2,269.0	2,547,070.0
09/26/2023	0.067	24.0	24.0	30.0	0.048	2,273.8	2,556,440.0
09/27/2023	0.070	24.0	24.0	30.0	0.048	2,207.1	2,495,940.0
09/28/2023	0.070	24.0	24.0	30.0	0.049	1,956.0	2,232,850.0
09/29/2023	0.070	24.0	24.0	30.0	0.050	2,026.1	2,304,420.0
09/30/2023	0.070	24.0	24.0	30.0	0.052	1,981.5	2,259,260.0
Monthly Avg/Sum*:	0.066	422.0 *	422.0 *	900.0 *	1.384 *	38,312.6 *	43,223,034.0 *
Daily Min:	0.031	0.0	0.0	30.0	0.043	0.0	0.0
Daily Max:	0.070	24.0	24.0	30.0	0.052	2,624.8	2,929,210.0
Sep 2023 - Sep 2023	0.066	422.0	422.0	900.0	1.384	38,312.6	43,223,034.0
QTD:	0.051	1,004.0 *	1,004.0 *	2,760.0 *	4.511 *	66,957.7 *	77,225,745.8 *
YTD 2023:	0.064	4,979.0 *	4,968.0 *	8,152.0 *	16.983 *	425,653.9 *	486,564,214.5 *

Monthly Summary By Day Report

Unit 26



From: 10/01/2023 00:00 To: 10/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 11/01/2023 09:43 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 26 NOxRun, LbPerMBtu	Unit 26 BlrOPhrs, Hr	Unit 26 NOxValidData, hrs	Unit 26 NOxVldDataDays, Days	Unit 26 NOx30BOD, LbPerMBtu	Unit 26 Steam, MLB	Unit 26 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
10/01/2023	0.070	24.0	24.0	30.0	0.053	1,829.6	2,101,230.0
10/02/2023	0.070	24.0	24.0	30.0	0.055	1,903.5	2,182,582.4
10/03/2023	0.070	24.0	24.0	30.0	0.056	1,704.5	1,975,960.0
10/04/2023	0.070	24.0	24.0	30.0	0.057	1,465.2	1,715,900.0
10/05/2023	0.070	24.0	24.0	30.0	0.058	1,462.5	1,713,430.0
10/06/2023	0.065	24.0	24.0	30.0	0.059	1,610.8	1,872,690.0
10/07/2023	0.074	24.0	24.0	30.0	0.061	2,258.1	2,581,350.0
10/08/2023	0.076	24.0	24.0	30.0	0.063	2,388.0	2,687,690.0
10/09/2023	0.070	24.0	24.0	30.0	0.064	2,357.9	2,670,350.4
10/10/2023	0.073	24.0	24.0	30.0	0.065	2,203.0	2,505,280.0
10/11/2023	0.073	24.0	24.0	30.0	0.067	2,120.2	2,420,060.0
10/12/2023	0.070	24.0	24.0	30.0	0.068	2,264.5	2,576,480.0
10/13/2023	0.070	24.0	24.0	30.0	0.069	2,072.6	2,382,980.0
10/14/2023	0.070	24.0	24.0	30.0	0.070	1,572.8	1,848,230.0
10/15/2023	0.073	24.0	24.0	30.0	0.070	1,213.3	1,469,070.0
10/16/2023	0.078	24.0	24.0	30.0	0.070	1,387.1	1,621,280.0
10/17/2023	0.073	24.0	24.0	30.0	0.070	1,344.7	1,579,170.0
10/18/2023	0.073	24.0	24.0	30.0	0.071	1,301.4	1,534,250.0
10/19/2023	0.073	24.0	24.0	30.0	0.071	1,256.4	1,479,280.0
10/20/2023	0.070	24.0	24.0	30.0	0.071	1,410.7	1,642,660.0
10/21/2023	0.075	24.0	24.0	30.0	0.071	1,908.1	2,161,970.0
10/22/2023	0.075	24.0	24.0	30.0	0.071	2,201.7	2,472,940.0
10/23/2023	0.080	24.0	24.0	30.0	0.072	2,158.3	2,427,400.0
10/24/2023	0.078	24.0	24.0	30.0	0.072	2,269.9	2,549,260.0
10/25/2023	0.073	24.0	24.0	30.0	0.072	2,453.3	2,766,150.0
10/26/2023	0.069	24.0	24.0	30.0	0.072	2,547.5	2,852,100.0
10/27/2023	0.068	24.0	24.0	30.0	0.072	2,630.1	2,925,460.0
10/28/2023	0.060	24.0	24.0	30.0	0.072	2,843.3	3,146,170.0
10/29/2023	0.058	24.0	24.0	30.0	0.071	3,001.6	3,309,440.0
10/30/2023	0.062	24.0	24.0	30.0	0.071	2,994.3	3,287,600.0
10/31/2023	0.075	24.0	24.0	30.0	0.071	2,247.9	2,546,640.0
Monthly Avg/Sum*:	0.071	744.0 *	744.0 *	930.0 *	2.075 *	62,382.8 *	71,005,052.8 *
Daily Min:	0.058	24.0	24.0	30.0	0.053	1,213.3	1,469,070.0
Daily Max:	0.080	24.0	24.0	30.0	0.072	3,001.6	3,309,440.0
Oct 2023 - Oct 2023	0.071	744.0	744.0	930.0	2.075	62,382.8	71,005,052.8
QTD:	0.071	744.0 *	744.0 *	930.0 *	2.075 *	62,382.8 *	71,005,052.8 *
YTD 2023:	0.065	5,723.0 *	5,712.0 *	9,082.0 *	19.058 *	488,064.3 *	557,600,338.1 *

Monthly Summary By Day Report

Unit 26



From: 11/01/2023 00:00 To: 11/30/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 12/01/2023 12:22 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 26 NOxRun, LbPerMBtu	Unit 26 BlrOPhrs, Hr	Unit 26 NOxValidData, hrs	Unit 26 NOxVldDataDays, Days	Unit 26 NOx30BOD, LbPerMBtu	Unit 26 Steam, MLB	Unit 26 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
11/01/2023	0.080	24.0	24.0	30.0	0.071	1,436.8	1,689,700.0
11/02/2023	0.079	24.0	24.0	30.0	0.072	1,828.9	2,077,380.0
11/03/2023	0.075	24.0	24.0	30.0	0.072	2,232.1	2,497,740.0
11/04/2023	0.071	24.0	24.0	30.0	0.072	2,192.2	2,489,890.0
11/05/2023	0.070	24.0	24.0	30.0	0.072	2,152.7	2,454,060.0
11/06/2023	0.070	24.0	24.0	30.0	0.072	2,235.9	2,549,541.2
11/07/2023	0.070	24.0	24.0	30.0	0.072	2,201.5	2,455,910.0
11/08/2023	0.070	24.0	24.0	30.0	0.072	2,344.7	2,582,750.0
11/09/2023	0.071	24.0	24.0	30.0	0.072	2,212.5	2,442,170.0
11/10/2023	0.074	24.0	24.0	30.0	0.072	2,259.4	2,497,950.0
11/11/2023	0.080	24.0	24.0	30.0	0.072	2,393.9	2,649,120.0
11/12/2023	0.084	24.0	24.0	30.0	0.073	2,373.5	2,620,430.0
11/13/2023	0.089	24.0	24.0	30.0	0.073	1,570.4	1,766,780.0
11/14/2023	0.090	24.0	24.0	30.0	0.074	1,445.7	1,634,400.0
11/15/2023	0.090	24.0	24.0	30.0	0.074	1,410.4	1,602,320.0
11/16/2023	0.088	24.0	24.0	30.0	0.075	1,294.0	1,489,042.3
11/17/2023	0.083	24.0	24.0	30.0	0.075	1,476.4	1,678,980.0
11/18/2023	0.087	24.0	24.0	30.0	0.075	1,464.7	1,670,730.0
11/19/2023	0.090	24.0	24.0	30.0	0.076	1,491.9	1,700,040.0
11/20/2023	0.090	24.0	24.0	30.0	0.077	1,787.5	2,018,750.0
11/21/2023	0.082	24.0	24.0	30.0	0.077	1,838.1	2,061,360.0
11/22/2023	0.083	24.0	24.0	30.0	0.077	1,912.6	2,138,450.0
11/23/2023	0.090	24.0	24.0	30.0	0.077	1,891.3	2,114,700.0
11/24/2023	0.090	24.0	24.0	30.0	0.078	1,914.9	2,144,320.0
11/25/2023	0.090	24.0	24.0	30.0	0.079	1,735.6	1,953,480.0
11/26/2023	0.087	24.0	24.0	30.0	0.079	1,765.9	1,983,730.0
11/27/2023	0.089	24.0	24.0	30.0	0.080	1,870.3	2,098,660.0
11/28/2023	0.090	24.0	24.0	30.0	0.081	1,917.1	2,157,110.0
11/29/2023	0.091	24.0	24.0	30.0	0.082	2,133.8	2,338,400.0
11/30/2023	0.084	24.0	24.0	30.0	0.083	2,219.6	2,541,410.0
Monthly Avg/Sum*:	0.083	720.0 *	720.0 *	900.0 *	2.256 *	57,004.3 *	64,099,303.5 *
Daily Min:	0.070	24.0	24.0	30.0	0.071	1,294.0	1,489,042.3
Daily Max:	0.091	24.0	24.0	30.0	0.083	2,393.9	2,649,120.0
Nov 2023 - Nov 2023	0.083	720.0	720.0	900.0	2.256	57,004.3	64,099,303.5
QTD:	0.077	1,464.0 *	1,464.0 *	1,830.0 *	4.331 *	119,387.1 *	135,104,356.3 *
YTD 2023:	0.067	6,443.0 *	6,432.0 *	9,982.0 *	21.314 *	545,068.6 *	621,699,641.6 *

Monthly Summary By Day Report

Unit 26



From: 12/01/2023 00:00 To: 12/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 01/02/2024 09:45 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 26 NOxRun, LbPerMBtu	Unit 26 BlrOPhrs, Hr	Unit 26 NOxValidData, hrs	Unit 26 NOxVldDataDays, Days	Unit 26 NOx30BOD, LbPerMBtu	Unit 26 Steam, MLB	Unit 26 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
12/01/2023	0.082	24.0	24.0	30.0	0.083	2,170.5	2,418,880.0
12/02/2023	0.080	24.0	24.0	30.0	0.083	2,315.4	2,541,380.0
12/03/2023	0.083	24.0	24.0	30.0	0.083	2,246.0	2,475,540.0
12/04/2023	0.090	24.0	24.0	30.0	0.084	2,230.1	2,456,410.0
12/05/2023	0.090	24.0	24.0	30.0	0.084	2,083.2	2,301,580.0
12/06/2023	0.090	24.0	24.0	30.0	0.085	2,317.3	2,542,060.0
12/07/2023	0.090	24.0	24.0	30.0	0.086	2,254.9	2,487,600.0
12/08/2023	0.092	24.0	24.0	30.0	0.086	2,312.2	2,539,990.0
12/09/2023	0.085	24.0	24.0	30.0	0.087	2,066.9	2,278,720.0
12/10/2023	0.087	24.0	24.0	30.0	0.087	2,096.5	2,316,420.0
12/11/2023	0.090	24.0	24.0	30.0	0.088	2,069.6	2,295,680.0
12/12/2023	0.091	24.0	24.0	30.0	0.088	2,165.4	2,393,610.0
12/13/2023	0.092	24.0	24.0	30.0	0.088	2,227.0	2,458,670.0
12/14/2023	0.093	24.0	24.0	30.0	0.088	1,964.4	2,183,290.0
12/15/2023	0.092	24.0	24.0	30.0	0.088	2,118.5	2,288,860.0
12/16/2023	0.093	24.0	24.0	30.0	0.088	1,851.4	2,057,810.0
12/17/2023	0.088	24.0	24.0	30.0	0.088	1,786.4	1,984,850.0
12/18/2023	0.090	24.0	24.0	30.0	0.088	1,980.1	2,201,750.0
12/19/2023	0.090	24.0	24.0	30.0	0.088	2,049.5	2,296,280.0
12/20/2023	0.092	24.0	24.0	30.0	0.089	1,998.6	2,234,400.0
12/21/2023	0.091	24.0	24.0	30.0	0.089	2,109.1	2,312,070.0
12/22/2023	0.090	24.0	24.0	30.0	0.089	2,170.9	2,416,500.0
12/23/2023	0.090	24.0	24.0	30.0	0.089	2,071.5	2,292,220.0
12/24/2023	0.090	24.0	24.0	30.0	0.089	1,925.4	2,136,470.0
12/25/2023	0.087	24.0	24.0	30.0	0.089	2,110.2	2,330,890.8
12/26/2023	0.082	24.0	24.0	30.0	0.089	2,056.8	2,273,360.0
12/27/2023	0.081	24.0	24.0	30.0	0.089	2,061.7	2,277,150.0
12/28/2023	0.090	24.0	24.0	30.0	0.089	2,076.6	2,298,920.0
12/29/2023	0.090	24.0	24.0	30.0	0.089	2,070.1	2,298,830.0
12/30/2023	0.090	24.0	24.0	30.0	0.089	2,049.3	2,273,310.0
12/31/2023	0.090	24.0	24.0	30.0	0.089	2,006.7	2,225,040.0
Monthly Avg/Sum*:	0.089	744.0 *	744.0 *	930.0 *	2.708 *	65,012.2 *	71,888,540.8 *
Daily Min:	0.080	24.0	24.0	30.0	0.083	1,786.4	1,984,850.0
Daily Max:	0.093	24.0	24.0	30.0	0.089	2,317.3	2,542,060.0
Dec 2023 - Dec 2023	0.089	744.0	744.0	930.0	2.708	65,012.2	71,888,540.8
QTD:	0.081	2,208.0 *	2,208.0 *	2,760.0 *	7.039 *	184,399.3 *	206,992,897.1 *
YTD 2023:	0.069	7,187.0 *	7,176.0 *	10,912.0 *	24.022 *	610,080.8 *	693,588,182.4 *

26 Linearity Report



From: 07/05/2023 00:00 **To:** 07/05/2023 09:45 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:46 **Location:** South Charleston, West Virginia

Instrument Name: U26_O2D_P_Instrument **High Range:** **Serial Number:** A0610456028

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
07/05/23 07:50	Low	25.0	6.1	6.0	24.2 %
07/05/23 07:55	Mid	25.0	13.7	13.8	54.8 %
07/05/23 08:00	High	25.0	22.0	22.0	88.1 %
07/05/23 08:10	Low	25.0	6.1	6.0	24.2 %
07/05/23 08:15	Mid	25.0	13.7	13.8	54.8 %
07/05/23 08:20	High	25.0	22.0	22.0	88.1 %
07/05/23 08:30	Low	25.0	6.1	6.0	24.2 %
07/05/23 08:35	Mid	25.0	13.7	13.8	54.8 %
07/05/23 08:40	High	25.0	22.0	22.0	88.1 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	6.060	6.022	0	0.6	XC034293B	04/12/26 09:34
Mid	13.700	13.790	0	0.7	EB0065118	07/16/23 09:00
High	22.030	22.043	0	0.1	ALM-045931	02/07/31 12:52

26 Linearity Report



From: 07/05/2023 00:00 **To:** 07/05/2023 09:45 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:46 **Location:** South Charleston, West Virginia

Instrument Name: U26_NOX_P_Instrument **High Range** **Serial Number:** U1001081

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
07/05/23 08:50	Low	100.0	25.2	24.9	25.2 %
07/05/23 08:55	Mid	100.0	56.1	54.9	56.1 %
07/05/23 09:00	High	100.0	91.5	92.6	91.5 %
07/05/23 09:10	Low	100.0	25.2	25.1	25.2 %
07/05/23 09:15	Mid	100.0	56.1	55.0	56.1 %
07/05/23 09:20	High	100.0	91.5	92.5	91.5 %
07/05/23 09:30	Low	100.0	25.2	25.1	25.2 %
07/05/23 09:35	Mid	100.0	56.1	54.9	56.1 %
07/05/23 09:40	High	100.0	91.5	92.5	91.5 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	25.150	25.039	0	0.4	CC174480	01/22/24 07:44
Mid	56.120	54.936	0	2.1	CC316728	12/09/23 07:48
High	91.470	92.551	0	1.2	AAL071191	02/01/31 07:35

26 Linearity Report



From: 10/04/2023 00:00 **To:** 10/04/2023 09:45 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:34 **Location:** South Charleston, West Virginia

Instrument Name: U26_O2D_P_Instrument **High Range:** **Serial Number:** A0610456028

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
10/04/23 07:15	Low	25.0	6.1	6.0	24.2 %
10/04/23 07:20	Mid	25.0	14.0	14.0	55.9 %
10/04/23 07:25	High	25.0	22.3	22.4	89.4 %
10/04/23 07:35	Low	25.0	6.1	6.0	24.2 %
10/04/23 07:40	Mid	25.0	14.0	14.0	55.9 %
10/04/23 07:45	High	25.0	22.3	22.4	89.4 %
10/04/23 07:55	Low	25.0	6.1	6.0	24.2 %
10/04/23 08:00	Mid	25.0	14.0	14.0	55.9 %
10/04/23 08:05	High	25.0	22.3	22.4	89.4 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	6.060	6.048	0	0.2	XC034293B	04/12/26 09:34
Mid	13.970	13.965	0	0.0	CC165875	04/16/26 07:46
High	22.340	22.365	0	0.1	CC753027	03/14/31 08:10

26 Linearity Report



From: 10/04/2023 00:00 **To:** 10/04/2023 09:45 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:34 **Location:** South Charleston, West Virginia

Instrument Name: U26_NOX_P_Instrument **High Range:** **Serial Number:** U1001081

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
10/04/23 08:15	Low	100.0	25.2	24.9	25.2 %
10/04/23 08:20	Mid	100.0	56.1	54.5	56.1 %
10/04/23 08:25	High	100.0	90.2	90.0	90.2 %
10/04/23 08:35	Low	100.0	25.2	24.9	25.2 %
10/04/23 08:40	Mid	100.0	56.1	54.8	56.1 %
10/04/23 08:45	High	100.0	90.2	90.3	90.2 %
10/04/23 08:55	Low	100.0	25.2	25.0	25.2 %
10/04/23 09:00	Mid	100.0	56.1	54.7	56.1 %
10/04/23 09:05	High	100.0	90.2	90.2	90.2 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	25.150	24.935	0	0.9	CC174480	01/22/24 07:44
Mid	56.120	54.654	0	2.6	CC316728	12/09/23 07:48
High	90.240	90.190	0	0.1	CC357279	03/20/31 08:11

Union Carbide Corporation
South Charleston, WV Facility
40 CFR 60 Subpart Db Semi-Annual Report for 27 Boiler
Second Half 2023 (July 1, 2023 – December 31, 2023)

The following report contains the 10 items listed in 40 CFR 60, Subpart Db, §60.49b, Paragraph (g).

- (1) Calendar date.

The calendar dates for the boiler data are from July 1, 2023, through December 31, 2023.

- (2) The average hourly nitrogen oxides emission rates (expressed as NO₂) (lb/million Btu heat input) measured or predicted.

The average hourly nitrogen oxides emission rates for 27 Boiler were measured and recorded. The average daily nitrogen oxide emission rates are attached and are all below permit limits. The units are in lb/million Btu heat input. The data is from the CEMS.

- (3) The 30-day average nitrogen oxides emission rates (ng/J or lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.

The attached 30-day rolling average nitrogen oxides emissions rates (in lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days is attached. The attached data is from the CEMS.

- (4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under § 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.

As evidenced by the attached data, there were 0 days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under § 60.44b.

- (5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

None

- (6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

On August 13, 2023, there was one (1) hour of missing NOx emissions data due to loss of electric power to the CEMS.

- (7) Identification of “F” factor used for calculations, method of determination, and type of fuel combusted.

The primary fuel for 27 Boiler is natural gas. The “F” factor for natural gas is 1,040 dscf/10⁶ BTUs, based on Table 19-1 in 40 CFR 60 Appendix A, Method 19. The vent streams from a process unit may be combusted in 27 Boiler: POV. The “F” factor default value when process vent gases are being burned in 27 Boiler is 9,349 dscf/10⁶ BTUs.

- (8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

The pollution concentration did not exceed full span of the continuous monitoring system at any time.

- (9) Description of any modification to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3.

None

- (10) Results of daily CEMS drift tests and the quarterly accuracy assessments as required under Appendix F, Procedure 1.

The daily CEMS drift tests results indicated that no daily drift tests out of 160 steam-generating days in the second half of 2023 had a component outside the allowable deviation, with 0 daily drift tests indicating an out-of-control period. Copies of the quarterly accuracy assessments results are attached. The annual relative accuracy test assessment report was provided by cover letter dated April 18, 2023.

27 Boiler Second Half 2023

Pollutant	NOx			
Company	Union Carbide Corporation South Charleston, WV			
Emission Limitation	Regulation	Limit	Units	Period
	40 CFR 60	0.2	lb/mm Btu	Rolling 30 Day Average
Total Source Operating Time	3,811 hours			

Reporting Period:	7/1/2023	to	12/31/2023
Monitor Manufacturer:	Teledyne		
Model Number:	T200M - 421		
Date of Last Certification or Audit:	March 8, 2023		
Process Unit(s) Description:	27 Boiler		

Emissions Data Summary		
1. Days when 30-day rolling average exceeded limits listed by cause:		
	40 CFR 60	
a. Startup/Shutdown	<u>0</u>	
b. Soot Blowing	<u>0</u>	
c. Control Equipment Problems	<u>0</u>	
d. Process Problems	<u>0</u>	
e. Other Known Causes	<u>0</u>	
2. Total Duration	<u>0</u>	
3. Percent Excess Emission	<u>0.0</u>	%
$\% \text{ Excess} = 100 * (\text{Total Duration} / \text{Total Source Operating Time})$		

CEMS Performance Summary		
1. CEMS Downtime in reporting period due to:		
a. Monitor Equipment Malfunction	<u>0</u>	hours
b. Other Equipment Malfunction	<u>0</u>	hours
c. Quality Assurance Calibration	<u>0</u>	hours
d. Other Known Causes	<u>1</u>	hours
e. Unknown Causes	<u>0</u>	hours
2. Total CEMS Downtime	<u>1</u>	hours
3. Percent CEMS Downtime	<u>0.03%</u>	
$\% \text{ Downtime} = 100 * (\text{Total CEMS Downtime} / \text{Total Source Operating Time})$		

Monthly Summary By Day Report

Unit 27



From: 07/01/2023 00:00 To: 07/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 08/01/2023 07:45 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 27 NOxRun, LbPerMBtu	Unit 27 BlrOPhrs, Hr	Unit 27 NOxValidData, hrs	Unit 27 NOxVldDataDays, Days	Unit 27 NOx30BOD, LbPerMBtu	Unit 27 Steam, Mlb	Unit 27 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
07/01/2023	0.061	24.0	24.0	30.0	0.060	2,042.5	2,346,910.0
07/02/2023	0.061	24.0	24.0	30.0	0.061	1,900.5	2,178,030.0
07/03/2023	0.059	24.0	24.0	30.0	0.061	1,665.2	1,921,730.0
07/04/2023	0.039	24.0	24.0	30.0	0.060	782.7	919,500.0
07/05/2023	0.042	24.0	24.0	30.0	0.060	784.4	919,200.0
07/06/2023	0.045	24.0	24.0	30.0	0.060	784.3	918,590.0
07/07/2023	0.041	24.0	24.0	30.0	0.059	783.2	918,920.0
07/08/2023	0.045	24.0	24.0	30.0	0.058	784.2	918,160.0
07/09/2023	0.040	24.0	24.0	30.0	0.057	791.8	917,280.0
07/10/2023	0.048	24.0	24.0	30.0	0.056	788.3	915,673.1
07/11/2023	0.049	24.0	24.0	30.0	0.056	831.2	974,490.0
07/12/2023	0.051	24.0	24.0	30.0	0.055	1,030.1	1,208,000.0
07/13/2023	0.056	24.0	24.0	30.0	0.055	1,418.6	1,652,890.0
07/14/2023	0.049	24.0	24.0	30.0	0.054	1,098.4	1,275,610.0
07/15/2023	0.058	24.0	24.0	30.0	0.054	1,372.3	1,576,910.0
07/16/2023	0.060	24.0	24.0	30.0	0.054	1,478.0	1,712,250.0
07/17/2023	0.061	24.0	24.0	30.0	0.054	1,688.0	1,931,360.0
07/18/2023	0.056	17.0	17.0	30.0	0.054	1,066.4	1,267,526.3
07/19/2023	0.061	24.0	24.0	30.0	0.054	1,901.0	2,178,910.0
07/20/2023	0.061	24.0	24.0	30.0	0.054	1,778.5	2,055,700.0
07/21/2023	0.066	24.0	24.0	30.0	0.054	1,947.1	2,240,470.0
07/22/2023	0.068	24.0	24.0	30.0	0.054	1,876.8	2,166,880.0
07/23/2023	0.069	24.0	24.0	30.0	0.055	1,849.6	2,120,600.0
07/24/2023	0.067	24.0	24.0	30.0	0.055	1,721.2	1,976,420.0
07/25/2023	0.066	24.0	24.0	30.0	0.056	2,299.7	2,627,730.0
07/26/2023	0.063	24.0	24.0	30.0	0.056	2,528.3	2,881,980.0
07/27/2023	0.060	24.0	24.0	30.0	0.056	2,460.9	2,850,000.0
07/28/2023	0.060	24.0	24.0	30.0	0.056	2,536.8	2,887,740.0
07/29/2023	0.061	24.0	24.0	30.0	0.056	2,550.5	2,907,620.0
07/30/2023	0.065	24.0	24.0	30.0	0.056	2,352.1	2,694,253.6
07/31/2023	0.068	24.0	24.0	30.0	0.057	2,296.9	2,637,910.0
Monthly Avg/Sum*:	0.057	737.0 *	737.0 *	930.0 *	1.747 *	49,189.5 *	56,699,243.0 *
Daily Min:	0.039	17.0	17.0	30.0	0.054	782.7	915,673.1
Daily Max:	0.069	24.0	24.0	30.0	0.061	2,550.5	2,907,620.0
Jul 2023 - Jul 2023	0.057	737.0	737.0	930.0	1.747	49,189.5	56,699,243.0
QTD:	0.057	737.0 *	737.0 *	930.0 *	1.747 *	49,189.5 *	56,699,243.0 *
YTD 2023:	0.075	3,858.0 *	3,858.0 *	6,360.0 *	16.706 *	298,815.7 *	336,982,624.8 *

Monthly Summary By Day Report

Unit 27



From: 08/01/2023 00:00 To: 08/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 09/01/2023 09:23 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:

	Unit 27 NOxRun, LbPerMBtu	Unit 27 BlrOPhrs, Hr	Unit 27 NOxValidData, hrs	Unit 27 NOxVldDataDays, Days	Unit 27 NOx30BOD, LbPerMBtu	Unit 27 Steam, Mlb	Unit 27 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
08/01/2023	0.070	24.0	24.0	30.0	0.057	2,477.9	2,825,460.0
08/02/2023	0.068	24.0	24.0	30.0	0.057	2,494.2	2,829,100.0
08/03/2023	0.060	24.0	24.0	30.0	0.058	2,508.1	2,836,595.8
08/04/2023	0.063	24.0	24.0	30.0	0.059	2,718.2	3,099,870.0
08/05/2023	0.063	24.0	24.0	30.0	0.059	2,696.7	3,066,620.0
08/06/2023	0.060	24.0	24.0	30.0	0.060	2,703.9	3,063,530.0
08/07/2023	0.060	24.0	24.0	30.0	0.060	2,652.5	2,996,850.0
08/08/2023	0.065	24.0	24.0	30.0	0.061	2,642.1	3,009,360.0
08/09/2023	0.063	24.0	24.0	30.0	0.062	2,538.9	2,882,720.0
08/10/2023	0.061	24.0	24.0	30.0	0.062	2,941.2	3,311,660.0
08/11/2023	0.064	24.0	24.0	30.0	0.062	2,795.3	3,159,640.0
08/12/2023	0.061	24.0	24.0	30.0	0.063	2,640.7	2,989,520.0
08/13/2023	0.060	21.0	20.0	30.0	0.063	2,092.5	2,207,369.7
08/14/2023	0.060	24.0	24.0	30.0	0.063	2,607.5	2,977,490.0
08/15/2023	0.066	24.0	24.0	30.0	0.063	2,761.7	3,147,160.0
08/16/2023	0.069	24.0	24.0	30.0	0.063	2,978.5	3,375,480.0
08/17/2023	0.070	24.0	24.0	30.0	0.064	2,958.6	3,368,800.0
08/18/2023	0.071	24.0	24.0	30.0	0.064	2,993.8	3,403,420.0
08/19/2023	0.070	24.0	24.0	30.0	0.065	3,016.4	3,411,360.0
08/20/2023	0.069	24.0	24.0	30.0	0.065	2,925.5	3,322,960.0
08/21/2023	0.060	24.0	24.0	30.0	0.064	2,883.5	3,286,220.0
08/22/2023	0.065	24.0	24.0	30.0	0.064	2,740.4	3,095,900.0
08/23/2023	0.067	24.0	24.0	30.0	0.064	2,948.8	3,339,750.0
08/24/2023	0.060	24.0	24.0	30.0	0.064	2,838.4	3,187,610.0
08/25/2023	0.057	24.0	24.0	30.0	0.064	2,835.6	3,193,250.0
08/26/2023	0.058	24.0	24.0	30.0	0.064	2,924.6	3,330,070.0
08/27/2023	0.060	24.0	24.0	30.0	0.064	2,732.7	3,099,940.0
08/28/2023	0.060	24.0	24.0	30.0	0.064	2,629.4	2,964,020.0
08/29/2023	0.060	24.0	24.0	30.0	0.064	2,829.0	3,189,560.0
08/30/2023	0.067	24.0	24.0	30.0	0.064	2,943.7	3,312,400.0
08/31/2023	0.070	24.0	24.0	30.0	0.064	3,007.1	3,370,360.0
Monthly Avg/Sum*:	0.064	741.0 *	740.0 *	930.0 *	1.934 *	85,457.4 *	96,654,045.5 *
Daily Min:	0.057	21.0	20.0	30.0	0.057	2,092.5	2,207,369.7
Daily Max:	0.071	24.0	24.0	30.0	0.065	3,016.4	3,411,360.0
Aug 2023 - Aug 2023	0.064	741.0	740.0	930.0	1.934	85,457.4	96,654,045.5
QTD:	0.060	1,478.0 *	1,477.0 *	1,860.0 *	3.681 *	134,646.9 *	153,353,288.5 *
YTD 2023:	0.073	4,599.0 *	4,598.0 *	7,290.0 *	18.640 *	384,273.1 *	433,636,670.3 *

Monthly Summary By Day Report

Unit 27



From: 09/01/2023 00:00 To: 09/30/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 10/02/2023 09:47 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 27 NOxRun, LbPerMBtu	Unit 27 BlrOPhrs, Hr	Unit 27 NOxValidData, hrs	Unit 27 NOxVldDataDays, Days	Unit 27 NOx30BOD, LbPerMBtu	Unit 27 Steam, Mlb	Unit 27 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
09/01/2023	0.068	24.0	24.0	30.0	0.064	2,634.9	2,971,660.0
09/02/2023	0.066	24.0	24.0	30.0	0.064	2,470.3	2,809,780.0
09/03/2023	0.062	24.0	24.0	30.0	0.064	2,449.0	2,790,830.0
09/04/2023	0.063	24.0	24.0	30.0	0.064	2,628.4	2,995,600.0
09/05/2023	0.063	24.0	24.0	30.0	0.064	2,853.0	3,253,070.0
09/06/2023	0.063	24.0	24.0	30.0	0.064	2,703.5	3,076,190.0
09/07/2023	0.068	24.0	24.0	30.0	0.064	2,828.3	3,152,499.0
09/08/2023	0.070	24.0	24.0	30.0	0.064	2,824.4	3,175,010.0
09/09/2023	0.070	24.0	24.0	30.0	0.065	2,926.8	3,279,370.0
09/10/2023	0.070	24.0	24.0	30.0	0.065	2,862.4	3,194,450.0
09/11/2023	0.073	24.0	24.0	30.0	0.065	2,781.9	3,120,500.0
09/12/2023	0.070	24.0	24.0	30.0	0.066	2,781.3	3,101,080.0
09/13/2023	0.076	24.0	24.0	30.0	0.066	2,399.6	2,671,350.0
09/14/2023	0.084	24.0	24.0	30.0	0.067	1,352.6	1,512,860.0
09/15/2023	0.088	24.0	24.0	30.0	0.067	817.7	919,960.0
09/16/2023	0.085	24.0	24.0	30.0	0.068	814.0	919,880.0
09/17/2023	0.080	24.0	24.0	30.0	0.068	806.8	918,020.0
09/18/2023	0.082	24.0	24.0	30.0	0.068	810.2	918,230.0
09/19/2023	0.085	24.0	24.0	30.0	0.069	809.1	919,230.0
09/20/2023	0.087	24.0	24.0	30.0	0.070	808.8	918,410.0
09/21/2023	0.082	24.0	24.0	30.0	0.070	807.1	919,380.0
09/22/2023	0.085	24.0	24.0	30.0	0.071	804.7	918,380.0
09/23/2023	0.090	24.0	24.0	30.0	0.072	812.0	918,670.0
09/24/2023	0.083	24.0	24.0	30.0	0.073	808.5	918,640.0
09/25/2023	0.080	24.0	24.0	30.0	0.074	807.0	917,520.0
09/26/2023	0.080	24.0	24.0	30.0	0.074	802.6	918,110.0
09/27/2023	0.070	24.0	24.0	30.0	0.075	799.9	917,590.0
09/28/2023	0.043	24.0	24.0	30.0	0.074	799.5	917,540.0
09/29/2023	0.040	24.0	24.0	30.0	0.073	799.1	918,460.0
09/30/2023	0.040	24.0	24.0	30.0	0.072	799.2	917,920.0
Monthly Avg/Sum*:	0.072	720.0 *	720.0 *	900.0 *	2.044 *	49,402.6 *	55,800,189.0 *
Daily Min:	0.040	24.0	24.0	30.0	0.064	799.1	917,520.0
Daily Max:	0.090	24.0	24.0	30.0	0.075	2,926.8	3,279,370.0
Sep 2023 - Sep 2023	0.072	720.0	720.0	900.0	2.044	49,402.6	55,800,189.0
QTD:	0.064	2,198.0 *	2,197.0 *	2,760.0 *	5.725 *	184,049.5 *	209,153,477.5 *
YTD 2023:	0.073	5,319.0 *	5,318.0 *	8,190.0 *	20.684 *	433,675.7 *	489,436,859.3 *

Monthly Summary By Day Report

Unit 27



From: 10/01/2023 00:00 To: 10/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 11/01/2023 09:47 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 27 NOxRun, LbPerMBtu	Unit 27 BlrOPhrs, Hr	Unit 27 NOxValidData, hrs	Unit 27 NOxVldDataDays, Days	Unit 27 NOx30BOD, LbPerMBtu	Unit 27 Steam, Mlb	Unit 27 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
10/01/2023	0.040	24.0	24.0	30.0	0.071	796.0	917,900.0
10/02/2023	0.059	24.0	24.0	30.0	0.071	790.7	915,915.2
10/03/2023	0.081	24.0	24.0	30.0	0.072	825.5	956,090.0
10/04/2023	0.083	24.0	24.0	30.0	0.072	1,048.2	1,206,020.0
10/05/2023	0.084	24.0	24.0	30.0	0.073	1,046.8	1,204,820.0
10/06/2023	0.079	14.0	14.0	30.0	0.074	581.5	665,905.6
10/07/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/08/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/09/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/10/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/11/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/12/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/13/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/14/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/15/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/16/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/17/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/18/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/19/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/20/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/21/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/22/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/23/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/24/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/25/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/26/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/27/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/28/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/29/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/30/2023	0.000	0.0	0.0	30.0	0.074	0.0	0.0
10/31/2023	0.087	15.0	15.0	30.0	0.074	895.7	1,043,271.2
Monthly Avg/Sum*:	0.073	149.0 *	149.0 *	930.0 *	2.283 *	5,984.4 *	6,909,922.0 *
Daily Min:	0.040	0.0	0.0	30.0	0.071	0.0	0.0
Daily Max:	0.087	24.0	24.0	30.0	0.074	1,048.2	1,206,020.0
Oct 2023 - Oct 2023	0.073	149.0	149.0	930.0	2.283	5,984.4	6,909,922.0
QTD:	0.073	149.0 *	149.0 *	930.0 *	2.283 *	5,984.4 *	6,909,922.0 *
YTD 2023:	0.073	5,467.0 *	5,467.0 *	9,120.0 *	22.967 *	439,660.1 *	496,346,781.3 *

Monthly Summary By Day Report

Unit 27



From: 11/01/2023 00:00 To: 11/30/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 12/01/2023 12:24 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 27 NOxRun, LbPerMBtu	Unit 27 BlrOPHrs, Hr	Unit 27 NOxValidData, hrs	Unit 27 NOxVldDataDays, Days	Unit 27 NOx30BOD, LbPerMBtu	Unit 27 Steam, Mlb	Unit 27 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
11/01/2023	0.088	24.0	24.0	30.0	0.075	1,690.9	1,863,040.0
11/02/2023	0.090	24.0	24.0	30.0	0.075	1,392.9	1,490,270.0
11/03/2023	0.097	24.0	24.0	30.0	0.076	1,029.0	1,047,220.0
11/04/2023	0.095	24.0	24.0	30.0	0.077	996.8	1,041,600.0
11/05/2023	0.093	24.0	24.0	30.0	0.078	967.7	1,009,420.0
11/06/2023	0.093	24.0	24.0	30.0	0.078	951.8	1,004,808.0
11/07/2023	0.090	24.0	24.0	30.0	0.079	895.6	943,520.0
11/08/2023	0.090	24.0	24.0	30.0	0.079	943.7	1,000,810.0
11/09/2023	0.090	24.0	24.0	30.0	0.079	875.7	943,770.0
11/10/2023	0.090	24.0	24.0	30.0	0.079	907.6	953,930.0
11/11/2023	0.097	24.0	24.0	30.0	0.080	866.5	930,570.0
11/12/2023	0.098	24.0	24.0	30.0	0.080	854.4	925,550.0
11/13/2023	0.087	24.0	24.0	30.0	0.080	1,462.3	1,568,570.0
11/14/2023	0.086	24.0	24.0	30.0	0.080	1,671.9	1,803,170.0
11/15/2023	0.087	24.0	24.0	30.0	0.080	1,618.1	1,759,770.0
11/16/2023	0.086	24.0	24.0	30.0	0.080	1,859.1	1,998,820.0
11/17/2023	0.077	24.0	24.0	30.0	0.080	1,621.0	1,768,440.0
11/18/2023	0.083	24.0	24.0	30.0	0.080	1,715.3	1,843,610.0
11/19/2023	0.083	24.0	24.0	30.0	0.080	1,652.1	1,768,950.0
11/20/2023	0.080	24.0	24.0	30.0	0.081	1,410.4	1,547,160.0
11/21/2023	0.077	24.0	24.0	30.0	0.082	1,431.6	1,587,540.0
11/22/2023	0.080	24.0	24.0	30.0	0.083	1,489.6	1,660,680.0
11/23/2023	0.080	24.0	24.0	30.0	0.084	1,478.3	1,638,420.0
11/24/2023	0.080	24.0	24.0	30.0	0.086	1,533.0	1,665,830.0
11/25/2023	0.081	24.0	24.0	30.0	0.086	1,368.4	1,474,070.0
11/26/2023	0.081	24.0	24.0	30.0	0.086	1,393.0	1,509,870.0
11/27/2023	0.084	24.0	24.0	30.0	0.086	1,500.3	1,622,850.0
11/28/2023	0.090	24.0	24.0	30.0	0.087	1,554.1	1,678,880.0
11/29/2023	0.083	24.0	24.0	30.0	0.087	1,467.2	1,603,460.0
11/30/2023	0.077	24.0	24.0	30.0	0.086	1,390.2	1,572,430.0
Monthly Avg/Sum*:	0.086	720.0 *	720.0 *	900.0 *	2.429 *	39,988.5 *	43,227,028.0 *
Daily Min:	0.077	24.0	24.0	30.0	0.075	854.4	925,550.0
Daily Max:	0.098	24.0	24.0	30.0	0.087	1,859.1	1,998,820.0
Nov 2023 - Nov 2023	0.086	720.0	720.0	900.0	2.429	39,988.5	43,227,028.0
QTD:	0.084	869.0 *	869.0 *	1,830.0 *	4.712 *	45,972.9 *	50,136,950.0 *
YTD 2023:	0.074	6,187.0 *	6,187.0 *	10,020.0 *	25.396 *	479,648.6 *	539,573,809.3 *

Monthly Summary By Day Report

Unit 27



From: 12/01/2023 00:00 To: 12/31/2023 23:59 Facility Name: Union Carbide Corporation
 Generated: 01/02/2024 09:49 Location: South Charleston, West Virginia

Red = Invalid Data | Green = Edited Status | Blue = Edited Value | * = Excess Emission

Limit Value:	Unit 27 NOxRun, LbPerMBtu	Unit 27 BlrOPhrs, Hr	Unit 27 NOxValidData, hrs	Unit 27 NOxVldDataDays, Days	Unit 27 NOx30BOD, LbPerMBtu	Unit 27 Steam, Mlb	Unit 27 GasFlow, scf
	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)	1 Day(s)
12/01/2023	0.077	24.0	24.0	30.0	0.086	1,304.1	1,450,840.0
12/02/2023	0.080	24.0	24.0	30.0	0.086	1,436.8	1,570,660.0
12/03/2023	0.076	24.0	24.0	30.0	0.085	1,339.5	1,507,020.0
12/04/2023	0.080	24.0	24.0	30.0	0.085	1,341.4	1,488,630.0
12/05/2023	0.092	24.0	24.0	30.0	0.085	1,198.5	1,301,870.0
12/06/2023	0.086	24.0	24.0	30.0	0.084	1,339.7	1,446,990.0
12/07/2023	0.093	24.0	24.0	30.0	0.084	1,274.6	1,378,510.0
12/08/2023	0.088	24.0	24.0	30.0	0.084	1,289.7	1,431,720.0
12/09/2023	0.094	24.0	24.0	30.0	0.084	1,039.9	1,168,640.0
12/10/2023	0.093	24.0	24.0	30.0	0.085	1,075.6	1,205,130.0
12/11/2023	0.100	24.0	24.0	30.0	0.085	1,065.8	1,184,990.0
12/12/2023	0.101	24.0	24.0	30.0	0.085	1,160.8	1,283,980.0
12/13/2023	0.092	24.0	24.0	30.0	0.085	1,226.4	1,349,510.0
12/14/2023	0.102	24.0	24.0	30.0	0.085	1,075.5	1,185,679.0
12/15/2023	0.097	24.0	24.0	30.0	0.086	1,135.2	1,245,675.0
12/16/2023	0.088	24.0	24.0	30.0	0.086	1,451.0	1,560,550.0
12/17/2023	0.081	24.0	24.0	30.0	0.086	1,371.2	1,512,560.0
12/18/2023	0.086	24.0	24.0	30.0	0.086	1,564.0	1,721,380.0
12/19/2023	0.090	24.0	24.0	30.0	0.086	1,678.6	1,801,980.0
12/20/2023	0.090	24.0	24.0	30.0	0.087	1,574.6	1,685,500.0
12/21/2023	0.090	24.0	24.0	30.0	0.087	1,641.0	1,762,160.0
12/22/2023	0.090	24.0	24.0	30.0	0.087	1,651.8	1,790,260.0
12/23/2023	0.090	24.0	24.0	30.0	0.088	1,539.4	1,673,170.0
12/24/2023	0.080	24.0	24.0	30.0	0.088	1,432.6	1,577,090.0
12/25/2023	0.080	24.0	24.0	30.0	0.088	1,441.6	1,575,270.4
12/26/2023	0.078	24.0	24.0	30.0	0.088	1,372.2	1,518,560.0
12/27/2023	0.078	24.0	24.0	30.0	0.087	1,384.9	1,521,450.0
12/28/2023	0.082	24.0	24.0	30.0	0.087	1,411.0	1,542,220.0
12/29/2023	0.083	24.0	24.0	30.0	0.087	1,412.4	1,529,880.0
12/30/2023	0.080	24.0	24.0	30.0	0.087	1,364.9	1,483,510.0
12/31/2023	0.080	24.0	24.0	30.0	0.087	1,305.6	1,426,190.0
Monthly Avg/Sum*:	0.087	744.0 *	744.0 *	930.0 *	2.666 *	41,900.3 *	45,881,574.4 *
Daily Min:	0.076	24.0	24.0	30.0	0.084	1,039.9	1,168,640.0
Daily Max:	0.102	24.0	24.0	30.0	0.088	1,678.6	1,801,980.0
Dec 2023 - Dec 2023	0.087	744.0	744.0	930.0	2.666	41,900.3	45,881,574.4
QTD:	0.085	1,613.0 *	1,613.0 *	2,760.0 *	7.378 *	87,873.2 *	96,018,524.4 *
YTD 2023:	0.076	6,931.0 *	6,931.0 *	10,950.0 *	28.062 *	521,548.9 *	585,455,383.7 *

27 Linearity Report



From: 07/06/2023 00:00 **To:** 07/06/2023 09:44 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:45 **Location:** South Charleston, West Virginia

Instrument Name: U27_O2D_P_Instrument **High Range:** **Serial Number:** 421

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
07/06/23 07:15	Low	25.0	6.1	6.0	24.2 %
07/06/23 07:20	Mid	25.0	13.7	13.8	54.8 %
07/06/23 07:25	High	25.0	22.0	22.1	88.1 %
07/06/23 07:35	Low	25.0	6.1	6.0	24.2 %
07/06/23 07:40	Mid	25.0	13.7	13.8	54.8 %
07/06/23 07:45	High	25.0	22.0	22.1	88.1 %
07/06/23 07:55	Low	25.0	6.1	6.0	24.2 %
07/06/23 08:00	Mid	25.0	13.7	13.8	54.8 %
07/06/23 08:05	High	25.0	22.0	22.1	88.1 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	6.060	6.019	0	0.7	XC034293B	04/12/26 09:34
Mid	13.700	13.797	0	0.7	EB0065118	07/16/23 09:00
High	22.030	22.061	0	0.1	ALM-045931	02/07/31 12:52

27 Linearity Report



From: 07/06/2023 00:00 **To:** 07/06/2023 09:44 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:45 **Location:** South Charleston, West Virginia

Instrument Name: U27_NOX_P_Instrument **High Range** **Serial Number:** 421

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
07/06/23 08:15	Low	100.0	25.2	24.7	25.2 %
07/06/23 08:20	Mid	100.0	56.1	55.1	56.1 %
07/06/23 08:25	High	100.0	91.5	93.4	91.5 %
07/06/23 08:35	Low	100.0	25.2	25.1	25.2 %
07/06/23 08:40	Mid	100.0	56.1	55.4	56.1 %
07/06/23 08:45	High	100.0	91.5	93.8	91.5 %
07/06/23 08:55	Low	100.0	25.2	25.1	25.2 %
07/06/23 09:00	Mid	100.0	56.1	55.5	56.1 %
07/06/23 09:05	High	100.0	91.5	94.0	91.5 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	25.150	24.959	0	0.8	CC174480	01/22/24 07:44
Mid	56.120	55.338	0	1.4	CC316728	12/09/23 07:48
High	91.470	93.761	0	2.5	AAL071191	02/01/31 07:35

27 Linearity Report



From: 10/05/2023 00:00 **To:** 10/05/2023 08:44 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:37 **Location:** South Charleston, West Virginia

Instrument Name: U27_O2D_P_Instrument **High Range:** **Serial Number:** 421

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
10/05/23 06:46	Low	25.0	6.1	6.0	24.2 %
10/05/23 06:51	Mid	25.0	14.0	14.0	55.9 %
10/05/23 06:56	High	25.0	22.3	22.4	89.4 %
10/05/23 07:06	Low	25.0	6.1	6.0	24.2 %
10/05/23 07:11	Mid	25.0	14.0	14.0	55.9 %
10/05/23 07:16	High	25.0	22.3	22.4	89.4 %
10/05/23 07:26	Low	25.0	6.1	6.0	24.2 %
10/05/23 07:31	Mid	25.0	14.0	14.0	55.9 %
10/05/23 07:36	High	25.0	22.3	22.4	89.4 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	6.060	6.032	0	0.5	XC034293B	04/12/26 09:34
Mid	13.970	13.954	0	0.1	CC165875	04/16/26 07:46
High	22.340	22.375	0	0.2	CC753027	03/14/31 08:10

27 Linearity Report



From: 10/05/2023 00:00 **To:** 10/05/2023 08:44 **Facility Name:** Union Carbide Corporation
Generated: 12/27/2023 07:37 **Location:** South Charleston, West Virginia

Instrument Name: U27_NOX_P_Instrument **High Range:** **Serial Number:** 421

Calibration Time	Cal Gas Level	Span Value	Reference Value	Actual Value	Ref Value As Pct Span
10/05/23 07:46	Low	100.0	25.2	25.3	25.2 %
10/05/23 07:51	Mid	100.0	56.1	55.8	56.1 %
10/05/23 07:56	High	100.0	90.2	92.6	90.2 %
10/05/23 08:06	Low	100.0	25.2	25.4	25.2 %
10/05/23 08:11	Mid	100.0	56.1	55.9	56.1 %
10/05/23 08:16	High	100.0	90.2	92.7	90.2 %
10/05/23 08:26	Low	100.0	25.2	25.5	25.2 %
10/05/23 08:31	Mid	100.0	56.1	56.1	56.1 %
10/05/23 08:36	High	100.0	90.2	92.7	90.2 %

Overall Result: Passed

Cal Gas Level	Reference Mean	Actual Mean	Alt Perf Spec	Result	Cylinder Id	Expiration Date
Low	25.150	25.411	0	1.0	CC174480	01/22/24 07:44
Mid	56.120	55.928	0	0.3	CC316728	12/09/23 07:48
High	90.240	92.656	0	2.7	CC357279	03/20/31 08:11

31.1315
9/14/23

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number: E02NI99E15A3676 Reference Number: 54-402641678-1
 Cylinder Number: AAL071191 Cylinder Volume: 144.0 CF
 Laboratory: 124 - Chicago (SAP) - IL Cylinder Pressure: 2015 PSIG
 PGVP Number: B12023 Valve Outlet: 660
 Gas Code: NO,NOX,BALN Certification Date: Feb 01, 2023

Expiration Date: Feb 01, 2031

Calibration performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 800/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. This report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	90.00 PPM	91.47 PPM	G1	+/- 1.3% NIST Traceable	01/25/2023, 02/01/2023
NITRIC OXIDE	90.00 PPM	91.36 PPM	G1	+/- 1.3% NIST Traceable	01/25/2023, 02/01/2023
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
TRM	200810-14	CO733104	98.61 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Oct 06, 2028
PRM	12386	D685025	9.91 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Feb 20, 2020
GMIS	401423838104	CC505590	4.373 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Feb 18, 2023

The SRM, TRM, PRM, or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 AUP2010242	FTIR	Jan 05, 2023
Nicolet iS50 AUP2010242	FTIR	Jan 05, 2023

Triad Data Available Upon Request

ON

5-23-23



OFF

6-30-23



[Handwritten Signature]

Approved for Release

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E02NI77E15A0084	Reference Number:	64-402655737-1
Cylinder Number:	ALM-045931	Cylinder Volume:	147.0 CF
Laboratory:	124 - Chicago (SAP) - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12023	Valve Outlet:	590
Gas Code:	O2,BALN	Certification Date:	Feb 07, 2023

Expiration Date: Feb 07, 2031

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 800/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. This report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	22.50 %	22.03 %	G1	+/- 0.5% NIST Traceable	02/07/2023
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010217	K011889	23.20 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2024

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Jan 18, 2023

Triad Data Available Upon Request

ON 6-12-23

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OFF 7-7-23

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Approved for Release

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18.17

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number: E02N186E15A0090 Reference Number: 54-401173312-1
Cylinder Number: CG165875 Cylinder Volume: 145.6 CF
Laboratory: 124 - Chicago (SAP) - IL Cylinder Pressure: 2015 PSIG
PQVP Number: B12018 Valve Outlet: 590
Gas Code: O2.BALN Certification Date: Apr 16, 2018

Expiration Date: **Apr 16, 2026**

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA-600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which effect the use of this calibration mixture. All concentrations are on a volumetric basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig. (i.e. 0.7 megapascals).

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	14.00 %	13.97 %	G1	± 1.0% NIST Traceable	04/16/2018
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	98051006	SG9161123BAL	12.05 % OXYGEN/NITROGEN	± 0.7%	Dec 14, 2023

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
O2-1 HORIBA MPA-510 3VUYLENR	Paramagnetic	Mar 19, 2018

Triad Data Available Upon Request

on 9-18-23 




Approved for Release

LOW NOx
25.15

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	ED2NI99E (5A0129)	Reference Number:	54-401990341-1
Cylinder Number:	CC 174480	Cylinder Volume:	144.3 CF
Laboratory:	124 - Chicago (SAP) - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12021	Valve Outlet:	660
Gas Code:	NO, NOX, BALN	Certification Date:	Jan 22, 2021

Expiration Date: Jan 22, 2024

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 800/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	25.00 PPM	25.15 PPM	G1	+/- 1.3% NIST Traceable	01/15/2021, 01/22/2021
NITRIC OXIDE	25.00 PPM	25.12 PPM	G1	+/- 1.2% NIST Traceable	01/15/2021, 01/22/2021
NITROGEN	Balance				

CALIBRATION STANDARDS						
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date	
NTRM	13010608	KAL003427	50.22 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Oct 29, 2025	
PRM	12388	D685025	9.91 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Feb 20, 2020	
GMIS	401438593103	EB0120479	3.882 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.4%	Feb 15, 2023	

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AMP0900100	FTIR	Jan 04, 2021
Nicolet 6700 AMP0900100	FTIR	Jan 04, 2021

Triad Data Available Upon Request

ON 4-5-21 (AC)



 Approved for Release

Airgas Specialty Gases
 12722 South Wentworth Avenue
 Chicago, IL 60628
 (773) 785-3000 Fax: (773) 725-1020
 airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0048 Reference Number: 54-124525892-3
 Cylinder Number: CG316728 Cylinder Volume: 144.3 CF
 Laboratory: ASG - Chicago - IL Cylinder Pressure: 2015 PSIG
 PGVP Number: B12015 Valve Outlet: 660
 Gas Code: NO,NOX,BALN Certification Date: Dec 09, 2015

Expiration Date: Dec 09, 2023

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
 Do NOT Use This Cylinder below 100 psig, i.e. 0.7 megapascal.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	55.00 PPM	56.12 PPM	G1	± 1.4% NIST Traceable	12/01/2015, 12/09/2015
NITRIC OXIDE	55.00 PPM	56.01 PPM	G1	± 0.9% NIST Traceable	12/01/2015, 12/09/2015
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13081005	CG415929	99.86 PPM NITRIC OXIDE/NITROGEN	± 0.8%	Nov 19, 2019
NTRM	13061005	CG415929 NOX	99.86 PPM NOx/NITROGEN	± 0.8%	Nov 19, 2019

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
TC-2 THERMO 421HL 1407061176 NO	Chemiluminescence	Nov 20, 2015
TC-2 THERMO 421HL 1407061176 NOx	Chemiluminescence	Nov 20, 2015

Triad Data Available Upon Request

Alban Jurevic



Approved for Release

ON 4-5-21

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OFF 12-27-23

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E02NI99E15A3576	Reference Number:	54-402689753-1
Cylinder Number:	CC357279	Cylinder Volume:	144.0 CF
Laboratory:	124 - Chicago (SAP) - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12023	Valve Outlet:	660
Gas Code:	NO,NOX,BALN	Certification Date:	Mar 20, 2023

Expiration Date: **Mar 20, 2031**

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 800/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	90.00 PPM	90.24 PPM	G1	+/- 1.0% NIST Traceable	03/13/2023, 03/20/2023
NITRIC OXIDE	90.00 PPM	90.12 PPM	G1	+/- 0.9% NIST Traceable	03/13/2023, 03/20/2023
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
TRM	200610-14	CC733104	98.61 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Oct 06, 2026
TRM	12409	D813660	15.01 PPM NITROGEN DIOXIDE/AIR	+/- 1.5%	Feb 18, 2023
GMIS	1534012021105	ND73033	5.012 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.6%	Jun 15, 2025

The SRM, NTRM, PRM, or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 AUP2010242	FTIR	Mar 06, 2023
Nicolet iS50 AUP2010242	FTIR	Mar 06, 2023

Titrad Data Available Upon Request

ON 9-19-23 (SD)

OFF 10-25-23 (AW)



[Signature]
Approved for Release

H: 02
22.24

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E02NI77E15A0084	Reference Number:	54-402691307-1
Cylinder Number:	CC753027	Cylinder Volume:	147.0 CF
Laboratory:	124 - Chicago (SAP) - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12023	Valve Outlet:	590
Gas Code:	O2/BALN	Certification Date:	Mar 14, 2023

Expiration Date: **Mar 14, 2031**

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	22.50 %	22.34 %	G1	+/- 0.5% NIST Traceable	03/14/2023
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010217	K011989	23.20 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2024

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Feb 16, 2023

Triad Data Available Upon Request

ON 9-19-23



OFF 10-19-23



[Signature]

Approved for Release

9.1.02 13.70

Airgas Specialty Gases

12722 South Wentworth Avenue
Chicago, IL 60628
(773) 785-3000 Fax: (773) 785-4929
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI86E15A0090	Reference Number:	54-124503119-1
Cylinder Number:	EB0085118	Cylinder Volume:	145.6 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12015	Valve Outlet:	580
Gas Code:	O2,BALN	Certification Date:	Jul 16, 2015

Expiration Date: Jul 16, 2023

Certification performed in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012) document EPA 800/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	14.00 %	13.70 %	G1	+/- 1.0% NIST Traceable	07/18/2015
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	05120204	CC195883	20.90 % OXYGEN/NITROGEN	+/- 0.4%	Dec 01, 2015

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Jun 16, 2015

Additional Data Available Upon Request



ON 1-19-22 (BR)

OFF 9-18-23 (BD)

Alison J. ...

1000 02
606

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02N194E15A0017 Reference Number: 54-401173311-1
Cylinder Number: XC034293B Cylinder Volume: 144.9 CF
Laboratory: 124 - Chicago (SAP) - IL Cylinder Pressure: 2015 PSIG
P/GVP Number: B12018 Valve Outlet: 580
Gas Code: O2,BALN Certification Date: Apr 12, 2018

Expiration Date: Apr 12, 2026

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 800/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	5.000 %	5.060 %	GI	+/- 0.7% NIST Traceable	04/12/2018
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	06120112	CG195607	5.898 % OXYGEN/NITROGEN	+/- 0.7%	Jun 28, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
O2-1 HORIBA MPA-510 3VUYL8NR	Paramagnetic	Mar 18, 2018

Titled Data Available Upon Request

ON

3-2-17

SA



Approved for Release

**REGULATION 13 PERMIT
CLASS II ADMINISTRATIVE UPDATE**

Charleston Area Medical Center
Memorial Division
Charleston, Kanawha County, West Virginia

Prepared for:
Charleston Area Medical Center, Inc.
3200 MacCorkle Avenue, SE
Charleston, West Virginia 25304

Prepared by:
Triad Engineering, Inc.
10541 Teays Valley Road
Scott Depot, West Virginia 25560

July 2015



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Permit Application

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
AND
TITLE V PERMIT REVISION
(OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

- CONSTRUCTION MODIFICATION RELOCATION
 CLASS I ADMINISTRATIVE UPDATE TEMPORARY
 CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT MINOR MODIFICATION
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office): Charleston Area Medical Center, Inc.		2. Federal Employer ID No. (FEIN): 5 5 0 5 2 6 1 5 0	
3. Name of facility (if different from above): CAMC Memorial Hospital		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 3200 MacCorkle Avenue, SE Charleston, WV 25304		5B. Facility's present physical address: 3200 MacCorkle Avenue, SE Charleston, WV 25304	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <ul style="list-style-type: none"> - If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A. - If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A. 			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation: CAMC Health System, Inc.			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <ul style="list-style-type: none"> - If YES, please explain: The applicant owns the proposed site. - If NO, you are not eligible for a permit for this source. 			
9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): Installation of an additional emergency generator, discontinuing use of three boilers, and the installation of two new boilers located at the hospital facility.		10. North American Industry Classification System (NAICS) code for the facility: 62211	
11A. DAQ Plant ID No. (for existing facilities only): 0 3 9 - 0 0 0 7 6		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R13-2451D	

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates or Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction or Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP as Attachment B**.

The existing facility is located on a state road, State Route 61 (MacCorkle Avenue).

12.B. New site address (if applicable): Not Applicable	12C. Nearest city or town: Charleston	12D. County: Kanawha
12.E. UTM Northing (KM): 4242.43	12F. UTM Easting (KM): 447.12	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:

Facility emissions are being updated as a result of the installation of an additional emergency generator (Generator #6, 750 kW), discontinuing use of three boilers (Boilers #1, #2, and #3), and the installation of two new boilers (Boilers #8 and #9).

14A. Provide the date of anticipated installation or change: **August 2015**

- If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: **See Attachment C**

14B. Date of anticipated Start-Up if a permit is granted:

September 2015

14C. Provide a **Schedule** of the planned **Installation of/Change to and Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:

Hours Per Day **24** Days Per Week **7** Weeks Per Year **52** (**Generator is limited to 500 hours per year**)

16. Is demolition or physical renovation at an existing facility involved? **YES** **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**.

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**) .

- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.

- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.
 – For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input checked="" type="checkbox"/> Indirect Heat Exchanger	

General Emission Unit, specify Emergency Generator

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System

Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.
 ➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?
 YES NO
 ➤ If **YES**, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "**Precautionary Notice – Claims of Confidentiality**" guidance found in the **General Instructions** as **Attachment Q**.

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

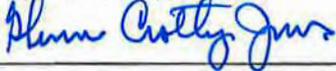
35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE  DATE: 7/17/2015
(Please use blue ink) (Please use blue ink)

35B. Printed name of signee: Dr. Glenn Crotty, Jr		35C. Title: Executive VP & COO
35D. E-mail: Glenn.Crotty@camc.org	36E. Phone: 304.388.7647	36F. FAX: 304.388.7696
36A. Printed name of contact person (if different from above): Nanci Keenan		36B. Title: Safety Manager
36C. E-mail: Nanci.Keenan@camc.org	36D. Phone: 304.388.8890	36E. FAX: 304.388.8891

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate
<input checked="" type="checkbox"/> Attachment B: Map(s)
<input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule
<input checked="" type="checkbox"/> Attachment D: Regulatory Discussion
<input checked="" type="checkbox"/> Attachment E: Plot Plan
<input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)
<input checked="" type="checkbox"/> Attachment G: Process Description
<input checked="" type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS)
<input checked="" type="checkbox"/> Attachment I: Emission Units Table
<input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet
<input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)
<input type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s)
<input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations
<input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
<input checked="" type="checkbox"/> Attachment P: Public Notice
<input type="checkbox"/> Attachment Q: Business Confidential Claims
<input type="checkbox"/> Attachment R: Authority Forms
<input type="checkbox"/> Attachment S: Title V Permit Revision Information
<input checked="" type="checkbox"/> Application Fee |
|---|---|

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Minor Modifications:
 - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt.
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - NSR permit writer should notify a Title V permit writer of draft permit.
 - Public notice should reference both 45CSR13 and Title V permits.
 - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Attachment A

Business Certificate

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
CHARLESTON AREA MEDICAL CENTER INC
DBA CHARLESTON AREA MEDICAL CENTER
PO BOX 1547
CHARLESTON, WV 25326-1547

BUSINESS REGISTRATION ACCOUNT NUMBER: 1035-7157

This certificate is issued on: 08/11/2010

*This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code*

*The person or organization identified on this certificate is registered
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

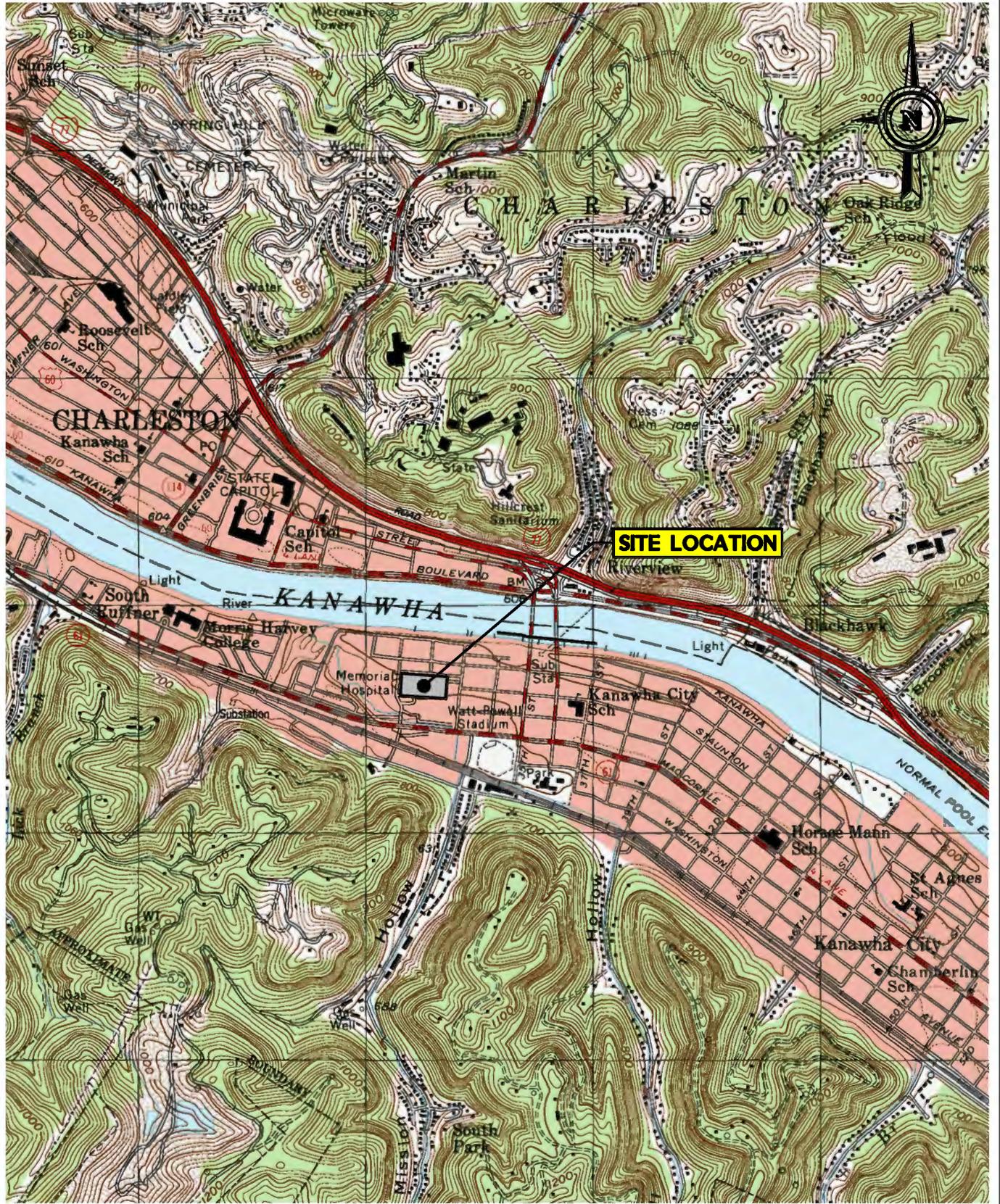
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

Attachment B

Area Map

Plotted by: sfore
 c:\users\sf\appdata\local\microsoft\windows\temporary internet files\content\outlook\lrctvuap\14-0001 site location.dwg



CADD FILE: 14-0001 Site Location.dwg	
DRAWN BY: SJF	CHECKED BY: SC
DATE: 7/8/2015	SCALE: 1" = 2000'

CHARLESTON AREA MEDICAL CENTER
MEMORIAL DIVISION - CLASS II ADMINISTRATIVE UPDATE
CHARLESTON, KANAWHA COUNTY, WV
AREA MAP

PROJECT No.: 04-14-0001 FIGURE No.: B


TRIAD ENGINEERING, INC.
www.triadeng.com
 10541 TEAYS VALLEY ROAD
 SCOTT DEPOT, WV 25560

Attachment C

Installation and Start Up Schedule

Attachment C

Install and Start Up Schedule

CAMC Memorial Hospital installed a CAT 750 kW emergency generator in August 2014, at which time it was also tested for proper operation. In addition, CAMC Memorial Hospital will install one Victory Energy 500 HP boiler and one Victory Energy 800 HP boiler following approval of this application. Once installed and following notice of acceptance of this Class II Administrative Update, the boilers will be tested for proper operation. The generator is necessary to provide electricity in the event the facility experiences a loss of power and will therefore not operate continuously. The boilers are necessary to provide steam and hot water for vital needs, such as space heating and a variety of process uses.

Attachment D

Regulatory Discussion

Attachment D

Regulatory Discussion

Permit conditions under WVDEP rules are expected to be the same as the current permit conditions. The new boilers are subject to 40 CFR 60, Subpart Dc (NSPS), and 40 CFR 63, Subpart JJJJJJ (NESHAP). The new generator is subject to 40 CFR 60, Subpart IIII. New permit conditions will be required for these regulations. The pertinent provisions of Subpart Dc and Subpart JJJJJJ for the boilers and Subpart IIII for the emergency generator are included below.

New Source Performance Standard, 40 CFR 60, Subpart Dc Applicable Provisions

§60.40c Applicability and delegation of authority.

This subpart applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

§60.42c Standard for sulfur dioxide (SO₂).

(d) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.

(h) For affected facilities listed under paragraphs (h)(1), (2), (3), or (4) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

(1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

(i) The SO₂ emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

§60.43c Standard for particulate matter (PM).

An owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM standard under §60.43c and not using a post-combustion technology (except a wet scrubber) to reduce PM or SO₂ emissions is not subject to the PM limit in this section.

§60.44c Compliance and performance test methods and procedures for sulfur dioxide.

(h) For affected facilities subject to §60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO₂ standards based on fuel supplier certification, the performance test shall consist of the certification from the fuel supplier, as described in §60.48c(f), as applicable.

§60.48c Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(d) The owner or operator of each affected facility subject to the SO₂ emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall submit reports to the Administrator.

(e) The owner or operator of each affected facility subject to the SO₂ emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information, as applicable.

(1) Calendar dates covered in the reporting period.

(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

(f) Fuel supplier certification shall include the following information:

(1) For distillate oil:

(i) The name of the oil supplier;

(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in §60.41c; and

(iii) The sulfur content or maximum sulfur content of the oil.

(4) For other fuels:

(i) The name of the supplier of the fuel;

(ii) The potential sulfur emissions rate or maximum potential sulfur emissions rate of the fuel in ng/J heat input; and

(iii) The method used to determine the potential sulfur emissions rate of the fuel.

(2) As an alternative to daily recording of fuel use amounts, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard

(excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to daily recording of fuel use amounts, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO₂ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

National Emission Standards for Hazardous Air Pollutants Subpart JJJJJ

Applicable Provisions

Requirements from 40 CFR 63, Subpart JJJJJJ applicable to new, oil-fired boilers with greater than 10 MMBtu/hr heat input, and with continuous oxygen trim, combusting only oil with less than 0.50 weight percent sulfur.

§63.11196 What are my compliance dates?

(c) If you start up a new affected source after May 20, 2011, you must achieve compliance with the provisions of this subpart upon startup of your affected source.

§63.11201 What standards must I meet?

(b) You must comply with each work practice standard, emission reduction measure, and management practice specified in Table 2 to this subpart that applies to your boiler.

Table 2 to Subpart JJJJJJ of Part 63—Work Practice Standards, Emission Reduction Measures, and Management Practices

If your boiler is in this subcategory:	You must meet the following:
1. Existing or new oil-fired boilers (units with heat input capacity of 10 MMBtu/hr or greater)	Minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available.

15. New oil-fired boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up	Conduct a tune-up of the boiler every 5 years as specified in §63.11223.
--	--

(d) These standards apply at all times the affected boiler is operating.

§63.11205 What are my general requirements for complying with this subpart?

(a) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

§63.11210 What are my initial compliance requirements and by what date must I conduct them?

(e) For new or reconstructed oil-fired boilers that combust only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM emission limit under this subpart and that do not use a post-combustion technology (except a wet scrubber) to reduce particulate matter (PM) or sulfur dioxide emissions, you are not subject to the PM emission limit in Table 1 of this subpart providing you monitor and record on a monthly basis the type of fuel combusted.

(f) For new or reconstructed affected boilers that have applicable work practice standards or management practices, you are not required to complete an initial performance tune-up, but you are required to complete the applicable biennial or 5-year tune-up as specified in §63.11223 no later than 25 months or 61 months, respectively, after the initial startup of the new or reconstructed affected source.

§63.11223 How do I demonstrate continuous compliance with the work practice and management practice standards?

(a) For affected sources subject to the work practice standard or the management practices of a tune-up, you must conduct a performance tune-up according to paragraph (b) of this section and keep records as required in §63.11225(c) to demonstrate continuous compliance. You must conduct the tune-up while burning the type of fuel (or fuels in the case of boilers that routinely burn two types of fuels at the same time) that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up.

(c) Boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up must conduct a tune-up of the boiler every 5 years as specified in paragraphs (b)(1) through (7) of this section. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed boiler with an oxygen trim system, the first 5-year tune-up must be no later than 61 months after the initial startup. You may delay the burner inspection specified in paragraph (b)(1) of this section and inspection of the system controlling the air-to-fuel ratio specified in paragraph (b)(3) of this section until the next scheduled unit shutdown, but you must inspect each burner and system controlling the air-to-fuel ratio at least once every 72 months.

Paragraph (b) is superceded by paragraph (c) for general conditions, specific provisions follow:

(b)(1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection.

(b)(2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.

(b)(3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection.

(b)(4) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.

(b)(5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

(b)(6) Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (b)(6)(i) through (iii) of this section.

(i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.

(ii) A description of any corrective actions taken as a part of the tune-up of the boiler.

(iii) The type and amount of fuel used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

(b)(7) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup.

§63.11225 What are my notification, reporting, and recordkeeping requirements?

(a) You must submit the notifications specified in paragraphs (a)(1) through (5) of this section to the administrator.

(1) You must submit all of the notifications in §§63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply to you by the dates specified in those sections except as specified in paragraphs (a)(2) and (4) of this section.

(2) An Initial Notification must be submitted within 120 days after the source becomes subject to the standard.

(4) You must submit the Notification of Compliance Status no later than 120 days after the applicable compliance date specified in §63.11196. You must submit the Notification of Compliance Status in accordance with paragraphs (a)(4)(i) and (vi) of this section. The Notification of Compliance Status must include the information and certification(s) of compliance in paragraphs (a)(4)(i) through (v) of this section, as applicable, and signed by a responsible official.

(i) You must submit the information required in §63.9(h)(2), except the information listed in §63.9(h)(2)(i)(B), (D), (E), and (F).

(v) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit."

(vi) The notification must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written Notification of Compliance Status must be submitted to the Administrator at the appropriate address listed in §63.13.

(b) You must prepare, by March 1 of each year, and submit to the delegated authority upon request, an annual compliance certification report for the previous calendar year containing the information specified in paragraphs (b)(1) through (4) of this section. You must submit the report by March 15 if you had any instance described by paragraph (b)(3) of this section. For boilers that are subject only to a requirement to conduct a biennial or 5-year tune-up according to §63.11223(a) and not subject to emission limits or operating limits, you may prepare only a biennial or 5-year compliance report as specified in paragraphs (b)(1) and (2) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with the official's name, title, phone number, email address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart. Your notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) "This facility complies with the requirements in §63.11223 to conduct a biennial or 5-year tune-up, as applicable, of each boiler."

(ii) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit."

(iii) "This facility complies with the requirement in §§63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures

specified for a boiler of similar design if manufacturer's recommended procedures are not available.”

(3) If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

(4) The total fuel use by each affected boiler subject to an emission limit, for each calendar month within the reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by you or EPA through a petition process to be a non-waste under §241.3(c), whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of §241.3, and the total fuel usage amount with units of measure.

(c) You must maintain the records specified in paragraphs (c)(1) through (7) of this section.

(1) As required in §63.10(b)(2)(xiv), you must keep a copy of each notification and report that you submitted to comply with this subpart and all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted.

(2) You must keep records to document conformance with the work practices, emission reduction measures, and management practices required by §63.11214 and §63.11223 as specified in paragraphs (c)(2)(i) through (vi) of this section.

(i) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

(iv) For each boiler subject to an emission limit in Table 1 to this subpart, you must also keep records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used.

(4) Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

(d) Your records must be in a form suitable and readily available for expeditious review. You must keep each record for 5 years following the date of each recorded action. You must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site for at least 2 years after the date of each recorded action. You may keep the records off site for the remaining 3 years.

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII Applicable Provisions

§60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines;

(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

§60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE

with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.

(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.

§60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine

§60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission

standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

(ii) A discussion of the relationship between these parameters and NO_x and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_x and PM emissions;

(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency

situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

§60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1),

except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

$$\text{NTE requirement for each pollutant} = (1.25) \times (\text{STD}) \quad (\text{Eq. 1})$$

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

§60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4211(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in §60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.

Attachment E

Plot Plan

Plotted by: sfore
y:\sw_sa_04\2014\0_04-14-0001 camc regulatory compliance\cadd\14-0001 plot plan.dwg



TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880

OFFICE LOCATIONS
MARYLAND • PENNSYLVANIA • VIRGINIA • WEST VIRGINIA • OHIO

CADD FILE:	14-0001 Plot Plan.dwg
PROJECT No.:	04-14-0001
DRAWN BY:	SJF
CHECKED BY:	SC
DATE:	4/21/2014
SCALE:	1" = 120'

CHARLESTON AREA MEDICAL CENTER
MEMORIAL DIVISION -
CLASS II ADMINISTRATIVE UPDATE
CHARLESTON, KANAWHA COUNTY, WV

PLOT PLAN

www.triadeng.com

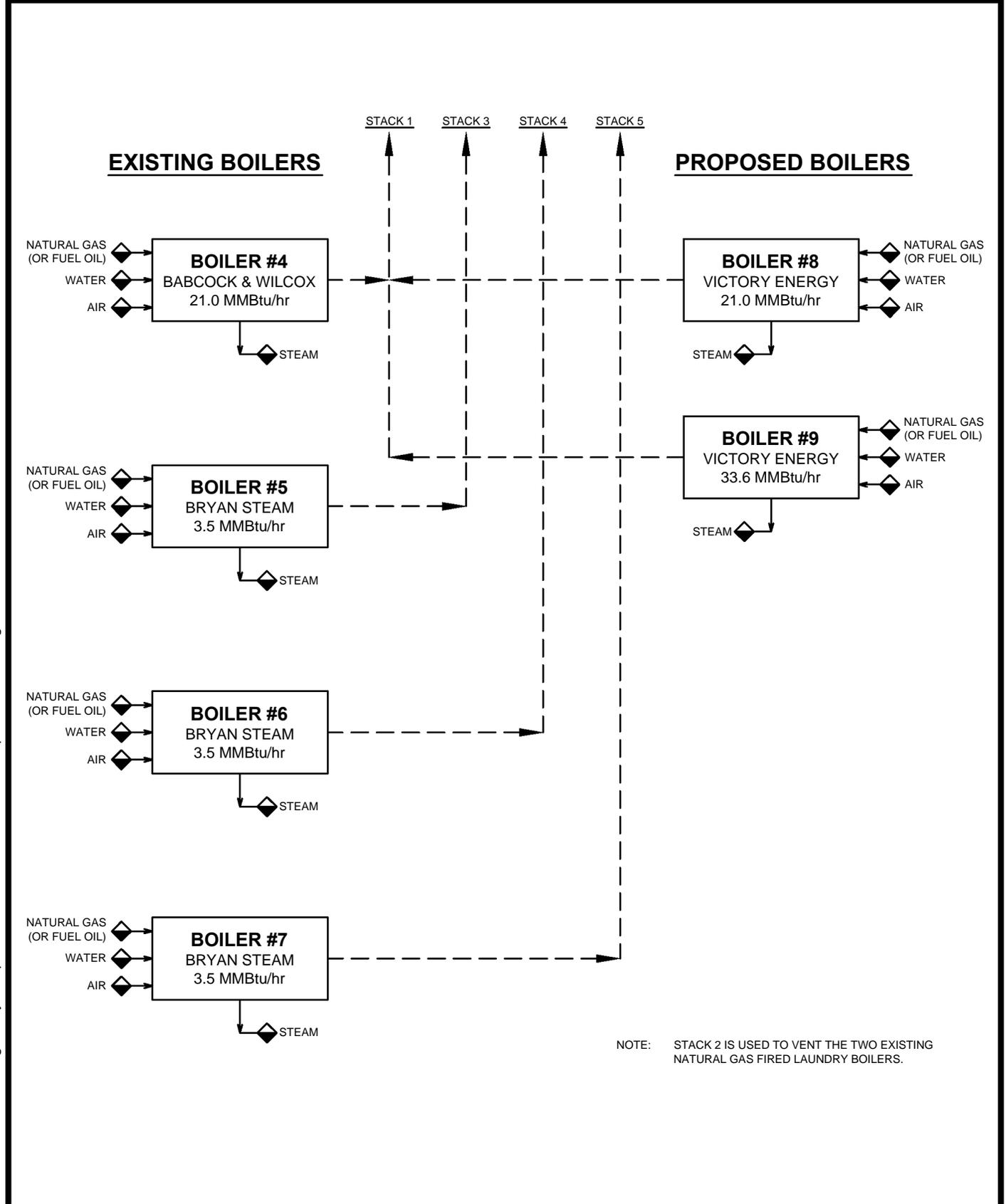
FIGURE No.:
E

PROJECT No.: 04-14-0001

Attachment F

Process Flow Diagram

Plotted by: sfore
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CADD FILE: 14-0001 Process Flow.dwg	
DRAWN BY: XXX	CHECKED BY: XXX
DATE: 4/21/2014	SCALE: 1:1

CHARLESTON AREA MEDICAL CENTER
MEMORIAL DIVISION - CLASS II ADMINISTRATIVE UPDATE
CHARLESTON, KANAWHA COUNTY, WV
PROCESS FLOW DIAGRAM - BOILERS

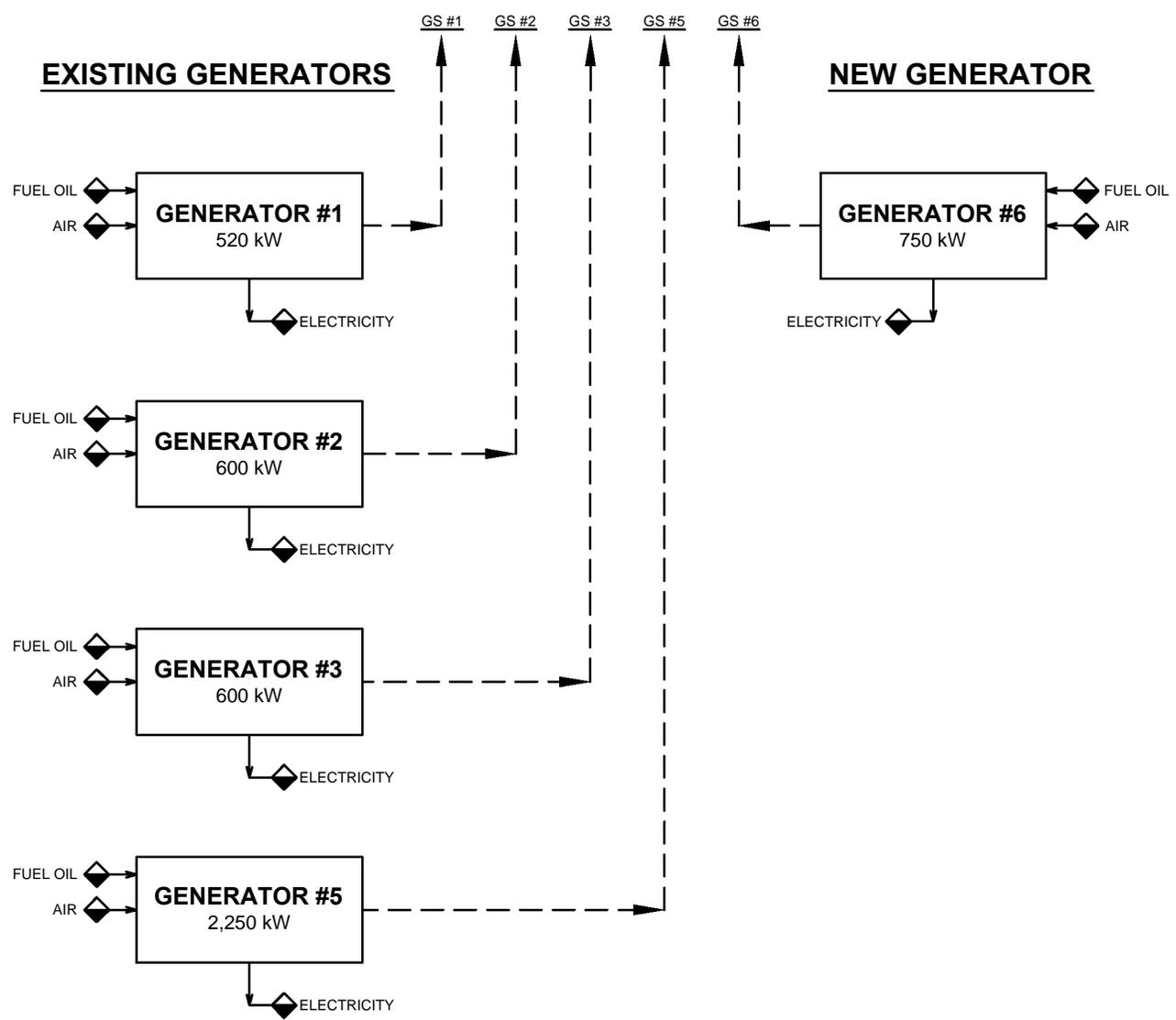
PROJECT No.: 04-14-0001 FIGURE No.: F



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10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560

Plotted by: sfore
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DEFINITIONS:
 GS - GENERATOR STACK
 kW - KILOWATT

NOTE: SEE EMISSION UNIT DATA SHEET (ATTACHMENT L)
 FOR ADDITIONAL INFORMATION ON THIS NEW GENERATOR.

CADD FILE: 14-0001 Process Flow.dwg	
DRAWN BY: XXX	CHECKED BY: XXX
DATE: 4/21/2014	SCALE: 1:1

CHARLESTON AREA MEDICAL CENTER
MEMORIAL DIVISION - CLASS II ADMINISTRATIVE UPDATE
CHARLESTON, KANAWHA COUNTY, WV
PROCESS FLOW DIAGRAM - GENERATORS

PROJECT No.: 04-14-0001 FIGURE No.: F

TRIAD
TRIAD ENGINEERING, INC.
www.triadeng.com
 10541 TEAYS VALLEY ROAD
 SCOTT DEPOT, WV 25560

Attachment G

Process Description

Attachment G

Process Description

This Class II Administrative Update outlines Charleston Area Medical Center – Memorial Division's need to continue the use of a CAT 750kW emergency generator (Generator #6) and install a Victory Energy 500 bhp boiler (Boiler #8) and a Victory Energy 800 bhp boiler (Boiler #9). The emergency generators are used to provide electricity throughout the facility in the event of a power failure. The new generator is vented through a new Generator Stack #6 and the new boilers will be vented through the existing Main Stack #1 (See Process Flow Diagram). The generator is powered by No. 2 Fuel Oil (diesel fuel), which is limited to 500 hours per year. The boilers are dual-fuel and will operate using natural gas along with No. 2 Fuel Oil as a backup. No. 2 Fuel Oil is limited to 500 hours per year. Emissions from the combustion of the fuel and natural gas supply will be vented to the atmosphere through their corresponding stacks as outlined above and on the Process Flow Diagram.

Attachment H

Material Safety Data Sheets



RESPONSIBLE CARE
OUR COMMITMENT TO SUSTAINABILITY

SAFETY DATA SHEET

SDS ID NO.: 0293MAR019
Revision Date: 05/14/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum No. 2 Ultra Low Sulfur Diesel 15 ppm Sulfur Max with 2-5% Biodiesel

Synonym: Ultra Low Sulfur No. 2 Diesel with B2 Biodiesel; Ultra Low Sulfur No. 2 Diesel with B2 Biodiesel and Polar Plus; Ultra Low Sulfur No. 2 Diesel with B5 Biodiesel; Ultra Low Sulfur No. 2 Diesel with B5 Biodiesel and Polar Plus; No. 2 Diesel with Biodiesel B2 Blend 15 ppm Sulfur Max; No. 2 Diesel with Biodiesel B2 Blend 15 ppm Sulfur Max with Polar Plus; No. 2 Diesel with Biodiesel B5 Blend 15 ppm Sulfur Max; No. 2 Diesel with Biodiesel B5 Blend 15 ppm Sulfur Max with Polar Plus

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Use Restrictions: All others.

Supplier Name and Address:
MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070
Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Skin sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)
Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

FLAMMABLE LIQUID AND VAPOR

May accumulate electrostatic charge and ignite or explode

May be fatal if swallowed and enters airways

Harmful if inhaled

Causes skin irritation

May cause an allergic skin reaction

May cause drowsiness or dizziness

Suspected of causing cancer

May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure

Toxic to aquatic life with long lasting effects



Appearance Clear or Amber Liquid

Physical State Liquid

Odor Slight Hydrocarbon

Precautionary Statements - Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Keep container tightly closed

Ground/bond container and receiving equipment

Use only non-sparking tools

Use explosion-proof electrical/ventilating/lighting/equipment

Take precautionary measures against static discharge

Do not breathe mist/vapors/spray

Use only outdoors or in a well-ventilated area

Wear protective gloves/protective clothing/eye protection/face protection

Wash hands and any possibly exposed skin thoroughly after handling

Contaminated work clothing should not be allowed out of the workplace

Avoid release to the environment

Precautionary Statements - Response

IF exposed or concerned: Get medical attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

If skin irritation or rash occurs: Get medical attention

Wash contaminated clothing before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Call a POISON CENTER or doctor if you feel unwell

IF SWALLOWED: Immediately call a POISON CENTER or doctor

Do NOT induce vomiting

In case of fire: Use water spray, fog or regular foam for extinction

Collect spillage

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Keep cool

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

No. 2 Diesel with Biodiesel is a complex mixture of paraffins, olefins and aromatic hydrocarbons having hydrocarbon chain lengths predominantly in the range of eleven to twenty carbons. Contains a minor amount (2-5%) of Biodiesel that does not materially affect the health or safety of this product. May contain a trace amount of benzene (<0.01%). Contains a small amount of a lubricity additive (<0.1%) which is not considered hazardous at the concentration used. Contains a trace amount of sulfur (<0.0015%)

Composition Information:

Name	CAS Number	Weight %
No. 2 Diesel Fuel	68476-34-6	49-98
Kerosine, Petroleum	8008-20-6	0-49
Fuels, Diesel, C9-18-Alkane Branched and Linear	1159170-26-9	0-5
Biodiesel (Tallow derived)	61788-61-2	0-5
Biodiesel (Soybean derived)	67784-80-9	0-5
Biodiesel (Rapeseed derived)	73891-99-3	0-5
Biodiesel (Fatty Acid, Methyl Ester)	68937-84-8	0-5
Biodiesel (Canola derived)	129828-16-6	0-5
Alkanes, C10-C20 branched and linear	928771-01-1	0-5
Naphthalene	91-20-3	0.01-0.5

4. FIRST AID MEASURES

First Aid Measures

General advice

In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation:

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin Contact:

Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation or rash occurs. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. GET IMMEDIATE MEDICAL ATTENTION.

Ingestion:

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Acute: Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

Indication of any immediate medical attention and special treatment needed

NOTES TO PHYSICIAN: SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. The metabolism of fatty acid methyl ester may release free methanol in the body that could induce metabolic acidosis with delayed effects. If a large amount of product is ingested, i.e. several ounces, consider the use of ethanol or fomepizole (Antizol) and hemodialysis. Consult standard literature or contact a poison control center for treatment details.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

NFPA: Health 1 Flammability 2 Instability 0 Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. All contaminated surfaces will be slippery.

Protective Equipment: Use personal protection measures as recommended in Section 8.

Emergency Procedures:	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
Environmental precautions:	Avoid release to the environment. Avoid subsoil penetration.
Methods and materials for containment:	Contain liquid with sand or soil.
Methods and materials for cleaning up:	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions:

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Use only non-sparking tools. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions: Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
No. 2 Diesel Fuel 68476-34-6	100 mg/m ³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-	-
Kerosine, Petroleum 8008-20-6	200 mg/m ³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-	-
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	-	-
Biodiesel (Tallow derived) 61788-61-2	-	-	-	-
Biodiesel (Soybean derived) 67784-80-9	-	-	-	-
Biodiesel (Rapeseed derived) 73891-99-3	-	-	-	-
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	-	-	-	-
Biodiesel (Canola derived) 129828-16-6	-	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	-	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m ³	10 ppm TWA 50 mg/m ³ TWA 15 ppm STEL 75 mg/m ³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or with inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Wear neoprene, nitrile or PVA gloves to prevent skin contact. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use an approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible exposure limits or excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear or Amber Liquid
Color	Clear or Amber
Odor	Slight Hydrocarbon
Odor Threshold	No available data.

<u>Property</u>	<u>Values (Method)</u>
Melting Point / Freezing Point	No available data.
Initial Boiling Point / Boiling Range	204-338 °C / 400-640 °F
Flash Point	54-88 °C / 130-190 °F
Evaporation Rate	No available data.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%)	
Upper Flammability Limit:	5.0
Lower Flammability Limit:	0.7
Vapor Pressure	1-10 mm Hg @ 20°C
Vapor Density	4-5
Specific Gravity / Relative Density	C.A. 0.8
Water Solubility	No available data.
Solubility in other solvents	Negligible
Partition Coefficient	No available data.
Decomposition temperature:	No available data.
pH:	Not applicable
Autoignition Temperature	336 °C / 637 °F
Kinematic Viscosity	1.9-3.4 @ 40°C
Dynamic Viscosity	No available data.
Explosive Properties	No available data.
Softening Point	No available data.
VOC Content (%)	10%
Density	6.76 lbs/gal
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

<u>Reactivity</u>	The product is non-reactive under normal conditions.
<u>Chemical stability</u>	Stable under recommended storage conditions.
<u>Possibility of hazardous reactions</u>	None under normal processing.
<u>Hazardous polymerization</u>	Will not occur.
<u>Conditions to avoid</u>	Sources of heat or ignition.
<u>Incompatible materials</u>	Strong oxidizing agents.
<u>Hazardous decomposition products</u>	None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation	Harmful if inhaled. Inhalation of high vapor concentrations may cause irritation of the respiratory system. May cause drowsiness or dizziness.
Eye contact	Causes mild eye irritation.
Skin contact	Causes skin irritation. May cause sensitization by skin contact. May be absorbed through the skin in harmful amounts.
Ingestion	May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute Toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
No. 2 Diesel Fuel 68476-34-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>1 - <5 mg/L (Rat) 4 h
Kerosine, Petroleum 8008-20-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.28 mg/L (Rat) 4 h
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	>1 - <5 mg/l (Rat) 4 h
Biodiesel (Tallow derived) 61788-61-2	-	-	-
Biodiesel (Soybean derived) 67784-80-9	> 5000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	-
Biodiesel (Rapeseed derived) 73891-99-3	-	-	-
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	> 2000 mg/kg (Rat)	-	-
Biodiesel (Canola derived) 129828-16-6	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	>1 - <5 mg/l (Rat) 4 h
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m ³ (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

MIDDLE DISTILLATES, PETROLEUM: Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

MIDDLE DISTILLATES WITH CRACKED STOCKS: Light cracked distillates have been shown to be carcinogenic in animal tests and have tested positive with in vitro genotoxicity tests. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

BIODIESEL (SOYBEAN DERIVED): Dermal sensitization study (Guinea Pigs) repeat insult patch procedure with induction and challenge patches indicated a positive sensitization response.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

DIESEL EXHAUST: The combustion of diesel fuels produces gases including carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur, and hydrocarbons that can be irritating and hazardous with overexposure. Long-term occupational overexposure to diesel exhaust and diesel exhaust particulate matter has been associated with an increased risk of respiratory disease, including lung cancer, and is characterized as a "known human carcinogen" by the International Agency for Research on Cancer (IARC), as "a reasonably anticipated human carcinogen" by the National Toxicology Program, and as "likely to be carcinogenic to humans" by the EPA, based upon animal and occupational exposure studies. However, uncertainty exists with these classifications because of deficiencies in the supporting occupational exposure/epidemiology studies, including reliable exposure estimates. Lifetime animal inhalation studies with pulmonary overloading exposure concentrations of diesel exhaust emissions have produced tumors and other adverse health effects. However, in more recent long-term animal inhalation studies of diesel exhaust emissions, no increase in tumor incidence and in fact a substantial reduction in adverse health effects along with significant reductions in the levels of hazardous material emissions were observed and are associated with fuel composition alterations coupled with new technology diesel engines.

Adverse effects related to the physical, chemical and toxicological characteristics

Signs & Symptoms Nausea, vomiting, signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.

Sensitization May cause sensitization by skin contact. Not expected to be a respiratory sensitizer.

Mutagenic effects None known.

Carcinogenicity Cancer designations are listed in the table below.

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
No. 2 Diesel Fuel 68476-34-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Kerosine, Petroleum 8008-20-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Tallow derived) 61788-61-2	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Soybean derived) 67784-80-9	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Rapeseed derived) 73891-99-3	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Canola derived) 129828-16-6	Not Listed	Not Listed	Not Listed	Not Listed
Alkanes, C10-C20 branched and linear 928771-01-1	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity None known.

Specific Target Organ Toxicity (STOT) - single exposure Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Thymus. Liver. Bone marrow.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
No. 2 Diesel Fuel 68476-34-6	-	96-hr LC50 = 35 mg/l Fathead minnow (flow-through)	-	48-hr EL50 = 6.4 mg/l Daphnia magna
Kerosine, Petroleum 8008-20-6	72-hr EL50 = 5.0-11 mg/l Algae	96-hr LL50 = 18-25 mg/l Fish	-	48-hr EL50 = 1.4-21 mg/l Invertebrates
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	-	-

Biodiesel (Tallow derived) 61788-61-2	-	-	-	-
Biodiesel (Soybean derived) 67784-80-9	-	-	-	-
Biodiesel (Rapeseed derived) 73891-99-3	-	-	-	-
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	-	96-hr LC50 = 550 mg/l Zebrafish (semi-static)	-	24-hr LC50 = 4.65 mg/l Daphnia magna
Biodiesel (Canola derived) 129828-16-6	-	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable.

Bioaccumulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues

This material may be a flammable liquid waste.

Safe Handling of Wastes

Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal

The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal

Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper shipping name: Fuel Oil, No. 2
 UN/Identification No: NA 1993
 Transport Hazard Class(es): 3
 Packing group: III

TDG (Canada):

UN Proper shipping name: Fuel Oil, No. 2
 UN/Identification No: NA 1993
 Transport Hazard Class(es): 3
 Packing group: III

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b):

This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302:

This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
No. 2 Diesel Fuel	NA
Kerosine, Petroleum	NA
Fuels, Diesel, C9-18-Alkane Branched and Linear	NA
Biodiesel (Tallow derived)	NA
Biodiesel (Soybean derived)	NA
Biodiesel (Rapeseed derived)	NA
Biodiesel (Fatty Acid, Methyl Ester)	NA
Biodiesel (Canola derived)	NA
Alkanes, C10-C20 branched and linear	NA
Naphthalene	NA

SARA Section 304:

This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
No. 2 Diesel Fuel	NA
Kerosine, Petroleum	NA
Fuels, Diesel, C9-18-Alkane Branched and Linear	NA
Biodiesel (Tallow derived)	NA
Biodiesel (Soybean derived)	NA
Biodiesel (Rapeseed derived)	NA
Biodiesel (Fatty Acid, Methyl Ester)	NA
Biodiesel (Canola derived)	NA
Alkanes, C10-C20 branched and linear	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA:

The following EPA hazard categories apply to this product:

- Acute Health Hazard
- Fire Hazard
- Chronic Health Hazard

SARA Section 313:

This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
No. 2 Diesel Fuel	None
Kerosine, Petroleum	None
Fuels, Diesel, C9-18-Alkane Branched and Linear	None
Biodiesel (Tallow derived)	None
Biodiesel (Soybean derived)	None
Biodiesel (Rapeseed derived)	None

Biodiesel (Fatty Acid, Methyl Ester)	None
Biodiesel (Canola derived)	None
Alkanes, C10-C20 branched and linear	None
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

No. 2 Diesel Fuel

- Louisiana Right-To-Know: Not Listed.
- California Proposition 65: Not Listed.
- New Jersey Right-To-Know: SN 2444
- Pennsylvania Right-To-Know: Not Listed.
- Massachusetts Right-To Know: Not Listed.
- Florida Substance List: Not Listed.
- Rhode Island Right-To-Know: Not Listed.
- Michigan Critical Materials Register List: Not Listed.
- Massachusetts Extraordinarily Hazardous Substances: Not Listed.
- California - Regulated Carcinogens: Not Listed.
- Pennsylvania RTK - Special Hazardous Substances: Not Listed.
- New Jersey - Special Hazardous Substances: Not Listed.
- New Jersey - Environmental Hazardous Substances List: SN 2444 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
- Illinois - Toxic Air Contaminants: Not Listed.
- New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed.

Kerosine, Petroleum

- Louisiana Right-To-Know: Not Listed.
- California Proposition 65: Not Listed.
- New Jersey Right-To-Know: SN 1091
- Pennsylvania Right-To-Know: Present
- Massachusetts Right-To Know: Present
- Florida Substance List: Not Listed.
- Rhode Island Right-To-Know: Not Listed.
- Michigan Critical Materials Register List: Not Listed.
- Massachusetts Extraordinarily Hazardous Substances: Not Listed.
- California - Regulated Carcinogens: Not Listed.
- Pennsylvania RTK - Special Hazardous Substances: Not Listed.
- New Jersey - Special Hazardous Substances: Not Listed.
- New Jersey - Environmental Hazardous Substances List: SN 1091 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
- Illinois - Toxic Air Contaminants: Not Listed.
- New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed.

Fuels, Diesel, C9-18-Alkane Branched and Linear

- Louisiana Right-To-Know: Not Listed.
- California Proposition 65: Not Listed.
- New Jersey Right-To-Know: Not Listed.
- Pennsylvania Right-To-Know: Not Listed.
- Massachusetts Right-To Know: Not Listed.
- Florida Substance List: Not Listed.
- Rhode Island Right-To-Know: Not Listed.
- Michigan Critical Materials Register List: Not Listed.
- Massachusetts Extraordinarily Hazardous Substances: Not Listed.
- California - Regulated Carcinogens: Not Listed.

Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Tallow derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Soybean derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Rapeseed derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.

New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Fatty Acid, Methyl Ester)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Canola derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Alkanes, C10-C20 branched and linear	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Naphthalene	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product contains the following component(s) that are listed on the Non-Domestic Substance List (NDSL): CAS# 1159170-26-9

Canadian Regulatory Information: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations."

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
No. 2 Diesel Fuel	B3,D2A,D2B	0.1%
Kerosine, Petroleum	B3,D2B	1%
Fuels, Diesel, C9-18-Alkane Branched and Linear	B3,D2A,D2B	0.1%
Biodiesel (Tallow derived)	Uncontrolled product according to WHMIS classification criteria	-
Biodiesel (Soybean derived)	D2B	1%
Biodiesel (Rapeseed derived)	Uncontrolled product according to WHMIS classification criteria	-
Biodiesel (Fatty Acid, Methyl Ester)	Uncontrolled product according to WHMIS classification criteria	-
Biodiesel (Canola derived)	Uncontrolled product according to WHMIS classification criteria	-
Alkanes, C10-C20 branched and linear	B3,D2A,D2B	0.1%
Naphthalene	B4,D2A	0.1%



NOTE: Not Applicable.

16. OTHER INFORMATION

Prepared By: Toxicology and Product Safety
 Revision Date: 05/14/2015

Revision Note:

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Attachment I

Emission Units Table

Attachment I
Emission Units Table
(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
Generator #6	GS #6	Caterpillar 750 kW Emergency Generator	2014	750 kW	Existing	NA
Boiler #8	1	Victory Energy 500 HP Boiler	2015	21.0 MMBtu	New	NA
Boiler #9	1	Victory Energy 800 HP Boiler	2015	33.6 MMBtu	New	NA
Boiler #4	1	Natural Gas/No. 2 Fuel Oil Fired Boiler	1994	21.0 MMBtu	Existing	NA
Laundry #1	2	Natural Gas Fired Boiler	2005	12.6 MMBtu	Existing	NA
Laundry #2	2	Natural Gas Fired Boiler	2005	12.6 MMBtu	Existing	NA
Boiler #5	5	Natural Gas/No. 2 Fuel Oil Fired Boiler	2008	3.5 MMBtu	Existing	NA
Boiler #6	4	Natural Gas/No. 2 Fuel Oil Fired Boiler	2008	3.5 MMBtu	Existing	NA
Boiler #7	3	Natural Gas/No. 2 Fuel Oil Fired Boiler	2008	3.5 MMBtu	Existing	NA
Generator #1	GS #1	Diesel Emergency Generator		520 kW	Existing	NA
Generator #2	GS #2	Diesel Emergency Generator		600 kW	Existing	NA
Generator #3	GS #3	Diesel Emergency Generator		600 kW	Existing	NA
Generator #5	GS #5	Diesel Emergency Generator	2009	2,250 kW	Existing	NA
Fuel Oil Tank #1	NA	Fuel Oil Storage Tank		6,136 gallons	Existing	NA
Fuel Oil Tank #2	NA	Fuel Oil Storage Tank		6,236 gallons	Existing	NA
Fuel Oil Tank #3	NA	Fuel Oil Storage Tank	2008	8,000 gallons	Existing	NA
Ethylene Oxide #1	EOSS	Ethylene Oxide Sterilizer			Existing	NA
Ethylene Oxide #2	EOSS	Ethylene Oxide Sterilizer			Existing	NA
Ethylene Oxide #3	EOSS	Ethylene Oxide Sterilizer			Existing	NA

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Attachment J

Emission Points Data Summary Sheet

**Attachment J
EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
GS #6	Vertical	GS #6	GS #6	N/A	N/A	C	500	CO NOx PM ₁₀ SO ₂ VOC CO ₂ CH ₄ N ₂ O CO ₂ e	4.13 18.00 0.53 9.10E-03 0.48 2.35E+01 7.44E-02 5.98E-02 2.37E+01	1.03 4.50 0.13 2.28E-03 0.12 1.03E+02 3.26E-01 2.62E-01 1.04E+02	NA	NA	Gas Gas Solid Gas Gas Gas Gas Gas Gas	AP-42	NA
Boiler #8	Vertical	1	Boiler #8	N/A	N/A	C	8760	CO NOx PM ₁₀ SO ₂ VOC CO ₂ CH ₄ N ₂ O CO ₂ e	2.51 5.10 0.66 0.04 0.17 2.56E+03 5.21E+00 1.84E+00 2.58E+03	7.48 9.42 0.78 0.06 0.49 1.12E+04 2.28E+01 8.08E+00 1.13E+04	NA	NA	Gas Gas Solid Gas Gas Gas Gas Gas Gas	AP-42	NA
Boiler #9	Vertical	1	Boiler #9	N/A	N/A	C	8760	CO NOx PM ₁₀ SO ₂ VOC CO ₂ CH ₄ N ₂ O CO ₂ e	4.02 8.16 1.05 0.07 0.26 4.11E+03 8.31E+00 2.95E+00 4.13E+03	11.96 15.08 1.25 0.09 0.78 1.80E+04 3.64E+01 1.29E+01 1.81+04	NA	NA	Gas Gas Solid Gas Gas Gas Gas Gas Gas	AP-42	NA

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.

⁴ Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁵ Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁶ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment K

Fugitive Emissions Data Summary Sheet

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants Chemical Name/CAS ¹	Maximum Potential Uncontrolled Emissions ²		Maximum Potential Controlled Emissions ³		Est. Method Used ⁴
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks		Does not apply		Does not apply		
General Clean-up VOC Emissions						
Other						

¹ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.

² Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

³ Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁴ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Attachment L

Emissions Unit Data Sheet

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form):

Equipment Information

1. Manufacturer: Victory Energy	2. Model No. F3-500-S150-G Serial No. NAv
3. Number of units: 1	4. Use Steam generation for hospital facility
5. Rated Boiler Horsepower: 500 hp	6. Boiler Serial No.: NAv
7. Date constructed: 10/2011	8. Date of last modification and explain: NA
9. Maximum design heat input per unit: 21.0 $\times 10^6$ BTU/hr	10. Peak heat input per unit: 21.0 $\times 10^6$ BTU/hr
11. Steam produced at maximum design output: 17,250 LB/hr 250 psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 26-52
13. Type of firing equipment to be used: <input type="checkbox"/> Pulverized coal <input type="checkbox"/> Spreader stoker <input checked="" type="checkbox"/> Oil burners <input checked="" type="checkbox"/> Natural Gas Burner <input type="checkbox"/> Others, specify	14. Proposed type of burners and orientation: <input type="checkbox"/> Vertical <input checked="" type="checkbox"/> Front Wall <input type="checkbox"/> Opposed <input type="checkbox"/> Tangential <input type="checkbox"/> Others, specify
15. Type of draft: <input type="checkbox"/> Forced <input checked="" type="checkbox"/> Induced	16. Percent of ash retained in furnace: NA %
17. Will flyash be reinjected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	18. Percent of carbon in flyash: NA %

Stack or Vent Data

19. Inside diameter or dimensions: 7'2" ft.	20. Gas exit temperature: 500 °F
21. Height: 114 ft.	22. Stack serves: <input type="checkbox"/> This equipment only <input checked="" type="checkbox"/> Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 4,689 ft ³ /min	
24. Estimated percent of moisture: NAv %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	150 gph@60°F	21,000 ft ³ /hr	NA ft ³ /hr	NA TPH	NA
	Annually	75 x10 ³ gal	165.2 x10 ⁶ ft ³ /hr	NA x10 ⁶ ft ³ /hr	NA tons	NA
	Sulfur	Maximum: 0.0015 wt. % Average: 0.0015 wt. %	2000 (AP-42) gr/100 ft ³	NA gr/100 ft ³	Maximum: NA wt. %	NA
	Ash (%)	< 1	< 1	NA	Maximum NA	NA
	BTU Content	140,000 BTU/Gal. 7.0 Lbs/Gal. @60°F	1,050 BTU/ft ³	NA BTU/ft ³	NA BTU/lb	NA
	Source		Pipeline	NA	NA	NA
	Supplier	Brannon	Mountaineer	NA	NA	NA
	Halogens (Yes/No)	No	No	NA	NA	NA
	List and Identify Metals			NA	NA	NA

26. Gas burner mode of control: <input checked="" type="checkbox"/> Manual <input type="checkbox"/> Automatic hi-low <input type="checkbox"/> Automatic full modulation <input type="checkbox"/> Automatic on-off	27. Gas burner manufacture: Limpsfield
28. Oil burner manufacture: Limpsfield	
29. If fuel oil is used, how is it atomized? <input checked="" type="checkbox"/> Oil Pressure <input type="checkbox"/> Steam Pressure <input type="checkbox"/> Compressed Air <input type="checkbox"/> Rotary Cup <input type="checkbox"/> Other, specify	
30. Fuel oil preheated: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	31. If yes, indicate temperature: _____ °F
32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel: 3,968 SCFM @ 60 °F, _____ PSIA, _____ % moisture	
33. Emission rate at rated capacity: 20,584 lb/hr	
34. Percent excess air actually required for combustion of the fuel described: 21.5 %	
Coal Characteristics	
35. Seams: NA	
36. Proximate analysis (dry basis): % of Fixed Carbon: NA % of Sulfur: NA % of Moisture: NA % of Volatile Matter: NA % of Ash: NA	

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	1.76	NA _v	NA _v	NA _v
Hydrocarbons	NA	NA	NA	NA
NO _x	3.00	NA _v	NA _v	NA _v
Pb	NA	NA	NA	NA
PM ₁₀	0.50	NA _v	NA _v	NA _v
SO ₂	0.03	NA _v	NA _v	NA _v
VOCs	0.12	NA _v	NA _v	NA _v
Other (specify)	NA	NA	NA	NA

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	There are no add-on			
Hydrocarbons	emission controls			
NO _x				
Pb				
PM ₁₀				
SO ₂				
VOCs				
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?

NA

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit. NA

41. Have you included the **air pollution rates** on the Emissions Points Data Summary Sheet? Yes

42. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

Monitoring proposed is the same as in current permit for the existing boilers with the addition of required monitoring under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJ.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

Emissions testing is not proposed.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

Recordkeeping proposed is the same as in current permit for the existing boilers with the addition of required recordkeeping under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJ.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

Reporting proposed is the same as in current permit for the existing boilers with the addition of required reporting under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJ.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

Yearly inspection internal/external and proper daily water treatment program.

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form):

Equipment Information

1. Manufacturer: Victory Energy	2. Model No. F3-800-S300-CF Burner Serial No. NAv
3. Number of units: 1	4. Use Steam generation for hospital facility
5. Rated Boiler Horsepower: 800 hp	6. Boiler Serial No.: NAv
7. Date constructed: 10/2011	8. Date of last modification and explain: NA
9. Maximum design heat input per unit: 33.6 $\times 10^6$ BTU/hr	10. Peak heat input per unit: 33.6 $\times 10^6$ BTU/hr
11. Steam produced at maximum design output: 27,600 LB/hr 300 psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 26-52
13. Type of firing equipment to be used: <input type="checkbox"/> Pulverized coal <input type="checkbox"/> Spreader stoker <input checked="" type="checkbox"/> Oil burners <input checked="" type="checkbox"/> Natural Gas Burner <input type="checkbox"/> Others, specify	14. Proposed type of burners and orientation: <input type="checkbox"/> Vertical <input type="checkbox"/> Front Wall <input type="checkbox"/> Opposed <input type="checkbox"/> Tangential <input type="checkbox"/> Others, specify
15. Type of draft: <input type="checkbox"/> Forced <input checked="" type="checkbox"/> Induced	16. Percent of ash retained in furnace: NA %
17. Will flyash be reinjected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	18. Percent of carbon in flyash: NA %

Stack or Vent Data

19. Inside diameter or dimensions: 7'2" ft.	20. Gas exit temperature: 500 °F
21. Height: 114 ft.	22. Stack serves: <input type="checkbox"/> This equipment only <input checked="" type="checkbox"/> Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 7,501 ft ³ /min	
24. Estimated percent of moisture: NAv %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	240 gph@60°F	33,600 ft ³ /hr	NA ft ³ /hr	NA TPH	NA
	Annually	120 ×10 ³ gal	264.32 ×10 ⁶ ft ³ /hr	NA ×10 ⁶ ft ³ /hr	NA tons	NA
	Sulfur	Maximum: 0.0015 wt. % Average: 0.0015 wt. %	< 1 gr/100 ft ³	NA gr/100 ft ³	Maximum: NA wt. %	NA
	Ash (%)	< 1	< 1	NA	Maximum NA	NA
	BTU Content	140,000 BTU/Gal. 7.0 Lbs/Gal. @60°F	1,050 BTU/ft ³	NA BTU/ft ³	NA BTU/lb	NA
	Source		Pipeline	NA	NA	NA
	Supplier	Brannon	Mountaineer	NA	NA	NA
	Halogens (Yes/No)	No	No	NA	NA	NA
	List and Identify Metals			NA	NA	NA

26. Gas burner mode of control: <input checked="" type="checkbox"/> Manual <input type="checkbox"/> Automatic hi-low <input type="checkbox"/> Automatic full modulation <input checked="" type="checkbox"/> Automatic on-off	27. Gas burner manufacture: <hr/> 28. Oil burner manufacture:
29. If fuel oil is used, how is it atomized? <input checked="" type="checkbox"/> Oil Pressure <input type="checkbox"/> Steam Pressure <input type="checkbox"/> Compressed Air <input type="checkbox"/> Rotary Cup <input type="checkbox"/> Other, specify	
30. Fuel oil preheated: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	31. If yes, indicate temperature: _____ °F
32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel: 6,346 SCFM @ 60 °F, _____ PSIA, _____ % moisture	
33. Emission rate at rated capacity: 32,935 lb/hr	
34. Percent excess air actually required for combustion of the fuel described: 21.5 %	
Coal Characteristics	
35. Seams: NA	
36. Proximate analysis (dry basis): % of Fixed Carbon: NA % of Sulfur: NA % of Moisture: NA % of Volatile Matter: NA % of Ash: NA	

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	2.82	NA _v	NA _v	NA _v
Hydrocarbons	NA	NA	NA	NA
NO _x	4.80	NA _v	NA _v	NA _v
Pb	NA	NA	NA	NA
PM ₁₀	0.79	NA _v	NA _v	NA _v
SO ₂	0.05	NA _v	NA _v	NA _v
VOCs	0.18	NA _v	NA _v	NA _v
Other (specify)	NA	NA	NA	NA

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	There are no add-on			
Hydrocarbons	emission controls			
NO _x				
Pb				
PM ₁₀				
SO ₂				
VOCs				
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?

NA

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit. NA

41. Have you included the **air pollution rates** on the Emissions Points Data Summary Sheet? Yes

42. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

Monitoring proposed is the same as in current permit for the existing boilers with the addition of required monitoring under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJ.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

Emissions testing is not proposed.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

Recordkeeping proposed is the same as in current permit for the existing boilers with the addition of required recordkeeping under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJ.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

Reporting proposed is the same as in current permit for the existing boilers with the addition of required reporting under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJ.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

Yearly inspection internal/external and proper daily water treatment program.

**COMBUSTION BOILER FIRING COMBUSTION CALCULATIONS
CHARLESTON AREA MEDICAL CENTER - MEMORIAL DIVISION**

COMBUSTION AIR CALCULATIONS

Victory Energy 500 HP Boilers (No. 8)

Distillate (No. 2) FO Firing

Design Capacity	2.10E+07 MMBH
Burner Firing Rate (Maximum)	150.00 GPH
FO Density	6.83 lb/gal
Hourly Firing Rate	1,024.50 lb/hr
Theoretical Combustion Air Factor \1	211.70 scf/lb oil
Theoretical Air Required for Burner	2.17E+05 SCFH
	3,614.78 SCFM (ACFM) Combustion Air

Natural Gas Firing

Burner Firing Rate (Maximum)	20,792.08 cfh
Theoretical Combustion Air Factor \1	11.45 scf/cf gas
Theoretical Air Required for Burner	2.38E+05 SCFH
	3,967.82 SCFM (ACFM) Combustion Air

Victory Energy 800 HP Boilers (No. 9)

Distillate (No. 2) FO Firing

Design Capacity	3.36E+07 MMBH
Burner Firing Rate (Maximum)	240.00 GPH
FO Density	6.83 lb/gal
Hourly Firing Rate	1,639.20 lb/hr
Theoretical Combustion Air Factor \1	211.70 scf/lb oil
Theoretical Air Required for Burner	3.47E+05 SCFH
	5,783.64 SCFM (ACFM) Combustion Air

Natural Gas Firing

Burner Firing Rate (Maximum)	33,267.33 cfh
Theoretical Combustion Air Factor \1	11.45 scf/cf gas
Theoretical Air Required for Burner	3.81E+05 SCFH
	6,348.51 SCFM (ACFM) Combustion Air

\1 Source Air Pollution Engineering Manual , EPA AP-42

BOILER FIRING COMBUSTION CALCULATIONS
CHARLESTON AREA MEDICAL CENTER - MEMORIAL DIVISION
Page 2

FLUE GAS (EMISSION RATE) CALCULATIONS

Victory Energy 500 HP Boilers (No. 8)

Distillate (No. 2) FO Firing

Burner Firing Rate (Maximum)	150.00	GPH	
FO Density	6.83	lb/gal	
Hourly Firing Rate	1,024.50	lb/hr	
Products of combustion @21% excess air \1	251.20	cf/lb FO	18.99 lb/lb FO
Emission Rate (Flue Gas Flow Rate)	257,354.40	cf/hr	<u>19,455.26</u> lb/hr
	<u>4,289.24</u>	scfm	

Natural Gas Firing

Burner Firing Rate (Maximum)	20,792.08	cfh	
Products of combustion @21% excess air \1	13.53	cf/cf gas	0.99 lb/cf gas
Emission Rate (Flue Gas Flow Rate)	281,316.84	cf/hr	<u>20,584.16</u> lb/hr
	<u>4,688.61</u>	scfm	

Victory Energy 800 HP Boilers (No. 9)

Distillate (No. 2) FO Firing

Burner Firing Rate (Maximum)	240.00	GPH	
FO Density	6.83	lb/gal	
Hourly Firing Rate	1,639.20	lb/hr	
Products of combustion @21% excess air \1	251.20	cf/lb FO oil	18.99 lb/lb FO
Emission Rate (Flue Gas Flow Rate)	411,767.04	cf/hr	<u>31,128.41</u> lb/hr
	<u>6,862.78</u>	scfm	

Natural Gas Firing

Burner Firing Rate (Maximum)	33,267.33	cfh	
Products of combustion @21% excess air \1	13.53	cf/cf gas	0.99 lb/cf gas
Emission Rate (Flue Gas Flow Rate)	450,106.97	lb/hr	<u>32,934.66</u> lb/hr
	<u>7,501.78</u>	scfm	

\1 Source Air Pollution Engineering Manual , EPA AP-42

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

<p>1. Name or type and model of proposed affected source:</p> <p>Caterpillar, Diesel Generator Set Standby 750ekW, 938 kVA 60 Hz, 1800rpm, 480 Volts (CAT C27 ATAAC Diesel Engine) (See attached equipment specification sheets for additional information.)</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>202.9 L/hr or 53.6 Gal/hr</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>Electricity, 750 kW</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>Combustion of diesel fuel (No. 2 Fuel Oil)</p>

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

202.9 L/hr or 53.6 Gal/hr

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Diesel Fuel (No. 2 Fuel Oil)	
Saturated Hydrocarbons	70 - 80 Weight Percent
Aromatic Hydrocarbons	17 - 25 Weight Percent
Unsaturated Hydrocarbons	3 - 6 Weight Percent
Naphthalene	0.1 - 0.5 Weight Percent
Sulphur	0.0015 Weight Percent (15 ppm max)

(For additional information, please refer to MSDS provided as Attachment H.)

(c) Theoretical combustion air requirement (ACF/unit of fuel):

2,281.23 @ ambient °F and ambient psia.

(d) Percent excess air: NAv

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Electronic unit injection with compression ignition.

$(53.6 \text{ gal/hr}) \times (6.7 \text{ lb/gal}) \times (19,300 \text{ BTU/lb}) = 6.9 \text{ MMBTU/hr}$

Based on maximum fuel input and a diesel heating value of 19,300 BTU/lb.

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: 6.9 $\times 10^6$ BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52 (250 hr/yr max)
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8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	916.0	°F and	0.9718	psia
a. NO _x	18.00	lb/hr	NA	grains/ACF
b. SO ₂	9.10E-03	lb/hr	NA	grains/ACF
c. CO	4.13	lb/hr	NA	grains/ACF
d. PM ₁₀	0.53	lb/hr	NA	grains/ACF
e. Hydrocarbons	Included with VOCs	lb/hr	NA	grains/ACF
f. VOCs	0.48	lb/hr	NA	grains/ACF
g. Pb	NA	lb/hr	NA	grains/ACF
h. Specify other(s)				
NA	NA	lb/hr	NA	grains/ACF
NA	NA	lb/hr	NA	grains/ACF
NA	NA	lb/hr	NA	grains/ACF
NA	NA	lb/hr	NA	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.
 (2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING</p> <p>Monitoring proposed is the same as in current permit for the existing generators with the addition of required monitoring under 40 CFR 60, Subpart IIII as described in Attachment D.</p>	<p>RECORDKEEPING</p> <p>Recordkeeping proposed is the same as in current permit for the existing generators with the addition of required recordkeeping under 40 CFR 60, Subpart IIII as described in Attachment D.</p>
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<p>REPORTING</p> <p>Reporting proposed is the same as in current permit for the existing generators with the addition of required reporting under 40 CFR 60, Subpart IIII as described in Attachment D.</p>	<p>TESTING</p> <p>Emissions testing is not proposed.</p>
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MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Not known.

Attachment M

Air Pollution Control Device Sheet

Attachment M

Air Pollution Control Device

This Class II Administrative Update does not include the installation of an air pollution control (APC) device. Therefore, this attachment is not applicable.

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Attachment N

Supporting Emissions Calculations

CAMC Memorial Hospital
 Permit R13-2451D
 Attachment N - Supporting Calculations

EMISSION FACTORS

Equipment	Combustion Material	Power Rating	EF Units	Criteria Pollutant				
				CO	NO _x	PM ₁₀ ¹	SO _x	VOCs
Permitted Boilers ^{1,2,3}	Natural Gas	<100MMBtu/hr	lb/MMscf	84	100	7.6	0.6	5.5
			lb/10 ³ gal	5	20	3.3	0.213	0.34
Permitted Generators ⁴	Diesel Fuel	250 - 600 hp	lb/hp-hr	6.68E-03	0.031	2.20E-03	2.05E-03	4.63E-04
			lb/MMBtu	0.95	4.41	0.31	0.29	0.07
Permitted Generators ⁵	Diesel Fuel	>600 hp	lb/hp-hr	5.50E-03	0.024	7.00E-04	1.21E-05	6.42E-04
			lb/MMBtu	0.85	3.2	0.1	1.52E-03	0.0819
Permitted Generator #5 ⁶	Diesel Fuel	3286 hp	lb/hr	9.33	65.88	0.54	3.99E-02	8.95E-02

Definitions:

- CO carbon monoxide
- EF emission factor
- gal gallon
- hp horsepower
- hr hour
- lb pound
- MMBtu million British thermal units
- MMscf million standard cubic feet
- NO_x nitrogen oxides
- PM particulate matter
- SO_x sulfur oxides
- VOCs volatile organic compounds

Notes:

- 1 Particulate EF for the combustion of #2 fuel oil is the sum of filterable and condensable particulate matter.
- 2 EFs for natural gas combustion in small boilers, from AP-42, Chapter 1, Section 4, Tables 1.4-1 and 1.4-2.
- 3 EFs for #2 fuel oil combustion in small boilers, from AP-42, Chapter 1, Section 3, Tables 1.3-1, 1.3-2, and 1.3-3. Sulfur content is 0.0015%, based on supplier information. See attached MSDS for details.
- 4 EFs for diesel fuel combustion in generators, from AP-42, Chapter 3, Section 3, Table 3.3-1. VOC emissions are comprised of exhaust aldehydes.
- 5 EFs for diesel fuel combustion in generators, from AP-42, Chapter 3, Section 4, Table 3.4-1. VOC emissions are comprised of 91% TOC.
- 6 EFs for NO_x, CO, and PM were provided by the manufacturer. EF for VOCs and SO_x, from AP-42, Chapter 3, Section 4, Tables 3.4-1, 3.4-3, and 3.4-4.
 $EF_{SO_x} = (8.09E-03 \text{ lb/hp-hr}) * (0.0015 \%S) * (3286 \text{ hp}) = 3.99E-02 \text{ lb/hr}$ -and- $EF_{VOC} = (4.36E-03 \text{ lb/MMBtu}) * (20.5 \text{ MMBtu/hr}) = 8.95E-03 \text{ lb/hr}$

CAMC Memorial Hospital
 Permit R13-2451D
 Attachment N - Supporting Calculations

CURRENT FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL	HOURS	EMISSIONS (pph)				EMISSIONS (tpy)					
				CONSUMPTION	(per year)	CO	NO _x	PM ₁₀	SO ₂	VOC	CO	NO _x	PM ₁₀	SO ₂	VOC
			(MMBtu/hr)	(MMscf/hr)											
1	Boiler #1	NG	14.1	0.0141	8760	1.18	1.41	0.11	0.01	0.08	5.19	6.18	0.47	0.04	0.34
	Boiler #2	NG	8.0	0.0080	8760	0.67	0.80	0.06	0.00	0.04	2.94	3.50	0.27	0.02	0.19
	Boiler #3	NG	30.2	0.0302	8760	2.54	3.02	0.23	0.02	0.17	11.11	13.23	1.01	0.08	0.73
	Boiler #4	NG	21.0	0.0210	8760	1.76	2.10	0.16	0.01	0.12	7.73	9.20	0.70	0.06	0.51
						6.16	7.33	0.56	0.04	0.40	26.97	32.11	2.44	0.19	1.77
											<i>(Mgal/hr)</i>				
1	Boiler #1	Fuel Oil	14.1	0.1007	5300	0.50	2.01	0.33	0.02	0.03	1.334	5.34	0.881	0.06	0.091
	Boiler #2	Fuel Oil	8.0	0.0571	5300	0.29	1.14	0.19	0.01	0.02	0.757	3.03	0.500	0.03	0.051
	Boiler #3	Fuel Oil	30.2	0.2157	5300	1.08	4.31	0.71	0.05	0.07	2.858	11.43	1.886	0.12	0.194
	Boiler #4	Fuel Oil	21.0	0.1500	5300	0.75	3.00	0.50	0.03	0.05	1.988	7.95	1.312	0.08	0.135
						2.62	10.47	1.73	0.11	0.18	6.94	27.75	4.58	0.30	0.47
SUBTOTAL						6.16	10.47	1.73	0.11	0.40	26.97	32.11	4.58	0.30	1.77
			(MMBtu/hr)	(MMscf/hr)											
2	Laundry #1	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
	Laundry #2	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
						2.12	2.52	0.19	0.02	0.14	9.27	11.04	0.84	0.07	0.61
SUBTOTAL						2.12	2.52	0.19	0.02	0.14	9.27	11.04	0.84	0.07	0.61
			(MMBtu/hr)	(MMscf/hr)											
3	Boiler #5	NG	3.5	0.0035	8760	0.29	0.35	0.03	2.1E-03	0.02	1.29	1.53	0.12	0.01	0.08
4	Boiler #6	NG	3.5	0.0035	8760	0.29	0.35	0.03	2.1E-03	0.02	1.29	1.53	0.12	0.01	0.08
5	Boiler #7	NG	3.5	0.0035	8760	0.29	0.35	0.03	2.1E-03	0.02	1.29	1.53	0.12	0.01	0.08
						0.88	1.05	0.08	0.01	0.06	3.86	4.60	0.35	0.03	0.25
											<i>(Mgal/hr)</i>				
3	Boiler #5	Fuel Oil	3.5	0.0250	5300	0.13	0.50	0.08	0.01	0.01	0.331	1.33	0.219	0.01	0.023
4	Boiler #6	Fuel Oil	3.5	0.0250	5300	0.13	0.50	0.08	0.01	0.01	0.331	1.33	0.219	0.01	0.023
5	Boiler #7	Fuel Oil	3.5	0.0250	5300	0.13	0.50	0.08	0.01	0.01	0.331	1.33	0.219	0.01	0.023
						0.38	1.50	0.25	0.02	0.03	0.99	3.98	0.66	0.04	0.07
SUBTOTAL						0.88	1.50	0.25	0.02	0.06	3.86	4.60	0.66	0.04	0.25

CAMC Memorial Hospital
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 Attachment N - Supporting Calculations

CURRENT FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL	HOURS	EMISSIONS (pph)					EMISSIONS (tpy)				
				CONSUMPTION	(per year)	CO	NO _x	PM ₁₀	SO ₂	VOC	CO	NO _x	PM ₁₀	SO ₂	VOC
			(KW)	(Hp)											
GS #1	Generator #1	Fuel Oil	520	697.3	250	3.47	16.12	1.14	1.07	0.24	0.43	2.02	0.14	0.13	0.03
GS #2	Generator #2	Fuel Oil	600	804.6	250	4.01	18.60	1.32	1.23	0.28	0.50	2.33	0.17	0.15	0.03
GS #3	Generator #3	Fuel Oil	600	804.6	250	4.01	18.60	1.32	1.23	0.28	0.50	2.33	0.17	0.15	0.03
GS #5	Generator #5	Fuel Oil	2,250	3,286	250	9.33	65.88	0.54	3.99E-02	0.09	1.17	8.24	0.07	4.98E-03	0.01
SUBTOTAL						20.82	119.20	4.32	3.57	0.89	2.60	14.90	0.54	0.45	0.11
EOSS	Sterilizer #1	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #2	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #3	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
SUBTOTAL						--	--	--	--	0.75	--	--	--	--	0.25
Throughput (gallons)															
ST #1	Storage Tank #1	Fuel Oil		3,600	NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #2	Storage Tank #2	Fuel Oil		3,600	NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #3	Storage Tank #3	Fuel Oil		8,000	NA	--	--	--	--	--	--	--	--	--	6.5E-05
SUBTOTAL						--	--	--	--	--	--	--	--	--	1.7E-04
TOTAL CURRENT SITE EMISSIONS						29.98	133.69	6.49	3.71	2.24	42.71	62.64	6.61	0.85	2.99

CAMC Memorial Hospital
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 Attachment N - Supporting Calculations

PROPOSED FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL	HOURS	EMISSIONS (pph)					EMISSIONS (tpy)				
				CONSUMPTION	(per year)	CO	NO _x	PM ₁₀	SO ₂	VOC	CO	NO _x	PM ₁₀	SO ₂	VOC
			(MMBtu/hr)	(MMscf/hr)											
1	Boiler #4	NG	21.0	0.0210	8260	1.76	2.10	0.16	0.01	0.12	7.29	8.67	0.66	0.05	0.48
			(Mgal/hr)												
1	Boiler #4	Fuel Oil	21.0	0.1500	500	0.75	3.00	0.50	0.03	0.05	0.19	0.75	1.31	0.01	0.013
SUBTOTAL						2.51	5.10	0.65	0.04	0.17	7.47	9.42	1.97	0.06	0.49
			(MMBtu/hr)	(MMscf/hr)											
2	Laundry #1	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
	Laundry #2	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
SUBTOTAL						2.12	2.52	0.19	0.02	0.14	9.27	11.04	0.84	0.07	0.61
			(MMBtu/hr)	(MMscf/hr)											
3	Boiler #5	NG	3.5	0.0035	8260	0.29	0.35	0.03	2.1E-03	0.02	1.21	1.45	0.11	0.01	0.08
4	Boiler #6	NG	3.5	0.0035	8260	0.29	0.35	0.03	2.1E-03	0.02	1.21	1.45	0.11	0.01	0.08
5	Boiler #7	NG	3.5	0.0035	8260	0.29	0.35	0.03	2.1E-03	0.02	1.21	1.45	0.11	0.01	0.08
			(Mgal/hr)												
3	Boiler #5	Fuel Oil	3.5	0.0250	500	0.13	0.50	0.08	0.01	0.01	0.03	0.13	0.02	0.00	0.002
4	Boiler #6	Fuel Oil	3.5	0.0250	500	0.13	0.50	0.08	0.01	0.01	0.03	0.13	0.02	0.00	0.002
5	Boiler #7	Fuel Oil	3.5	0.0250	500	0.13	0.50	0.08	0.01	0.01	0.03	0.13	0.02	0.00	0.002
SUBTOTAL						1.26	2.55	0.33	0.02	0.08	3.74	4.71	0.39	0.03	0.24
			(MMBtu/hr)	(MMscf/hr)											
1	Boiler #8	NG	21.0	0.0210	8260	1.76	2.10	0.16	1.3E-02	0.12	7.29	8.67	0.66	0.05	0.48
	Boiler #9	NG	33.6	0.0336	8260	2.82	3.36	0.26	2.0E-02	0.18	11.66	13.88	1.05	0.08	0.76
			(Mgal/hr)												
1	Boiler #8	Fuel Oil	21.0	0.1500	500	0.75	3.00	0.50	0.03	0.05	0.19	0.75	1.20	0.01	0.013
	Boiler #9	Fuel Oil	33.6	0.2400	500	1.20	4.80	0.79	0.05	0.08	0.30	1.20	0.20	0.01	0.020
SUBTOTAL						6.54	13.26	1.70	0.12	0.43	19.43	24.50	2.04	0.16	1.27

CAMC Memorial Hospital
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 Attachment N - Supporting Calculations

PROPOSED FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL	HOURS	EMISSIONS (pph)					EMISSIONS (tpy)				
				CONSUMPTION	(per year)	CO	NO _x	PM ₁₀	SO ₂	VOC	CO	NO _x	PM ₁₀	SO ₂	VOC
			(KW)	(Hp)											
GS #1	Generator #1	Fuel Oil	520	697.3	500	2.86	12.48	0.36	0.01	0.33	0.72	3.12	0.09	0.002	0.08
GS #2	Generator #2	Fuel Oil	600	804.6	500	3.30	14.40	0.42	0.01	0.38	0.83	3.60	0.11	0.002	0.10
GS #3	Generator #3	Fuel Oil	600	804.6	500	3.30	14.40	0.42	0.01	0.38	0.83	3.60	0.11	0.002	0.10
GS #5	Generator #5	Fuel Oil	2,250	3,017	500	9.33	65.88	0.54	3.99E-02	0.09	2.33	16.47	0.14	9.97E-03	0.02
GS #6	Generator #6	Fuel Oil	750	1,006	500	4.13	18.00	0.53	9.10E-03	0.48	1.03	4.50	0.13	2.28E-03	0.12
SUBTOTAL						22.92	125.16	2.27	0.07	1.67	5.73	31.29	0.57	0.02	0.42
EOSS	Sterilizer #1	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #2	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #3	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
SUBTOTAL						--	--	--	--	0.75	--	--	--	--	0.25
Throughput (gallons)															
ST #1	Storage Tank #1	Fuel Oil		3,600	NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #2	Storage Tank #2	Fuel Oil		3,600	NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #3	Storage Tank #3	Fuel Oil		8,000	NA	--	--	--	--	--	--	--	--	--	6.5E-05
SUBTOTAL						--	--	--	--	--	--	--	--	--	1.7E-04
TOTAL PROPOSED SITE EMISSIONS						35.34	148.59	5.14	0.27	3.25	45.64	80.96	5.80	0.33	3.28
NET PROPOSED EMISSION DIFFERENCE						5.36	14.90	-1.35	-3.44	1.01	2.93	18.32	-0.81	-0.52	0.30

CAMC Memorial Hospital
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 Attachment N - Supporting Calculations

PROPOSED FACILITY GREEN HOUSE GAS EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL	HOURS	EMISSIONS (TPY)			
				CONSUMPTION	(per year)	CO ₂	CH ₄	N ₂ O	CO ₂ e
			(MMBtu/hr)	(MMscf/hr)					
1	Boiler #4	NG	21.0	0.0210	8,260	1.04E+04	2.01E+01	5.93E+00	1.05E+04
			(Mgal/hr)						
1	Boiler #4	Fuel Oil	21.0	0.1500	500	8.39E+02	2.67E+00	2.15E+00	8.44E+02
SUBTOTAL									1.13E+04
			(MMBtu/hr)	(MMscf/hr)					
2	Laundry #1	NG	12.6	0.0126	8,760	6.64E+03	1.28E+01	3.77E+00	6.66E+03
	Laundry #2	NG	12.6	0.0126	8,760	6.64E+03	1.28E+01	3.77E+00	6.66E+03
SUBTOTAL									1.33E+04
			(MMBtu/hr)	(MMscf/hr)					
5	Boiler #5	NG	3.5	0.0035	8,260	1.74E+03	3.35E+00	9.88E-01	1.74E+03
4	Boiler #6	NG	3.5	0.0035	8,260	1.74E+03	3.35E+00	9.88E-01	1.74E+03
3	Boiler #7	NG	3.5	0.0035	8,260	1.74E+03	3.35E+00	9.88E-01	1.74E+03
SUBTOTAL									5.23E+03
			(Mgal/hr)						
5	Boiler #5	Fuel Oil	3.5	0.0250	500	1.40E+02	4.46E-01	3.59E-01	1.41E+02
4	Boiler #6	Fuel Oil	3.5	0.0250	500	1.40E+02	4.46E-01	3.59E-01	1.41E+02
3	Boiler #7	Fuel Oil	3.5	0.0250	500	1.40E+02	4.46E-01	3.59E-01	1.41E+02
SUBTOTAL									4.22E+02
SUBTOTAL									5.65E+03
			(MMBtu/hr)	(MMscf/hr)					
1	Boiler #8	NG	21.0	0.0210	8,260	1.04E+04	2.01E+01	5.93E+00	1.05E+04
	Boiler #9	NG	33.6	0.0336	8,260	1.67E+04	3.21E+01	9.48E+00	1.67E+04
SUBTOTAL									2.72E+04
			(Mgal/hr)						
1	Boiler #8	Fuel Oil	21.0	0.1500	500	8.39E+02	2.67E+00	2.15E+00	8.44E+02
	Boiler #9	Fuel Oil	33.6	0.2400	500	1.34E+03	4.28E+00	3.44E+00	1.35E+03
SUBTOTAL									2.19E+03
SUBTOTAL									2.94E+04

CAMC Memorial Hospital
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 Attachment N - Supporting Calculations

PROPOSED FACILITY GREEN HOUSE GAS EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL	HOURS	EMISSIONS (TPY)			
				CONSUMPTION	(per year)	CO ₂	CH ₄	N ₂ O	CO ₂ e
			(KW)	(Hp)					
GS #1	Generator #1	Fuel Oil	520	697.3	500	7.15E+01	2.26E-01	1.82E-01	7.19E+01
GS #2	Generator #2	Fuel Oil	600	804.6	500	8.25E+01	2.61E-01	2.10E-01	8.30E+01
GS #3	Generator #3	Fuel Oil	600	804.6	500	8.25E+01	2.61E-01	2.10E-01	8.30E+01
GS #5	Generator #5	Fuel Oil	2,250	3,017	500	3.10E+02	9.77E-01	7.87E-01	3.11E+02
GS #6	Generator #6	Fuel Oil	750	1,006	500	1.03E+02	3.26E-01	2.62E-01	1.04E+02
SUBTOTAL									6.53E+02
TOTAL PROPOSED FACILITY GHG EMISSIONS									6.03E+04



Image shown may not reflect actual package.

STANDBY 750 e kW 938 kVA 60Hz 1800rpm 480Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

- EPA **Certified** for Stationary Emergency Application (EPA Tier 2 emissions levels)

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200/ CSA - Optional

- UL 2200 listed packages
- CSA **Certified** Certain restrictions may apply. Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost **effective** installation

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with **certified** torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat® S-O-SSM program cost **effectively** detects internal engine component condition, even the presence of unwanted **fluids** and combustion by-products

CAT® C27ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Four-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic engine control

CAT GENERATOR

- Designed to match the performance and output characteristics of Cat diesel engines
- Single point access to accessory connections
- UL 1446 recognized Class H insulation

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway

SEISMIC CERTIFICATION

- Seismic **Certification** available
- Anchoring details are site **specific**, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC **Certification** requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic **Certification** per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007
- Pre-approved by OSHPD and carries an OSP-0084-10 for use in healthcare projects in California

STANDBY 750ekW 938kVA

60 Hz 1800rpm 480Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Air cleaner	
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	<input type="checkbox"/> Exhaust mufflers
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines	<input type="checkbox"/> Oversize and premium generators <input type="checkbox"/> Permanent magnet excitation (PMG) <input type="checkbox"/> Internal excited (IE) <input type="checkbox"/> Anti-condensation space heaters
Power Termination	• Bus bar	<input type="checkbox"/> Circuit breakers, UL listed <input type="checkbox"/> Circuit breakers, IEC compliant
Control Panel	• EMCP 4 Genset Controller	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> EMCP 4.3 <input type="checkbox"/> EMCP 4.4 <input type="checkbox"/> Generator temperature monitoring and protection <input type="checkbox"/> Load share module <input type="checkbox"/> Digital I/O module <input type="checkbox"/> Remote monitoring software
Mounting		<input type="checkbox"/> Rubber vibration isolators
Starting/Charging		<input type="checkbox"/> Battery chargers <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Jacket water heater <input type="checkbox"/> Heavy duty starting system <input type="checkbox"/> Charging alternator
General	• Paint - Caterpillar Yellow except rails and radiators gloss black	The following options are based on regional and product configuration: <input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 <input type="checkbox"/> EU Certificate of Conformance (CE) <input type="checkbox"/> UL 2200 package <input type="checkbox"/> CSA Certification <input type="checkbox"/> EEC Declaration of Conformity <input type="checkbox"/> Enclosures- sound attenuated, weather protective <input type="checkbox"/> Automatic transfer switches (ATS) <input type="checkbox"/> Integral & sub-base fuel tanks <input type="checkbox"/> Integral & sub-base UL listed dual wall fuel tanks

STANDBY 750ekW 938kVA

60 Hz 1800rpm 480Volts



SPECIFICATIONS

CAT GENERATOR

Frame size1296
Excitation Permanent Magnet
Pitch 0.6667
Number of poles 4
Number of bearings Single bearing
Number of Leads 012
Insulation UL 1446 Recognized Class H with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP Rating Drip Proof IP23
Alignment Pilot Shaft
Overspeed capability 150
Wave form Deviation (Line to Line) Less than 5% deviation
Voltage regulator..... 3 Phase sensing with selectable volts/Hz
Voltage regulation Less than +/- 1/2% (steady state)
Less than +/- 1% (no load to full load)

CAT DIESEL ENGINE

C27 TA, V-12, 4-Stroke Water-cooled Diesel
Bore 137.20 mm (5.4 in)
Stroke 152.40 mm (6.0 in)
Displacement 27.03 L (1649.47 in³)
Compression Ratio 16.5:1
Aspiration TA
Fuel System MEUI
Governor Type ADEM™ A4

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- kW, kVA, kVAR, kW-hr, %kW, PF

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:

- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 750ekW 938kVA

60 Hz 1800rpm 480Volts



TECHNICAL DATA

Open Generator Set - - 1800rpm/60 Hz/480 Volts	DM9071	
EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)		
Generator Set Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan	937.5 kVA 750 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	202.9 L/hr 162.4 L/hr 116.2 L/hr	53.6 Gal/hr 42.9 Gal/hr 30.7 Gal/hr
Cooling System¹ Air flow restriction (system) Engine coolant capacity	0.12 kPa 55.0 L	0.48 in. water 14.5 gal
Inlet Air Combustion air inlet flow rate	58.7 m ³ /min	2073.0 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	509.3 °C 158.9 m ³ /min 203 mm 10.0 kPa	948.7 °F 5611.5 cfm 8 in 40.2 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	324 kW 742 kW 138 kW 100 kW 56.5 kW	18426 Btu/min 42197 Btu/min 7848 Btu/min 5687 Btu/min 3216.0 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise	2117 skVA 1296 150 °C	270 °F
Lube System Sump refill with filter	68.0 L	18.0 gal
Emissions (Nominal)³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	5.25 g/hp-hr .25 g/hp-hr .03 g/hp-hr .021 g/hp-hr	

¹ For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Generator temperature rise is based on a 40°C ambient per NEMA MG1-32. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics.

³ Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

STANDBY 750kW 938kVA

60 Hz 1800rpm 480Volts



RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards: AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 72/23/EEC, 98/37/EC, 2004/108/EC

Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16° C or 60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

STANDBY 750ekW 938kVA

60 Hz 1800rpm 480Volts



DIMENSIONS

Package Dimensions		
Length	4141.6 mm	163.05 in
Width	1823.3 mm	71.78 in
Height	2210.5 mm	87.03 in

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

www.Cat-ElectricPower.com

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Feature Code: C27DR69

Gen. Arr. Number: 385-0654

Source: U.S. Sourced

LEHE0455-00 (08/13)

Materials and **specifications** are subject to change without notice.
The International System of Units (SI) is used in this publication.

CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow," the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

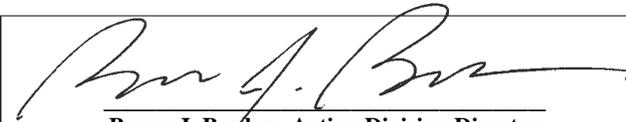


**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2013 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990**

**OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105**

Certificate Issued To: Caterpillar Inc.
(U.S. Manufacturer or Importer)
Certificate Number: DCPXL27.0NZS-028

Effective Date:
10/05/2012
Expiration Date:
12/31/2013


Byron J. Bunker, Acting Division Director
Compliance Division

Issue Date:
10/05/2012
Revision Date:
N/A

Model Year: 2013
Manufacturer Type: Original Engine Manufacturer
Engine Family: DCPXL27.0NZS

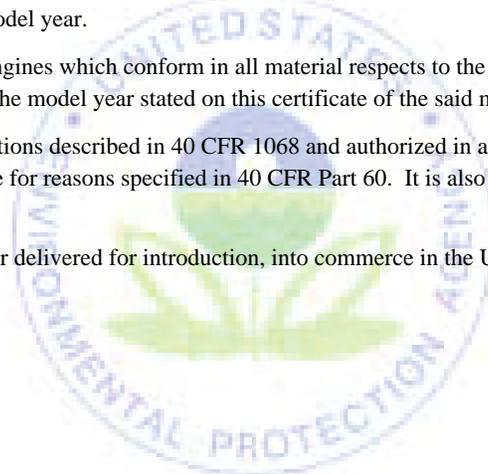
Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW<=2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Engine Design Modification, Electronic Control

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.



SB-149 500 hp Victory Energy Firetube Boiler

One (1) Victory Energy, "Frontier" Series, **Model: F3-500-S150-G#2 Oil**. Firetube Boiler, 3-Pass 500 BHP, 250 psig 30 PPM Super High Efficiency Low NOx burner. The unit will be designed to produce 17,250 PPH (nominal 500 BHP) of steam at an operating pressure up to 210 psig. The unit will include the following:

Quantity: One (1) Boiler > Capacity (500 HP) 17,250 PPH > Design: Wetback > Heating Surface 2,500 SQ.FT. of heating surface – 5 sq. ft per BHP > Design Pressure: 250 PSIG > Operating Pressure: Up to 210 PSIG

Fuel savings utilizing the Ware exclusive Super High Efficiency system versus a standard low nox burner with linkages is estimated to be 8 to 12% depending on your load. The attached performance criteria shows those savings in dollars and is based upon a 70% load. Fuel savings is estimated to be \$5,390.00 per month.

- > **Burner: Limpsfield**
 - o Primary Fuel:Natural Gas > 2nd fuel type:.....#2 Oil
 - o NOx requirements:.....30 PPM
 - o Electrical:Not Defined
 - o Gas pressure:max 6 psi
 - o Codes:.....NFPA
 - o Flue Gas RecirculationYES
 - o Boiler Location:.....Indoors

Limpsfield LCNO 62 burner

Designed max firing rate 21,000,000 Btu/hr
To fire Natural Gas and # 2 Oil
Split head gas injection
Stainless steel diffuser and blast tube tip
2 oil pressure atomized oil lance and nozzle assembly
Burner mounted UL oil train (comprising of 2 x Parker Hannifin oil solenoid valves)
Autoflame Self Check UV sensor
Autoflame gas valve/oil valve and servo motor
Air damper assembly and servo motor
Pilot gas train (2 x electrical solenoid valves)
Burner mounted terminal box

Control panel – Burner mounted UL approved main panel

Equipped with Autoflame MM Mk 7 evolution module
Burner on/off push button
Gas selected indication lamp
Oil selected indication lamp
System error/lockout push button
Mains voltage transformer
Servo voltage transformer
Output to induced FGR valve and servo motor
Output and to FD fan VFD or starter
Output to oil pump starter
Fitted with cooling fan

Transitional ductwork

To connect combustion air fan to burner inlet
Finished to match burner

Combustion air fan (suitable for combustion air and induced FGR)

Finished to match the burner
UL recognized motor 40 HP
Supplied with AV mounts

FGR/combustion air mixing silencer assembly

Designed to mix the flue gases with the combustion air prior to the fan
10" FGR valve supplied for FGR control
Large servo motor for FGR control
Air balancing damper and servo motor
Finished to match burner

Oil pump set

Oil pump to supply # 2 oil to the burner at a pressure of 400 psi
Complete with UL listed motor
Oil pump set supplied fully built but will require pipe work to the inlet of oil pump set and from the oil pump set to the inlet of the burner. All spillback oil should be returned to the oil tank.
Oil must be clean and filtered

Gas train

This gas train meets NFPA 85 / CSD – 1 recommendations
3 - Inch gas control train (based on Natural gas having a CV of 1000 Btu per cubic feet, pressure drop over gas train = 20 inches WC).
2 x Dungs ½ inch pilot gas valves
1 x Dungs ½ inch pilot gas pressure regulator
1 x Dungs/Medinus 3 inch gas pressure regulator,
1 x Dungs 3 inch double block valve with POC switch
1 x Dungs VPS system
Max inlet pressure 6 psi

Burner mounting spacer disc

Finished to match burner

Autoflame sensors

Steam pressure sensor
Air pressure sensor
Gas pressure sensor

> Boiler Trim info:

- o LWCO (mounted)
- o By pass shunt button for water column blow down
- o Auxiliary LWCO (mounted)
- o Pressuretrols:Operating / Limit (mounted)
- o Low Firehold Switch
- o NEMA 1 – 12" x 12" Junction Box (mounted)
- o Pressure Gauge (ship loose)
- o Safety Valves (ship loose)
- o Chemical Feed connection with diffuser tube.
- o Surface blowdown connection with skimmer tube
- o Bottom Blow Down Valves (mounted)
- o Manual Feedwater Valves
- o Flanged stack opening
- o Integral "locking quadrant" Stack damper
- o Blast Gate observation port

- o Nozzle sized to operate between 100 – 210 PSI.

GENERAL DATA

- 3-Pass, Scotch Marine Firetube Boiler.
- Built to ASME Code Section I and National Board Rules.
- Full Skid Base.
- 2" Insulation and "galvanneal" sheet metal jacket on boiler shell.
- Hinged front and rear flue doors.
- Front and rear observation ports.

(water column) (On/Off operation)	1 LWCO - 250psig	1"	McDonnell Miller 194
Level gauge valves with chains and handles	1	-	McDonnell Miller
By-pass shunt button for water column blowdown	1	-	VEO
ALWCO (probe in Shell) – 250 psig w/ manual reset button	1	1"	Warrick 26MB1
Steam Pressure Gauge w/ siphon loop	1	6.0"	Ashcroft
Steam Drum Vent Valve	1	1"	Vogt
Pressure Switch – Operating Range 10 – 250psig	1	-	Honeywell or equal
Pressure Switch– Limiting, Range 10 - 250 psig –	1	-	Honeywell or equal
Pressure Switch – Modulation	1	-	Included with burner
Low Firehold Switch	1	-	ASCO-PB10A/KJ11 or equal
Junction Box Assembly w/ wire and conduit.	1	12" x 12"	NEMA 1
Integral Stack Damper –"locking quadrant"	1	24"	VEO
Bottom Blow Down Valve (quick)	2	1.5"	United Brass - 425
Bottom Blow Down Valve (Slow)	1	1.5"	United Brass - 525
Surface Blow down valves with skimmer tube	1	1"	VEO
Boiler Safety Valve #1 (loose)	1	1.5"x1.5"	Kunkle – Set @ 250 psi
Boiler Safety Valve #2 (loose)	1	2.0"x2.0"	Kunkle - Set @ 250 psi
Manual-Feedwater Gate – (mtd)	1	2.0"	Vogt
Manual-Feedwater Check – (mtd)	1	2.0"	Vogt
Chemical feed connection with diffuser tube (No valves supplied)	1	1"	TBD
Nozzle sized to operate between – 100 – 210 PSI.	1	6"	VEO
Mount burner and controls	1	Inc.	VEO
Electrical test	1	Inc.	VEO
FGR Piping	1	Inc.	VEO

SB-150 800 hp Victory Energy Firetube Boiler

One (1) Victory Energy, "Frontier" Series, Model: F3-800-S300-CF Burner. Firetube Boiler, 3-Pass 800 BHP, 300 psig with a Super High Efficiency 30 PPM Low NOx burner. The unit will be designed to produce 27,600 PPH (nominal 800 BHP) of steam at an operating pressure up to 250 psig. The unit will include the following:

Quantity: One (1) Boiler > Capacity (800 HP) 27,600 PPH > Design: Wetback > Heating Surface 4,018 SQ.FT. of heating surface – 5 sq. ft per BHP > Design Pressure: 300 PSIG > Operating Pressure: Up to 250 PSIG

Fuel savings utilizing the Ware exclusive Super High Efficiency system versus a standard low nox burner with linkages is estimated to be 8 to 12% depending on your load. The attached performance criteria shows those savings in dollars and is based upon a 70% load. Fuel savings is estimated to be \$8,856.00 per month.

Burner: Limpsfield

- o Primary Fuel:Natural Gas, Secondary Fuel
.....#2 Oil
- o NOx requirements:.....30 PPM
- o Electrical:480 volt, 3 phase
- o Gas pressure:max 6 psi
- o Codes:.....NFPA
- o Flue Gas RecirculationYES
- o Boiler Location:Indoors

Limpsfield LCNO 100 burner

Designed max firing rate 33,600,000 Btu/hr
To fire Natural Gas and # 2 Oil
Split head gas injection
Stainless steel diffuser and blast tube tip
2 oil pressure atomized oil lance and nozzle assembly
Burner mounted UL oil train (comprising of 2 x Parker Hannifin oil solenoid valves)
Autoflame Self Check UV sensor
Autoflame gas valve/oil valve and servo motor
Air damper assembly and servo motor
Pilot gas train (2 x electrical solenoid valves)
Burner mounted terminal box

Control panel – Burner mounted UL approved main panel

Equipped with Autoflame MM Mk 7 evolution module
Burner on/off push button
Gas selected indication lamp
Oil selected indication lamp
System error/lockout push button
Mains voltage transformer
Servo voltage transformer
Output to induced FGR valve and servo motor
Output and to FD fan VFD or starter
Output to oil pump starter
Fitted with cooling fan

Transitional ductwork

To connect combustion air fan to burner inlet

Finished to match burner

Combustion air fan (suitable for combustion air and induced FGR)

Finished to match the burner
UL recognized motor 50 HP
Supplied with AV mounts

FGR/combustion air mixing silencer assembly

Designed to mix the flue gases with the combustion air prior to the fan
12" FGR valve supplied for FGR control
Large servo motor for FGR control
Air balancing damper and servo motor
Finished to match burner

Oil pump set

Oil pump to supply # 2 oil to the burner at a pressure of 400 psi
Complete with UL listed motor
Oil pump set supplied fully built but will require pipe work to the inlet of oil pump set and from the oil pump set to the inlet of the burner. All spillback oil should be returned to the oil tank.
Oil must be clean and filtered

Gas train

This gas train meets NFPA 85 / CSD – 1 recommendations
4 - Inch gas control train (based on Natural gas having a CV of 1000 Btu per cubic feet, pressure drop over gas train = 21 inches WC).
2 x Dungs ½ inch pilot gas valves
1 x Dungs ½ inch pilot gas pressure regulator
1 x Dungs/Medinus 4 inch gas pressure regulator,
1 x Dungs 4 inch double block valve with POC switches
1 x Dungs VPS system
Max inlet pressure 6 psi

Burner mounting spacer disc

Finished to match burner

Autoflame sensors

Steam pressure sensor
Air pressure sensor
Gas pressure sensor

➤ **Boiler Trim info:**

- LWCO (mounted)
- By pass shunt button for water column blow down
- Auxiliary LWCO (mounted)
- Pressuretrols:Operating / Limit (mounted)
- Low Firehold Switch
- NEMA 1 – 12" x 12" Junction Box (mounted)
- Pressure Gauge (ship loose)
- Safety Valves (ship loose)
- Chemical Feed connection with diffuser tube.
- Surface blowdown connection with skimmer tube (mounted)
- Bottom Blow Down Valves (mounted)
- Manual Feedwater Valves
- Flanged stack opening
- Integral "locking quadrant" Stack damper

- o Blast Gate observation port

GENERAL DATA

- 3-Pass, Scotch Marine Firetube Boiler.
- Built to ASME Code Section I and National Board Rules.
- Full Skid Base.
- 2" Insulation and "galvanneal" sheet metal jacket on boiler shell.
- Hinged front and rear flue doors.
- Front and rear observation ports.

LWCO - 350psig (water column) - Flanged (On/Off operation)	1	1"	Clark Reliance WO350
Level gauge valves with chains and handles	1	-	Clark Reliance
By-pass shunt button for water column blowdown	1	-	VEO
ALWCO (Probe Holder) - 350 psig w/ manual reset button	1	1"	Clark Reliance
Steam Pressure Gauge w/ siphon loop	1	6.0"	Ashcroft
Steam Drum Vent Valve	1	1"	Vogt
Pressure Switch - Operating Range 10 - 250psig	1	-	Honeywell or equal
Pressure Switch - Limiting, Range 10 - 250 psig -	1	-	Honeywell or equal
Pressure Switch - Modulation	1	-	Included with burner
Low Firehold Switch	1	-	ASCO-PB10A/KJ11 or equal
Junction Box Assembly w/ wire and conduit.	1	12" x 12"	NEMA 1
Integral Stack Damper - "locking quadrant"	1	26"	VEO
Bottom Blow Down Valve (quick) - Flanged	2	2.0"	United Brass - 625
Bottom Blow Down Valve (Slow) - Flanged	1	2.0"	United Brass - 725
Surface Blow down connection with skimmer tube	1	1"	VEO
Boiler Safety Valve #1 (loose) - Flanged	1	TBD	Kunkle - 300 Set @ 300 psi
Boiler. Safety Valve #2 (loose) - Flanged	1	TBD	Kunkle - 300 Set @ 300 psi
Manual-Feedwater Gate - (mtd) - Flanged	1	2.0"	Vogt
Manual-Feedwater Check - (mtd) - Flanged	1	2.0"	Vogt
Chemical feed connection with diffuser tube (No valves supplied)	1	1"	TBD
Mount burner and controls	1	Inc.	VEO
Electrical test	1	Inc.	VEO
FGR Piping	1	Inc.	VEO

Both boilers are ready for immediate shipment and they are located at the factory in Collinsville, OK.

Boilers will also carry a one year manufactures warranty.

Attachment O

Monitoring/Recordkeeping/Reporting/Testing Plans

Attachment O

Monitoring, Recordkeeping, Reporting, and Testing

Monitoring, recordkeeping, and reporting is the same as in current permit for the existing boilers and generators with the addition of requirements under 40 CFR 60, Subpart Dc and 40 CFR 63, Subpart JJJJJJ for the boilers and 40 CFR 60, Subpart IIII for the generator. Emissions testing is not being proposed. Further discussion is provided in Attachment D.

Attachment P

Public Notice

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that Charleston Area Medical Center Memorial Hospital has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II Administrative Update for the installation of one diesel powered emergency generator and two dual-fuel boilers located on 3200 MacCorkle Avenue, SE in Charleston, Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.329825 N and 81.602891 W.

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

<u>Pollutant</u>	<u>Current</u>	<u>Proposed</u>	<u>Difference</u>
CO	42.71	45.64	2.93
NO _x	62.64	80.96	18.32
PM ₁₀	6.61	5.80	-0.81
SO ₂	0.85	0.33	-0.52
VOC	2.99	3.28	0.30

Startup of operation is planned to begin on or about the 1st day of September, 2015. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the 30th day of July, 2015.

By: Charleston Area Medical Center Memorial Hospital
Dr. Glenn Crotty, Jr
Executive Vice President & Chief Operating Officer
501 Morris Street
Charleston, West Virginia 25301

Attachment Q

Business Confidential Claims

Attachment Q
Business Confidential Claims

This Class II Administrative Update does not contain any information considered
"Confidential Business Information" per 45CSR31.

Attachment R

Authority Forms

Attachment R Authority Forms

This Class II Administrative Update is signed by the "Responsible Official".
Therefore no authority forms are included.

Application Fee



**Charleston Area
Medical Center**

SAFETY OFFICE

3000 MacCorkle Ave. SE
Charleston, WV 25304
(304) 388-8208
Fax: (304) 388-8891

May 11, 2016

Mr. Fred Durham
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, West Virginia 25304



Re: CAMC Women & Children's Hospital Class I Administrative Update
800 Pennsylvania Avenue
Charleston, Kanawha County, West Virginia
Reg 13 Permit No.: R13-2452B

Dear Mr. Durham:

Charleston Area Medical Center (CAMC) is providing this Class I Administrative Update for CAMC Women & Children's Hospital to address minor changes needed to the current Regulation 13 Permit R13-2452B. The following revisions are requested:

Revision 1 – Change facility name from CAMC – Women & Children's Division to CAMC Women & Children's Hospital throughout the permit.

Revision 2 – In Section 1.0 Emission Units, Boiler #1 is listed as a natural gas/#2 fuel oil fired boiler and Boiler #2 as a natural gas fired boiler. Boiler #1 needs changed to a natural gas only fired boiler and Boiler #2 is a dual fuel, natural gas/#2 fuel oil fired boiler.

Revision 3 – Remove ethylene oxide sterilizers #1, #2, and #3 from the permit as they are no longer present at the facility.

I trust the provided information will be sufficient to address the requested changes; however, if you have any questions or need any additional information, please do not hesitate to contact me at 304.388.8890.

Sincerely,

Nanci Keenan
Safety Manager

IND BY WVDEF 11:08 AM MAY 26 2016

EXHIBIT
5



west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345
Phone: 304 926 0475 • Fax: 304 926 0479

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

April 14, 2017

Nanci Keenan
Charleston Area Medical Center
3000 MacCorkle Ave. SE
Charleston, WV 25304

Re: General Hospital
Permit No. R13-1772K
Plant ID No. 039-00057

Dear Ms. Keenan:

Your application for a permit as required by Section 5 of 45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permit, General Permit, and Procedures for Evaluation" has been approved. The enclosed permit R13-1772K is hereby issued pursuant to Subsection 5.7 of 45CSR13. Please be aware of the notification requirements in the permit which pertain to commencement of construction, modification, or relocation activities; startup of operations; and suspension of operations.

The source is not subject to 45CSR30.

In accordance with 45CSR22 - Air Quality Management Fee Program, the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the Certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

Should you have any questions or comments, please contact me at (304) 926-0499, extension 1211.

Sincerely,

A handwritten signature in blue ink, appearing to read "William T. Rothwell II", with a stylized flourish at the end.

William T. Rothwell II, P.E.
Engineer

Enclosure

West Virginia Department of Environmental Protection
Jim Justice
Governor

Division of Air Quality

Austin Caperton
Cabinet Secretary

Class I Administrative Update Permit



R13-1772K

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

Charleston Area Medical Center, Inc.
General Division
039-00057

A handwritten signature in blue ink, appearing to read "William F. Durham", written over a horizontal line.

William F. Durham
Director

Issued: April 14, 2017

This permit will supercede and replace Permit R13-1772J.

Facility Location: 501 Morris Street
Charleston, WV
Mailing Address: 3200 MacCorkle Avenue, SE
Charleston, WV 25304
Facility Description: Medical Treatment Facility
NAICS Codes: 622110
UTM Coordinates: 445.2 km Easting • 4,244.6 km Northing • Zone 17
Permit Type: Class I Administrative Update
Description of Change: This action is for the removal of the two existing ethylene oxide sterilizers.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is subject to 45CSR30. Changes authorized by this permit do not have to be incorporated into the facility's Title V operating permit. These changes affect a deferred source(s) of a non-major source under 45 CSR §30-3.2a.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
1S	IMWI	Medical Waste Incinerator (HMIWI)	1995	1,000 lb/hr	1C & 2C
Boiler 2	BS-2	Boiler #2 Hurst 500 Series Duel Fuel Boiler Riello RLS 650/EV FGR Burner	2015	16.3 MMBtu/hr	FGR w/Low NO _x Burner
Boiler 3	BS-3	Boiler #3 Hurst 500 Series Duel Fuel Boiler Riello RLS 650/EV FGR Burner	2015	16.3 MMBtu/hr	FGR w/Low NO _x Burner
Boiler 4	BS-4	Boiler #4 Hurst 500 Series Duel Fuel Boiler Riello RLS 650/EV FGR Burner	2015	16.3 MMBtu/hr	FGR w/Low NO _x Burner
EG-1	S-EG-1	Emergency Generator Set #1 Located Next to Parking Garage besides Brooks St.	2011	750 kW	None
EG-2	S-EG-2	Emergency Generator Set #2 Located in the South Basement Generator Room	1992	750 kW	None
EG-5	S-EG-5	Emergency Generator Set #5 Located in the Special Care Basement Generator Room	1986	750 kW	None
EG-7	S-EG-7	Emergency Generator Set #7 Generator Model 250DQDAA Cummins Engine QSL9-G7 Engine Family No: FCWXL050AAB Certificate No: FCEXL0540AAB-030 Located Next to HMIWI Bldg.	2015	464 bhp	None

Control Devices

Control Device ID	Control Device Information
1C	Dry-injection fabric filter (DIFF) with sodium bicarbonate and PAC injection, & packed tower with sodium hydroxide injection for HCl removal
2C	Monroe Environmental Corp. Model No VPB-070 Packed Bed Scrubber using caustic soda solution

PAC – powder activate carbon
 FGR - Flue Gas Recirculation

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the “West Virginia Air Pollution Control Act” or the “Air Pollution Control Act” mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The “Clean Air Act” means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. “Secretary” means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary’s designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 μm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10μm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppmv or ppmv	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R13-1772J. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Applications R13-1772, R13-1772A, R13-1772B, R13-1772C, R13-1772D, R13-1772E, R13-1772F, R13-1772G, R13-1772H, R13-1772I, R13-1772J, R13-1772K, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and 10.3.]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by

improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. [45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] *[State Enforceable Only]*
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly

authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded

in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. State Enforceable Only.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

DAQ Compliance and Enforcement¹:
DAQAirQualityReports@wv.gov

US EPA:
Associate Director
Office of Air Enforcement and Compliance Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

¹For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status Reports, Initial Notifications, etc.

3.5.4. **Operating Fee**

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.
- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements for the Medical Waste Incinerator

4.1. Limitations and Standards

4.1.1. Emissions of regulated air pollutants to the atmosphere from the medical waste incinerator shall not exceed the hourly and annual emission limitations as set forth in the following table.

Pollutant	Concentration Limit	Units ¹	Averaging Time
Particulate Matter (PM)	0.011	grains per dscf	3-run average (1-hour minimum sample time per run)
Carbon Monoxide (CO)	11	ppmv	24 hour block average ²
Dioxins/furans	4.1	grains per 10 ⁹ dscf	3-run average (4-hour minimum sample time per run)
Hydrogen Chloride (HCl)	6.6	ppmv	3-run average (1-hour minimum sample time per run)
Sulfur dioxide (SO ₂)	9.0	ppmv	3-run average (1-hour minimum sample time per run)
Nitrogen oxides	140	ppmv	3-run average (1-hour minimum sample time per run)
Lead (Pb)	0.016	grains per 10 ³ dscf	3-run average (1-hour minimum sample time per run)
Cadmium	0.004	grains per 10 ³ dscf	3-run average (1-hour minimum sample time per run)
Mercury (Hg)	0.0079	grains per 10 ³ dscf	3-run average (1-hour minimum sample time per run)

1 – Measured pollutant shall be corrected to 7 percent oxygen on a dry basis.

2 - HMWI units with CEMS allowed to use averaging time stated in 40 CFR.56c(c)

[45 CSR §18-7.3.a.3., Table 1B of Subpart Ce of Part 60, 40 CFR §60.56c(c), 45 CSR §18-1.7.]

4.1.2. Visible emissions from Emission Point IMWI shall not be greater than six (6) percent opacity on a 6-minute block average basis.

[45 CSR §18-7.3.c.2., 40 CFR §60.52c(b)(2)]

4.1.3. The permittee shall operate and maintain the medical waste incinerator and associated control devices in accordance with the following operating parameter, which have been established based on demonstrated compliance with the emission limits in Condition 4.1.1. except for CO.

a. The waste feed rate to the medical waste incinerator shall not exceed maximum charge rate of 1,000 pounds per hour on a three-hour rolling average and 1,700,000 pounds per year. A maximum of ten (10%) percent of the total annual limit may come from non-CAMC related facilities. CAMC facilities include the General Hospital, Memorial Hospital, Women’s and Children’s Hospital, Teays Valley Hospital, the Cancer Center and other medical offices owned and operated by the applicant. The maximum charge rate for the purposes of demonstrating compliance with the all of the emission limits in Table 4.1.1. is met if the actual charge rate does not exceed 1,029 pounds per hour on a rolling three hour rolling average. This parameter, maximum temperature, shall be determined at 110 percent of the lowest 3-hour average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the all of the emission limits in Table 4.1.1. [45 CSR §18-3.1 and 40 CFR §60.51c]

- b. The minimum sorbent injection rate shall not be less than 39.1 pounds per hour on a 3 hour rolling average basis. This parameter, minimum sorbent injection rate, shall be determined at 90 percent of the highest 3-hour average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the Hg and HCl emission limit. [45 CSR §18-3.1 and 40 CFR §60.51c]
 - c. The maximum temperature of the exhaust gases entering the fabric filter control device shall not exceed 436.5° F on a three hour rolling average basis. This parameter, maximum fabric filter temperature, shall be determined at 110 percent of the lowest 3-hour average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit. [45 CSR §18-3.1 and 40 CFR §60.51c]
 - d. The minimum temperature of the secondary chamber shall not fall below 1800F on a three hour rolling average basis. Compliance with this limit shall be satisfied by configuring the operational controls that lockout the waste charging operating unless this parameter is satisfied. The minimum secondary chamber temperature for the purposes of demonstrating compliance with the PM, dioxin/furan, and NO_x limits in Condition 4.1.1. is met if the temperature does not fall below 1,705.1° F on a rolling three hour rolling average. This parameter, maximum temperature, shall be determined at 110 percent of the lowest 3-hour average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM, dioxin/furan, and NO_x emission limit. [45 CSR §18-3.1 and 40 CFR §60.51c]
 - e. The minimum ph of the scrubbing liquid shall not be less than 6.71 on a three hour average basis. This parameter, minimum scrubber liquor ph, shall be determined at 90 percent of the highest 3-hour rolling average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the HCl emission limit. [45 CSR §18-3.1 and 40 CFR §60.51c]
 - f. The minimum flow rate of scrubbing liquid to the packed bed scrubber shall not fall below 78.8 gallons per minute determined on a three hour rolling average basis. This parameter, minimum scrubber liquor flow rate, shall be determined at 90 percent of the highest 3-hour average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the HCl emission limit. [45 CSR §18-3.1 and 40 CFR §60.51c]
 - g. The minimum pressure drop across the packed bed scrubber shall not fall below 1.51 inches of water column basis on a three hour rolling average basis. This parameter, minimum pressure drop across the packed bed scrubber, shall be determined at 90 percent of the highest 3-hour average (taken at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM emission limit. [45 CSR §18-3.1 and 40 CFR §60.51c]
 - h. The supplemental fuel for the primary and secondary chambers shall be limited to natural gas.
 - i. The above operating parameter limits do not apply during performance testing. [45 CSR §18-7.7c.2.]
- 4.1.4. The permittee shall prepare a waste management plan and implement the plan at the facility. The waste management plan shall identify both the feasibility and the approach to separate certain components of solid waste from the health care waste stream in order to reduce the amount of toxic emissions from incinerated waste. A waste management plan may include, but is not limited to, elements such as segregation and recycling of paper, cardboard, plastics, glass, batteries, food waste, and metals (e.g., aluminum cans, metals-containing devices); segregation of non-recyclable wastes (e.g., polychlorinated biphenyl-containing waste, pharmaceutical waste, and mercury-

containing waste, such as dental waste); and purchasing recycled or recyclable products. A waste management plan may include different goals or approaches for different areas or departments of the facility and need not include new waste management goals for every waste stream. It should identify, where possible, reasonably available additional waste management measures, taking into account the effectiveness of waste management measures already in place, the costs of additional measures, the emissions reductions expected to be achieved, and any other environmental or energy impacts they might have. The American Hospital Association publication entitled "An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities" (incorporated by reference, see §60.17) shall be considered in the development of the waste management plan. The owner or operator of each commercial HMIWI company shall conduct training and education programs in waste segregation for each of the company's waste generator clients and ensure that each client prepares its own waste management plan that includes, but is not limited to, the provisions listed previously in this section.

[45 CSR §18-7.5. and 40 CFR §60.55c]

- 4.1.5. The medical waste incinerator shall not be charged with any hazardous waste as defined in 45CSR25.
- 4.1.6. The permittee shall not operate the medical waste incinerator at any time unless a fully trained and qualified Hospital Medical Infectious Waste Incinerator (HMIWI) operator is accessible, either at the facility or available within 1 hour. The trained and qualified HMIWI operator may operate the medical waste incinerator directly or be the direct supervisor of one or more of HMIWI operators.

A HMIWI operator training and qualification shall be obtained through a program approved by the Director or by completing the requirements included in 40 CFR 60 Subpart Ec . The permittee shall comply with the operator training and qualifications requirements of 40 CFR §§60.53c(c) through (g).

[45 CSR §18-7.4. and 40 CFR §60.53c]

- 4.1.7. The permittee shall conduct annual inspections of medical waste incinerator and associated control devices with subsequent inspections no more than 12 month following the previous inspection. Such inspections shall include the following:
 - a. Inspection of all burners, pilot assemblies, and pilot sensing devices for proper operation: cleaning of pilot flame sensor, as necessary;
 - b. Ensuring proper adjustment of primary and secondary chamber combustion air, and adjust as necessary;
 - c. Inspection of hinges and door latches and lubrication as necessary;
 - d. Inspection of dampers, fans, and blowers for proper operation;
 - e. Inspection of HMIWI unit door and door gaskets for proper sealing;
 - f. Inspection of motors for proper operation;
 - g. Inspection of primary chamber refractory lining; cleaning and repairing or replacing lining as necessary;
 - h. Inspection of incinerator shell for corrosion and hot spots;
 - i. Inspection of secondary and tertiary chamber and stack, cleaning as necessary;
 - j. Inspection of mechanical loader, including limit switches, for proper operation, if applicable;

- k. Visual inspection of waste bed (grates), and repairing or sealing, as appropriate;
- l. For the burn cycle that follows the inspection, documentation that the incinerator is operating properly and making any necessary adjustments;
- m. Inspection of air pollution control device(s) for proper operation;
- n. Inspection of waste heat boiler systems to ensure proper operation;
- o. Inspection of bypass stack components;
- p. Ensuring proper calibration of thermocouples, sorbent feed systems and any other monitoring equipment; and
- q. Generally observing that the equipment is maintained in good operating condition.

The permittee shall complete all necessary repairs within 10 days following the inspection unless the Director issues written approval granting the permittee to delay making such repairs until such specific date.

[45 CSR §§18-7.6.a, b, c, d, e, & f.]

- 4.1.8. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.

[45CSR§13-5.11.]

4.2. Monitoring Requirements

- 4.2.1. The permittee shall install, calibrate, maintain, and continuously operate a monitoring device for opacity (COMS) for emissions to the atmosphere from the medical waste incinerator, in accordance with Performance Specification PS-1 of Appendix B to Part 60 of Chapter 40. Such records of maintenance, calibrations, and events are to be maintained in accordance with Conditions 3.4.1. and 4.4.5.
- [45 CSR §18-7.7.a.]
- 4.2.2. The permittee shall conduct a performance evaluation of the continuous opacity monitoring system (COMS) as specified in Performance Specification 1, Appendix B of 40CFR60 and furnish the Director a written report of the results of such performance evaluation. Such records of maintenance, calibrations, and events are to be maintained in accordance with Conditions 3.4.1. and 4.4.5.
- 4.2.3. If COMS data results are submitted for compliance with the opacity standard for a period of time during which Method 9 data indicates noncompliance, the Method 9 data will be used to determine opacity compliance.
- 4.2.4. The permittee shall continuously monitoring CO emissions using a CO CEMS. Such CO CEMS shall be operated in accordance with the applicable procedures under Appendices B and F to Part 60 of Chapter 40. Using the measured CO reading, the permittee shall determine compliance with the CO limit in Condition 4.1.1. using a 24-hour block average, calculated as specified in Section 12.4.1. of EPA Reference Method 19 of Appendix A-7 of Part 60. The use of CO CEM may be substituted for CO performance Test and minimum secondary chamber temperature to

demonstrate compliance. Such records of monitoring data, calibrations, checks, and maintenance of the CEMs shall be maintained in accordance with Condition 3.4.1.

[45 CSR §18-7.7a2. and 40 CFR §60.56c(c)(4)]

- 4.2.5. The permittee shall install, calibrate (to manufacturers' specifications), maintain, and operate a device to method for measuring the use of the bypass stack including date, time, and duration of each bypass event. Such records of maintenance, calibrations, and events are to be maintained in accordance with Conditions 3.4.1. and 4.4.5.

[45 CSR §18-7.7d, 40 CFR §60.57c(c)]

- 4.2.6. The permittee shall install, calibrate (to manufacturers' specifications), maintain, and operate a device(s) to continuously measure and record the parameters for the limits specified in Condition 4.1.3. Such devices shall be capable of taking measurement and recording data one per minute on a continuous basis for secondary chamber temperature, pressured drop across the packed bed scrubber, liquor flow rate, and ph of the liquor. The device measuring the charge rate of waste and sorbent flow rate shall be capable of taking and recording reading hourly. Records of such monitoring, which includes records of maintain and calibrations of monitors, shall be maintained in accordance with Condition 3.4.1.

[45 CSR §18-7.7d, 40 CFR §60.57c(a), Table 3 to Subpart Ec of Part 60]

- 4.2.7. The permittee shall obtain monitoring data at all times during HMIWI operation, expect during periods of monitoring equipment malfunctions, calibration, or repair. At a minimum, valid monitoring data shall be obtained for 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter that the HMIWI is combusting hospital waste and/or medical/infectious waste.

[45 CSR §§18-7.7.d & e.3.; 40 CFR §60.57c(e)]

4.3. Testing Requirements

- 4.3.1. For the HMIWI, the permittee shall demonstrate compliance with the PM, CO and HCl emission limits in Condition 4.1.1. by conducting an annual performance test (no more than 12 months from the previous test) using the applicable test procedures and test methods in 40 CFR §60.56c(b). If all three performance test over a 3-year period indicate compliance, then the permittee may forgo a performance test for that pollutant (PM, CO, or HCl) for the subsequent 2 years. At the minimum, a performance test for PM, CO, and HCl shall be conducted every third year (no more than 36 months following the previous performance test). If a performance test is conducted every third year indicates compliance with the emission limits for a pollutant (PM, CO, or HCl), the permittee may forego a performance test for that pollutant for an additional 2 years. If any performance test indicates noncompliance with the respective emissions limit, a performance test for that pollutant shall be conducted annually until all annual performance tests over a 3-year period indicate compliance with the emissions limit. The use of the bypass stack during a performance test shall invalidate the performance test.) Such testing shall be conducted in accordance with Condition 3.3.1. and 40 CFR §60.56c(b). Annual CO performance testing is not required as stipulated in this condition, if the permittee is complying with Conditions 4.2.2 & 4.2.7. (40 CFR §60.56c(c)(4)). Records of such testing shall be maintained in accordance with Condition 3.4.1.

[45 CSR §18-7.7a. & 40 CFR §§60.56c(c)(2) & (c)(4)]

- 4.3.2. At time when the permittee elects to establish new values for the operating parameters other than the ones stated in Condition 4.1.3., the permittee must conduct a repeat performance test demonstrating compliance with the emission limits in Condition 4.1.1. using the appropriate methods and procedures outlined in 40 CFR §60.56c. The permittee may elect not to conduct CO performance testing if the permittee is complying with Conditions 4.2.2 & 4.2.7. (40 CFR §60.56c(c)(4)). The new values for the operating parameters shall be developed as defined in

Condition 4.1.3. for the corresponding operating parameter. Such testing shall be conducted in accordance with Condition 3.3.1. Records of such testing shall be maintained in accordance with Condition 3.4.1.

[45 CSR §18-7.7.a. and 40 CFR §60.56c(k)]

4.4. Recordkeeping Requirements

4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

- a. The date, place as defined in this permit, and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.4.4. The permittee shall maintain records of the annual equipment inspection as required in Condition 4.1.7., which shall include the date of each inspection and description of any repairs made as result of the inspection. Such records shall be maintained in accordance with Condition 3.4.1.

[45 CSR §18-7.8.b.1. and 40 CFR §60.58c(b)(2)(xvi)]

4.4.5. The permittee shall maintain records of the following information:

- a. Calendar date of each record;
- b. Records of the following data:
 - c. Concentrations of CO and measurements of opacity as determined by the continuous emission monitoring system;
 - d. Results of fugitive emissions (by EPA Reference Method 22) tests, if applicable;
 - e. HMIWI charge dates, times, and weights and hourly charge rates;
 - f. Fabric filter inlet temperatures during each minute of operation,;
 - g. Amount and type of dioxin/furan sorbent used during each hour of operation, as applicable;
 - h. Amount and type of Hg sorbent used during each hour of operation, as applicable;
 - i. Amount and type of HCl sorbent used during each hour of operation, as applicable;
 - j. Secondary chamber temperatures recorded during each minute of operation;
 - k. Liquor flow rate to the wet scrubber inlet during each minute of operation;
 - l. Pressure drop across the wet scrubber system during each minute of operation, as applicable,
 - m. pH at the inlet to the wet scrubber during each minute of operation, as applicable,
 - n. Records indicating use of the bypass stack, including dates, times, and durations, and
 - o. Identification of calendar days for which data on emission rates or operating parameters specified under Condition 4.1.3. have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken.
 - p. Identification of calendar days, times and durations of malfunctions, a description of the malfunction and the corrective action taken.
 - q. Identification of calendar days for which data on emission rates or operating parameters specified under paragraph (b)(2) of this section exceeded the applicable limits, with a description of the exceedances, reasons for such exceedances, and a description of corrective actions taken.
 - r. Records showing the names of HMIWI operators who have completed review of the information in 40 CFR §60.53c(h) as required by §60.53c(i), including the date of the initial review and all subsequent annual reviews;
 - s. Records showing the names of the HMIWI operators who have completed the operator training requirements, including documentation of training and the dates of the training;
 - t. Records showing the names of the HMIWI operators who have met the criteria for qualification under Condition 4.1.6. and the dates of their qualification; and

- u. Records of calibration of any monitoring devices as required under §60.57c(a) through (d).

Records of such information shall be maintained in accordance with Condition 3.4.1.
[45 CSR §18-7.8.a. & 40 CFR §60.58c(b)]

4.5. Reporting Requirements

- 4.5.1. The permittee shall submit semiannual and annual reports to the Director no later than September 15 for semiannual reports and March 15 for annual reports following the previous 6 months (January through June for the semiannual and July through December for the annual reporting periods) in which data were collected. Such reports shall be submitted in accordance with Condition 3.5.1 and a record of each submission shall be maintained in accordance with Condition 3.4.1. The reports shall include the following information:
 - a. The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded for the reporting period being reported, pursuant to Condition 4.1.3.
 - b. The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded pursuant to Condition 4.1.3. for the calendar year preceding the year being reported, in order to provide the Director with a summary of the performance of the affected facility over a 2-year period. This information is only required for annual compliance reports.
 - c. Any information recorded under items o through q of Condition 4.4.5. during the reporting period.
 - d. Any information recorded under items o through q of Condition 4.4.5. for the calendar year preceding the year being reported, in order to provide the Director with a summary of the performance of the affected facility over a 2-year period. This information is only required for annual reports.
 - e. If a performance test was conducted during the reporting period, the results of that test.
 - f. If no exceedances or malfunctions were reported under items o through q of Condition 4.4.5. for the reporting period being reported, a statement that no exceedances occurred during the reporting period.
 - g. Any use of the bypass stack, the duration, reason for malfunction, and corrective action taken that occurred during the reporting period.
 - h. For affected facilities as defined in §60.50c(a)(3) and (4), records of the annual air pollution control device inspection, any required maintenance, and any repairs not completed within 10 days of an inspection or the timeframe established by the Director.
 - i. Concentrations of CO as determined by the continuous emissions monitoring system during the reporting period.
 - j. Any exceed of Condition 4.1.2. determined using the COMS that occurred during the reporting period.
[45 CSR §§18-7.8.a., 7.8.b2., 7.8.c. and 40 CFR §§60.58c(d) & (e)]
- 4.5.2. Within 60 days of after completing the performance testing in accordance with Condition 4.3.2. to establish new values for the operating parameters in Condition 4.1.3., the permittee shall submit a

request to update the stated operating limits other than the charge rate of waste or supplemental fuel in Condition 4.1.3. in accordance with 45 CSR 13-4.
[45 CSR §18-7.8.a and 40 CFR §60.58c(c)(2)]

5.0. Source-Specific Requirements for the Boilers & Sterilizer

5.1. Limitations and Standards

- 5.1.1. The following conditions and requirements are specific to Boilers 2, 3, and 4:
- a. The boilers shall be fired with pipeline quality natural gas at all times except when conducting periodic testing, and readiness checks of the boiler's ability to fire on liquid fuel (diesel); during periods of natural gas curtailment; or gas supply emergencies. The duration of such periodic testing and/or readiness check shall not exceed more than 48 hours per year for each boiler.
 - b. When operating on diesel or any combination of diesel and natural gas, CO emissions from each boiler shall not exceed 0.64 pound per hour.
 - c. When operating on diesel or any combination of diesel and natural gas, NO_x emissions from each boiler shall not exceed 1.77 pound per hour.
 - d. When operating on diesel or any combination of diesel and natural gas, PM emissions from each boiler shall not exceed 0.50 pound per hour. Compliance with this emission limit is satisfied by burning Ultra Low Sulfur Diesel (ULSD) as the diesel fuel in the emission unit. [45 CSR §2-4.1.b.]
 - e. When operating on diesel or any combination of diesel and natural gas, SO₂ emissions from each boiler shall not exceed 0.03 pound per hour. Compliance with this emission limit is satisfied by using Ultra Low Sulfur Diesel (ULSD) fuel. [45 CSR §10-3.3.f. and 40 CFR §60.42c(d)]
 - f. At all times when the boilers are operated solely with pipeline quality natural gas, the use of natural gas in these emission units satisfies compliance with the limitations of 45CSR§2-3.1., 45CSR§2-4.1.b., 45CSR§10-3.1.e., and 40 CFR §60.42c(d)] [45CSR§2A-3.1.a., 45CSR§10-10.3., 45CSR§10A-3.1.b., and 40 CFR §60.42c(h)(1)]
 - g. At all times when any of the boilers are operated on diesel or any combination of diesel and natural gas the corresponding emission point(s) shall not exhibit visible emissions greater than 10% opacity on a six minute block average. Compliance shall be verified in accordance with Condition 4.2.2. of this permit. [45CSR§2-3.1.]
 - h. Each boiler shall be designed or constructed with a maximum design heat input not to exceed the design capacity listed in Table 1.0 of this permit. Compliance with this limit shall be satisfied by limiting annual total heat input from all boilers to 428,364 MMBtu per year, determined on a rolling 12 month total.
 - i. At all times when the boilers are operated solely with pipeline quality natural gas, the use of natural gas in these emission units satisfies compliance with the limitations of 45CSR§2-3.1., 45CSR§2-4.1.b., and 45CSR§10-3.1.e. [45CSR§2A-3.1.a., 45CSR§10-10.3., and 45CSR§10A-3.1.b.]
 - j. At all times when any of the boilers are operated on diesel or any combination of diesel and natural gas, Emission Point Boiler 2, Boiler 3, and Boiler 4 shall not exhibit visible emissions greater than 10% opacity on a six minute block average. Compliance shall be verified in accordance with Condition 4.2.2. of this permit. [45CSR§2-3.1.]

- 5.1.2. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

5.2. Monitoring Requirements

- 5.2.1. For each month, the permittee shall record the amount of fuel by type (natural gas and fuel oil) consumed by the boilers and shall calculate the sum of the heat inputted in the boilers on a rolling 12 month total for each month. Such monitoring may include the natural gas usage from the medical waste incinerator. If so, compliance with Condition 4.1.1.h. shall be satisfied with a total heat input of less than 438,355 MMBtu per year. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
[40CFR§60.48c(g)(2), 45 CSR §2-8.3.c., and 45CSR§2A-7.1.a.1.]
- 5.2.2. For the purpose of demonstrating compliance with periodic testing, and readiness checks limit of Condition 5.1.1.a. The permittee shall record the length time and date that periodic testing, and readiness checks of the diesel fuel delivery system is conducted for each boiler (i.e. when the boiler is operating on diesel for readiness checks) as allowed in Condition 5.1.1.a. of this permit. Such records shall be maintained in accordance with Condition 3.4.1.
- 5.2.3. When any boiler covered by this permit is operated on any amount of fuel oil for more than 30 consecutive operating days, the permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping of the corresponding emission point of the associated boiler that is subject to the visible emission standard of Condition 4.1.1.g. after the 30th consecutive operating day and no later than the 45 consecutive day. Once the boiler is switched back to 100% natural gas, the counting of 30 consecutive operating days shall be reset to zero and not begin counting again until the unit begins to consume fuel oil again.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40 CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once every forty-five (45) days when the boiler is being fired with fuel oil. These checks shall be performed at each source (stack, transfer point, fugitive emission source, etc.) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of normal facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of METHOD 9 as soon practicable, but within seventy-two (72) hours of the final visual emission check. A METHOD 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

5.3. Testing Requirements

[Reserved]

5.4. Recordkeeping Requirements

5.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

- a. The date, place as defined in this permit, and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

5.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

5.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

5.4.4. The permittee shall maintain the following records in accordance with Condition 3.4.1. of this permit:

- a. The name of the diesel supplier;

- b. A statement from the diesel supplier that the fuel complies with the specification under the definition of distillate oil in 40CFR§60.41c; and
 - c. Sulfur content or maximum sulfur content of the diesel supplied.
[40CFR§60.4848c(f)(1) and 45CSR§10-8.3.a.]
- 5.4.5. The permittee shall maintain records of all monitoring data required by Condition 5.2.2. documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). An example form is supplied as Appendix A. Should a visible emission observation be required to be performed per the requirements specified in METHOD 9, the data records of each observation shall be maintained per the requirements of METHOD 9. For an emission unit out of service during the normal monthly evaluation, the record of observation may note "out of service" (O/S) or equivalent. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.

5.5. Reporting Requirements

- 5.5.1. Any exceedance(s) of the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 must be reported in writing to the Director as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the exceedance(s), and any corrective measures taken or planned.
- 5.5.2. The permittee shall submit reports to the Director no later than the 30th day following the end of the reporting period. Such reports shall cover the six month period of January to June and July to December for the diesel fuel consumed by the Boilers 1, 2, and 3 to the facility during the reporting period. These reports shall include the records required in Condition 4.4.4. and a certified statement signed by the permittee that the records of fuel supplier certifications submitted represent all of the diesel combusted during the reporting period.
[40CFR§§60.48c(d), (e)(11), (f)(1) and (j)]

6.0. Source-Specific Requirements for the Emergency Generators

6.1. Limitations and Standards

- 6.1.1. Emissions of regulated air pollutants to the atmosphere from the EG-1, EG-2, and EG-5 emergency generators shall not exceed the hourly and annual emission limitations as set forth in the following table:

ID #	Emergency Generator #1		Emergency Generator #2		Emergency Generator #5	
	750 KW generator		750 KW generator		750 KW generator	
Description	PPH	TPY	PPH	TPY	PPH	TPY
CO	0.53	0.13	5.54	1.39	5.54	1.39
NO_x	11.80	2.95	24.14	6.04	24.14	6.04
PM₁₀	0.05	0.01	0.71	0.18	0.71	0.18
SO₂	0.01	0.01	4.07	1.02	4.07	1.02
VOC	0.07	0.02	0.71	0.18	0.71	0.18

- 6.1.2. EG-1, EG-2, and EG-5 emergency generators shall not operate more than 500 hours per year each. Compliance with the operating hour limit shall be determined using a rolling twelve month total.
- 6.1.3. The following conditions and requirements are specific to generator sets EG-1 and EG-7:
- a. Each generator set shall be used as an emergency stationary generator and be limited to non-emergency operation of no more than 100 hours per year. Non-emergency operation shall be for maintenance checks and readiness tests. Emergency operation is defined when electric power from the local utility is interrupted.
[40 CFR §60.4211(f)]
 - b. Each generator set shall be equipped with an engine or engine configuration that has been certified by the manufacturer to comply with either 40 CFR §60.4205(b)(2), which referred to 40 CFR §§89.111 and 112 or 40 CFR Part 60.
[40 CFR §§60.4211(a)(3) and (c)(1)]
 - c. The permittee shall maintain the engine of each generator set according to the manufacturer's emission-related written instructions.
[40 CFR §60.4211(a)(1)]
 - d. The permittee shall only change those emission-related settings of the generator sets that are permitted by the manufacturer.
[40 CFR §60.4211(a)(2)]
 - e. The maximum name plate power output of the engine for each generator set shall not be greater than listed in Table 1.0 of this permit.
 - f. Each engine will be equipped with a non-resettable hour meter.

- 6.1.4. Diesel fuel used by the engines for the generator sets shall have a maximum sulfur content no greater than 15 ppm (ultra-low sulfur diesel) and with either a minimum centane index of 40 or a maximum aromatic content of 35 volume percent. Diesel meeting the specifications of Nonroad diesel under 40 CFR §80.510(b) is equivalent.
[40 CFR §60.4207(b)]
- 6.1.5. The permittee shall make the engines for the 100 kW and 500 kW (EG-3 & 4) emergency generators permanently non-operational (i.e. fuel tanks drained, and fuel lines to the tank disconnected and capped) within 30 days after the initial start-up of EG-7.
- 6.1.6. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

6.2. Monitoring Requirements

- 6.2.1. For the purpose of demonstrating compliance the annual operation limits in Condition 6.1.2, the permittee shall monitor and record the hours each generator set operates for the corresponding calendar month and maintain a 12-month rolling total for each generator set. Such records shall be maintained in accordance with Condition 3.4.1.
- 6.2.2. For the purpose of demonstrating compliance with the hours of operation limit for EG-1 and EG-7 in Condition 6.1.3.a., the permittee shall record the number of hours each generator set is operated during the calendar month and the reason for such operation. Such records shall be maintained in accordance with Condition 3.4.1.
[40 CFR §60.4211(f)]

6.3. Testing Requirements

[Reserved]

6.4. Recordkeeping Requirements

- 6.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
- The date, place as defined in this permit, and time of sampling or measurements;
 - The date(s) analyses were performed;
 - The company or entity that performed the analyses;
 - The analytical techniques or methods used;
 - The results of the analyses; and
 - The operating conditions existing at the time of sampling or measurement.

6.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

6.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

6.5. Reporting Requirements

[Reserved]

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹ _____
(please use blue ink) Responsible Official or Authorized Representative Date

Name & Title _____
(please print or type) Name Title

Telephone No. _____ Fax No. _____

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.

IN THE CIRCUIT COURT OF KANAWHA COUNTY, WEST VIRGINIA

CATHY DARLENE FLINT,
Plaintiff,

v.

Civil Action No. _____

UNION CARBIDE CORPORATION,

A foreign corporation;

THE DOW CHEMICAL COMPANY,

A foreign corporation;

COVESTRO LLC, f/k/a BAYER MATERIAL SCIENCE, f/k/a BAYER POLYMERS, LLC,

A foreign corporation;

BAYER CROPSCIENCE LP,

A foreign corporation;

SPECIALTY PRODUCTS US, LLC,

A foreign corporation;

AVENTIS CROP SCIENCE,

A foreign corporation;

ARCO CHEMICAL COMPANY,

A foreign corporation;

LYONDELL CHEMICAL COMPANY,

A foreign corporation;

RHONE POULENC INSTITUTE PLANT, f/k/a RHONE POULENC AG COMPANY,

A foreign corporation having its principal place of business in Charleston, West Virginia;

ALTIVIA SERVICES, LLC,

A foreign corporation having its principal place of business in Institute, West Virginia;

BOUGHTON FOODS LLC, f/k/a BROUGHTON FOODS COMPANY,

A foreign corporation;

MID-ATLANTIC TECHNOLOGY, RESEARCH & INNOVATION CENTER, INCORPORATED,

A West Virginia corporation;

VANDALIA HEALTH SYSTEMS, d/b/a CHARLESTON AREA MEDICAL CENTER, INC.

A West Virginia corporation

and

THOMAS HEALTH SYSTEM, INC.

A West Virginia corporation;

Defendants.

CERTIFICATE OF PRESUIT NOTICE

Now comes the undersigned and certifies that the attached notice was served upon the defendant hospitals by U. S Postal Service Regular Mail and Certified Mail more than 30 days before filing of suit, as further reflected by the return receipt. No response has been received

from either defendant hospitals. While the Plaintiff contends that notice is not required, in that she does not allege a deviation from an individual standard of care, notice has been served in accordance with W. Va Code § 55-7B-6.

**CATHY DARLENE FLINT,
Plaintiff,**

By Counsel

/s/ W. Stuart Calwell

W. Stuart Calwell, Esquire (WV State Bar No. 595)

John H. Skaggs, Esquire (WV State Bar No. 3432)

D. Christopher Hedges, Esquire (WV State Bar No. 7894)

Calwell Luce diTrapano PLLC

Law and Arts Center West

500 Randolph Street

Charleston, WV 25302

Phone: (304) 343-4323

Fax: (304) 344-3684

Counsel for Plaintiff

NOTICE OF CLAIM
ON BEHALF OF CATHY FLINT
PURSUANT TO W.VA. CODE § 55-7B-6



VIA U. S. Postal Service Regular Mail
and Certified Mail
9589 0710 5270 1495 8304 69

TO: Thomas Health System, Inc.
Aaron B. Alexander, Esq.
Vice President-General Counsel
4605 MacCorkle Avenue, S.W.
South Charleston, WV 25309

FROM: W. Stuart Calwell, Jr., Esq.
John H. Skaggs, Esq.
D. Christopher Hedges, Esq.
Calwell Luce diTrapano PLLC
Counsel for Cathy Flint

DATE: May 31, 2024

This is a Notice of Claim, pursuant to W. Va. Code § 55-7B-6. The above-referenced counsel represents Cathy Flint in claims they intend to file arising out of negligent acts as a healthcare facility by emitting Ethylene Oxide into the environment through the Hospital(s) sterilization processing. These emissions were in addition to emissions from other sources, which will be named Defendants. The negligent emissions contributed to the total exposure of the community therefore contributing to Ms. Flint's malignant myeloma. As set forth below, the Plaintiff will contend that W. Va. Code § 55-7B-6 does not apply in this situation because the emissions from the sterilization process are not patient care directed at the Plaintiff. The Plaintiff anticipates discovery directed to you regarding the brand name, manufacturer, and supplier of the EtO sterilizers and EtO used by you over the relevant time period, which is not readily available publicly. The Plaintiff further anticipates discovery regarding your use of EtO during the time at issue. We contend that the conduct here is based on well-established theories of liability, other than deviation from a medical standard of care for the treatment of patients and therefore the MLPA does not apply. By providing this notice, we are not waiving any objections to the application of the statute but providing you with a notice as a courtesy. You are referred to the attached reports and draft complaint for a statement of the well-established legal theory regarding your emissions of EtO into the community.¹

¹ See, 55-7B-6 (c) Notwithstanding any provision of this code, if a claimant or his or her counsel believes that no screening certificate of merit is necessary because the cause of action is based upon a well-established legal theory of liability which does not require expert testimony supporting a breach of the applicable standard of care, the claimant or his or her counsel shall file a statement specifically setting forth the basis of the alleged liability of the health care provider in lieu of a screening certificate of merit. The statement shall be accompanied by the list of medical records and other information otherwise required to be provided pursuant to subsection (b) of this section.



A. West Virginia Code § 55-7B-6:

West Virginia Code § 55-7B-6 requires that at least thirty (30) days prior to the filing of a medical professional liability action against a health care provider, the claimant shall serve by Certified Mail, Return Receipt Requested, a Notice of Claim on each health care provider that the claimant will join in litigation. The Notice of Claim is required to include a statement of the theory or theories of liability upon which a cause of action may be based, and a list of all health care providers and health care facilities to whom Notices are being sent, together with a Screening Certificate of Merit.

This letter should be considered to constitute a “Notice of Claim” under W. Va. Code § 55-7B-6. This Notice of Claim includes below a statement of the theory or theories of liability upon which a legal cause of action may be based by the above-referenced claimant.

B. Other Providers Being Sent Notices:

We are also sending a Notice of Claim to the following health care providers: **Vandalia Health, Inc. d/b/a Charleston Area Medical Center, Inc.**

C. Statement of the Theory or Theories of Liability Upon Which a Cause of Action May Be Based:

You, **Thomas Health System, Inc.**, are vicariously liable for the negligent acts and omissions of all persons involved in Ethylene Oxide sterilization of medical equipment and the subsequent emissions. Enclosed is a draft complaint which will provide you with further information regarding the Plaintiff’s allegations. The Plaintiff may identify additional parties and allegations prior to the filing of the complaint.

Prerequisites for filing an action against a health care provider; procedures; sanctions. We do not concede that this section governs this claim, however, we are providing you with this notice. The essence of the complaint is that your emissions of Ethylene Oxide from sterilizers contributed to the total exposure of the community, including Ms. Flint, to Ethylene Oxide. This in turn caused or contributed to her malignant myeloma. As reflected in the Complaint, the period of time at issue is from 1985 to present. Enclosed are the reports of Dr. Charles Wertz and Dr. Paul Rosenfeld regarding this claim.

We contend that your conduct was not of the kind anticipated by the Medical Professional Liability Act, but out of an abundance of caution we are providing you with this notice. The emissions of EtO from the sterilization process were not performed or furnished to the plaintiff as a patient. These emissions to the general community were not directed to any individual patient and are not covered by the MPLA. Specifically, the Act provides in §55-7B-2.

Definitions:



(e) “Health care” means:

- (1) Any act, service, or treatment provided under, pursuant to, or in the furtherance of a physician’s plan of care, a health care facility’s plan of care, medical diagnosis, or treatment;
- (2) Any act, service, or treatment performed or furnished, or which should have been performed or furnished, by any health care provider or person supervised by or acting under the direction of a health care provider or licensed professional for, to, or on behalf of a patient during the patient’s medical care, treatment, or confinement, including, but not limited to, staffing, medical transport, custodial care, or basic care, infection control, positioning, hydration, nutrition, and similar patient services; and
- (3) The process employed by health care providers and health care facilities for the appointment, employment, contracting, credentialing, privileging, and supervision of health care providers.

We reserve the right to contest the applicability of the statute and reserve the right to supplement this notice as any additional information becomes available.

D. Screening Certificate of Merit:

See Screening Certificate of Merit from Charles Werntz, DO, attached as **Exhibit 1** and incorporated by reference herein. Dr. Werntz’ *curriculum vitae* is attached hereto as **Exhibit 2**. See also the Draft Preliminary Air Model and Risk Assessment for Ethylene Oxide Exposure Resulting from Hospitals in West Virginia’s Kanawha Valley dated April 5, 2024 by Paul Rosenfeld, Ph. D. attached as **Exhibit 3** as well as Dr. Rosenfeld’s updated Draft Preliminary Air Model and Risk Assessment for Ethylene Oxide (“EtO”) Exposure Resulting from Hospitals in West Virginia’s Kanawha Valley dated May 28, 2024 as **Exhibit 4**. Dr. Rosenfeld’s *curriculum vitae* is incorporated in his report dated May 28, 2024.

E. Chance to Respond:

Pursuant to W. Va. Code § 55-7B-6(e), any health care provider who receives a Notice of Claim pursuant to the provisions of W. Va. Code § 55-7B-6 may respond in writing to the claimant or his or her counsel within thirty (30) days of receipt of the Notice of Claim. You are hereby advised that unless you invoke any of the pre-suit requirements under W. Va. Code § 55-7B-6, a lawsuit on behalf of Cathy Flint will be filed against you at the expiration of thirty (30) days from your receipt of this Notice of Claim.

Notice of Claim on Behalf of Cathy Flint
May 31, 2024
Page 4 of 4



Thank you for your time and consideration.

A handwritten signature in blue ink, appearing to read 'W. Stuart Carwell, Jr.', written over a horizontal line.

W. Stuart Carwell, Jr., Esq. (WV Bar No. 595)
John H. Skaggs, Esq. (WV Bar No. 3432)
D. Christopher Hedges, Esq. (WV Bar No. 7894)
CALWELL LUCE diTRAPANO PLLC
500 Randolph Street
Charleston, WV 25302
(304) 343-4323

Counsel for Cathy Flint

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Thomas Health System, Inc.
 Aaron B. Alexander, Esq.
 Vice President-General Counsel
 4605 MacCorkle Avenue, S.W.
 South Charleston, WV 25309

2. Article Number (Transfer from service label)

9590 9402 8766 3310 7546 35

9589 0710 5270 1495 8304 69

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
 Agent
 Addressee

B. Received by (Printed Name) _____ C. Date of Delivery _____

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™
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<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery
<input type="checkbox"/> Collect on Delivery Restricted Delivery	
<input type="checkbox"/> 3d Mail	
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\$500	

Domestic Return Receipt

USPS TRACKING #

CHARLESTON WV 250

3 JUN 2024 PM 2 L

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 USPS
 Permit No. G-10

United States Postal Service

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JUN - 5 2024

• Sender, please print your name, address, and ZIP+4® in this box. •

Calwell Luce diTrapano
 Law and Arts Center West
 500 Randolph Street
 Charleston, WV 25302

02-201900
 Tammy-240

NOTICE OF CLAIM
ON BEHALF OF CATHY FLINT
PURSUANT TO W.VA. CODE § 55-7B-6



VIA U. S. Postal Service Regular Mail
and Certified Mail
9589 0710 5270 1495 8304 52

TO: Vandalia Health, Inc. d/b/a Charleston Area Medical Center, Inc.
Bernard S. Vallejos, Esq.
PO Box 1547
Charleston, WV 25326

FROM: W. Stuart Calwell, Jr., Esq.
John H. Skaggs, Esq.
D. Christopher Hedges, Esq.
Calwell Luce diTrapano PLLC
Counsel for Cathy Flint

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Notice of Claim on Behalf of Cathy Flint
May 31, 2024
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CALWELL LUCE diTRAPANO PLLC
500 Randolph Street
Charleston, WV 25302
(304) 343-4323

Counsel for Cathy Flint

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY												
<ul style="list-style-type: none"> ■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature <input checked="" type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) C. Date of Delivery</p>												
<p>1. Article Addressed to:</p> <p>Vandalia Health, Inc. d/b/a Charleston Area Medical Center, Inc. Bernard S. Vallejos, Esq. PO Box 1547 Charleston, WV 25326</p>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>												
 9590 9402 8766 3310 7546 28	<p>3. Service Type</p> <table border="0"> <tr> <td><input type="checkbox"/> Adult Signature</td> <td><input type="checkbox"/> Priority Mail Express®</td> </tr> <tr> <td><input type="checkbox"/> Adult Signature Restricted Delivery</td> <td><input type="checkbox"/> Registered Mail™</td> </tr> <tr> <td><input checked="" type="checkbox"/> Certified Mail®</td> <td><input type="checkbox"/> Registered Mail Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Certified Mail Restricted Delivery</td> <td><input type="checkbox"/> Signature Confirmation™</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery</td> <td><input type="checkbox"/> Signature Confirmation Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery Restricted Delivery</td> <td></td> </tr> </table>	<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®	<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™	<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery	<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Signature Confirmation™	<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery	<input type="checkbox"/> Collect on Delivery Restricted Delivery	
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Calwell Luce diTrapano
 Law and Arts Center West
 500 Randolph Street
 Charleston, WV 25302

Tammy - ETO

