



Louisville Metro Air Pollution Control District
 701 West Ormsby Avenue, Suite 303
 Louisville, Kentucky 40203-3137



xx xx 2019

Federally Enforceable District Origin Operating Permit Statement of Basis

Owner: Heaven Hill Distilleries, Inc.

Source: Heaven Hill Distilleries – Bernheim Facility

Plant Location: 1701 West Breckenridge Street, Louisville, Kentucky 40210

Date Application Received: See Table in Section I.8

Public Comment Date: 08/02/2019

District Engineer: Shannon Hosey

Permit No: O-0243-18-F (R1)

Plant ID: 0243

SIC Code: 2085

NAICS: 312140

Introduction:

This permit will be issued pursuant to District Regulation 2.17- *Federally Enforceable District Origin Operating Permits*. Its purpose is to limit the plant wide potential emission rates from this source to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

This permit action incorporates Construction Permit C-0243-1003-18-F.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter less than 10 microns (PM₁₀), and particulate matter less than 2.5 microns (PM_{2.5}). Jefferson County is classified as a nonattainment area for ozone (O₃). This facility is located in the portion of Jefferson County that is an attainment area for sulfur dioxide (SO₂).

Application Type/Permit Activity:

- Initial Issuance
- Permit Revision
 - Administrative
 - Minor
 - Significant
- Permit Renewal

Compliance Summary:

- Compliance certification signed
- Compliance schedule included
- Source is out of compliance
- Source is operating in compliance

I. Source Information

- 1. **Product Description:** Heaven Hill Distilleries produces a variety of distilled spirits.
- 2. **Process Description:** Heaven Hill Distilleries produces distilled spirits through several major production processes:

Grain, consisting of corn, wheat, rye, and malted barley, is received, cleaned, and milled. The milled grain is mixed with water and cooked to produce mash. The mash is mixed with yeast to ferment the mixture. The fermented mixture is processed in a column still to concentrate the alcohol. The spent grains are either sold as animal feed or discharged to the public sewer system. The alcohol is discharged from the stills into tanks, then loaded onto tank trucks and shipped off site for further processing.

Separately, Heaven Hill stores whiskey and other distilled products, principally brandy, in wooden barrels, ages these filled barrels in on-property warehouses, then ships the barrels off-site for further processing.

- 3. **Site Determination:** There are no other facilities that are contiguous or adjacent to this facility.
- 4. **Emission Unit Summary:**

Emission Unit	Equipment Description
U1	Grain Handling and Processing
U2	Whiskey Manufacturing
U3	Boilers
U4	Parts Washers

- 5. **Fugitive Sources:** The fugitive sources identified by the source are emissions from truck receiving (all grains), truck loading rack, whiskey storage and aging and filling and evacuation system.

6. Permit Revisions:

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Change Scope	Description
Initial	190-01-F	11/05/2001	07/01/2001	Initial	Entire Permit	Initial Permit Issuance
R1	190-01-F (R1)	05/01/2012	02/25/2012	Renewal	Entire Permit	Permit renewal; incorporation of construction permits 98-07-C, 99-07-C, 123-07-C, 124-07-C, 414-08-C, 325-07-C, 222-09-C and 61-09-C
N/A	O-0243-18-F	03/20/2018	02/10/2018	Renewal	Entire Permit	Permit renewal; incorporation of Construction Permits 36982-13-C (R1), C-0243-1001-14-F and C-0243-1000-17-F Admin revision to correct a typo in referencing tanks
R1	O-0243-18-F (R1)	xx/xx/2019	08/02/2019	Significant	Entire Permit	Incorporating Construction Permit C-0243-1003-18-F and C-0243-1002-17-F (R1), removing the 5 tpy limit for Fermentation Tanks 14-17 (E51a, E51b, E51c and E51d) ¹

7. Construction Permit History:

Permit No.	Effective Date	Description
36982-13-C	04/02/2013	Four fermentation tanks, 124,000 gallon capacity each
C-0243-1001-14-F	09/25/2014	Removed the existing 92.4 MMBtu/hr "Nebraska" boiler and installed in its place a new 99 MMBtu/hr "Victory" boiler
36982-13-C (R1)	08/25/2015	Incorporated permit 123-07-C and added acceptance of BACT analysis
C-0243-1002-17-F	02/28/2017	Corn Silo #3B (E50), 10,220 Bu capacity; 4 Fermentation tanks (51a-d), 124,000 gallons capacity each; Whiskey Surge Tank (E53), 150 gallons capacity; Victory Boiler #2 (E54), 61 MMBtu/hr

¹ Company submitted a BACT per Regulation 7.25 and there is no feasible BACT

Permit No.	Effective Date	Description
C-0243-1001-14-F (R1)	03/14/2017	Revision to add correct Regulation 7.06 standards, 100 tpy CO limit and 100 tpy VOC limit
C-0243-1003-18-F	12/14/2018	Replacing Bucket Elevator #2
C-0243-1002-17-F (R1)	07/05/2019	Revising construction permit to remove the 5 tpy limit for Fermentation Tanks 14-17 (E51a, E51b, E51c and E51d) ²

8. Applications and Related Documents:

Document Number	Date Received	Description
66569	08/18/2014	Construction application form AP-100A to replace existing 92.4 MMBtu/hr Nebraska boiler with a new 99 MMBtu/hr Victory boiler
71008	05/01/2015	BACT analysis, VOC emission from fermenters
71051	05/06/2015	Form AP-100A BACT analysis
80648	11/29/2016	FEDOOP renewal application and construction application to expand production including one new grain silo, 3 rd distillation system, four fermenters, one drop tub, a wet cake system, new boiler, cooling tower, centrifuges, and chillers
81374	01/19/2017	Revised construction application to correct potential and actual emissions on Form AP-100A and to submit flow diagram
96410	12/10/2018	AP-100A construction application to replace existing bucket elevator #2
98497	05/28/2019	BACT Analysis for VOC emissions subject to Regulation 7.25 emitted from Fermentation Tanks 14-17 (Emission Points E51a, E51b, E51c, and E51d)

² Company submitted a BACT per Regulation 7.25 and there is no feasible BACT.

9. Emission Summary:

Pollutant	District Calculated Actual Emissions (ton/yr) 2017 Data	Pollutant that triggered Major Source Status (based on PTE)
CO	17.92	Yes
NO_x	24.34	Yes
SO₂	0.13	No
PM₁₀	1.63	No
VOC	1666.01 ³	Yes
Total HAPs	0.40	No
Single HAP	0.38	No

10. Applicable Requirements:

PSD 40 CFR 60 SIP 40 CFR 63
 NSR 40 CFR 61 District-Origin Other

11. Referenced Federal Regulations:

40 CFR 63, subpart JJJJJJ – *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers for Area Sources*⁴

40 CFR 60, subpart Dc – *Standards of Performance for Small Industrial, Commercial, and Institutional Steam Generating Units*

12. Non-applicable Regulations:

Regulation 7.22 – *Standard of Performance for New Volatile Organic Materials Loading Facilities* does not apply since the true vapor pressure is less than 1.5 psia.

II. Regulatory Analysis

1. Stratospheric Ozone Protection Requirements: Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This

³ Of the VOC emissions in 2017, 1617.92 tons were from the barrel-storage warehouses. As fugitive emissions, they are not counted toward determination of status as a major source.

⁴ Heaven Hill has requested that the boilers be limited to natural gas combustion only, in order to not be subject to the requirements imposed by 40 CFR 63, subpart JJJJJJ. Terms of this regulation permit combustion of fuel oil "only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel (fuel oil) [without being subject to requirements of the regulation.] Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year."

rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. Heaven Hill Distilleries does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

2. **Prevention of Accidental Releases 112(r):** Heaven Hill Distilleries does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, *Chemical Accident Prevention Provisions*, in a quantity in excess of the corresponding specified threshold amount.

3. **Basis of Regulation Applicability**

- a. **Plantwide**

The source is a potential major source for the pollutants NO_x, CO, and VOC. Regulation 2.17 – *Federally Enforceable District Origin Operating Permits* establishes requirements to limit the plant wide potential emission rates to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

Regulations 5.00 5.20, 5.21, and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.

Regulation 2.17, section 5.2, requires monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the district upon request.

Regulation 2.17, section 7.2, requires stationary sources for which a FEDOOP is issued to submit an Annual Compliance Certification by April 15, of the following calendar year. In addition, as required by Regulation 2.17, section 5.2, the source shall submit an Annual Compliance Report to show compliance with the permit, by March 1 of the following calendar year. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.17, section 3.5.

b. **Emission Unit U1 – Grain Handling and Processing**

i. **Equipment⁵:**

P/PE	Capacity	Install Date	Applicable Regulation	Basis for Applicability
E46 Grain Receiving – Hopper Truck	25,000 lbs/hr	1992	1.14 7.08	Regulation 1.14 provides for the control of fugitive particulate emissions for any source. Regulation 7.08 establishes the requirements for PM emissions from new processes that commence construction after September 1, 1976.
E1 Screw Conveyor, Thomas Conveyor	25,000 lbs/hr	1992	7.08	Regulation 7.08 establishes the requirements for PM emissions from new processes that commence construction after September 1, 1976.
E2 Bucket Elevator #1 and Bucket Elevator #2, Thomas Conveyor	2,500 Bu/hr	1992 2018		
E3 Grain Cleaner	2,500 Bu/hr	1992		
E4 Corn Silo #1, In-House Design	7,000 Bu/hr	1992		
E5 Corn Silo #2, In-House Design	7,000 Bu/hr	1992		
E6 Corn Silo #3, In-House Design	9,000 Bu/hr	1992		
E50 Corn Silo #3B, In-House Design	10,222 Bu/hr	1992		
E7 Weat/Rye Silo #4, In-House Design	7,000 Bu/hr	1992		
E8 Weat/Rye Silo #5, In-House Design	7,000 Bu/hr	1992		
E9 Malt Silo #6, In-House Design	4,800 Bu/hr	1992		
E10 Malt Silo #7, In-House Design	4,800 Bu/hr	1992		
E11 Corn Hammermill, Sprout-Waldron	18 tons/hr	2007, 2016/2017		

⁵ There are no Toxic Air Contaminant (TAC) emissions from these emissions points subject to the STAR program.

P/PE	Capacity	Install Date	Applicable Regulation	Basis for Applicability
E12a Corn Storage Bin, In-House Design	344,641 lbs/hr	1992	7.08	Regulation 7.08 establishes the requirements for PM emissions from new processes that commence construction after September 1, 1976.
E12b Corn Weigh Hopper, In-House Design	24,256 lbs/hr	1992		
E13 Malt Hammermill, Prater	350 Bu/hr	1992		
E14a Malt Storage Bin, In-House Design	8,399 lbs/hr	1992		
E14b Malt Weigh Hopper, In-House Design	2,110 lbs/hr	1992		
E15 Small Grain Hammermill, Prater	350 Bu/hr	1992		
E16a Small Grain Storage Bin, In-House Design	7,264 lbs/hr	1992		
E16b Small Grain Weigh Hopper, In-House Design	6,656 lbs/hr	1992		
E17 Mash Cooker #1 & #2, In-House Design (IA)	14,000 gal	1992		
E18 Mash Cooker #3, In-House Design (IA)	14,000 gal	2007		

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard of less than 20%, for processes that commenced construction after September 1, 1976.

2) **PM/PM₁₀**

The emission standard for PM for the equipment in the emission unit was determined in accordance with Regulation 7.08, section 3.1.2 as follows:

$$\text{PM lb/hr limit} = 3.59 * (\text{process weight, tons/hr})^{0.62}$$

c. **Emission Unit U2 – Whiskey Manufacturing**i. **Equipment⁶:**

P/PE	Capacity	Install Date	Applicable Regulation	Basis for Applicability
E19a Fermenter #1, In-House Design	123,800 Wine Gallons ⁷ , each	Pre 1979	6.24	VOC standards for affected facilities constructed before June 13, 1979
E19b Fermenter #2, In-House Design				
E19c Fermenter #3, In-House Design				
E19d Fermenter #4, In-House Design				
E19e Fermenter #5, In-House Design				
E20a Fermenter #6, In-House Design	123,800 Wine Gallons, each	2008	7.25	Affected facility constructed after June 13, 1979 for VOC
E20b Fermenter #7, In-House Design				
E20c Fermenter #8, In-House Design				
E20d Fermenter #9, In-House Design				
E48a Fermenter #10, Cleveland Welding, In-House Design	124,000 Gallons, each	2014		
E48b Fermenter #11, Cleveland Welding, In-House Design				
E48c Fermenter #12, Cleveland Welding, In-House Design	124,000 Gallons	2014	7.25	Affected facility constructed after June 13, 1979 for VOC
E48d Fermenter #13, Cleveland Welding, In-House Design	124,000 Gallons	2014		
E51a Fermenter #14, Cleveland Welding, In-House Design	124,000 Gallons	2016/2017		
E51b Fermenter #15, Cleveland Welding, In-House Design	124,000 Gallons	2016/2017		
E51c Fermenter #16, Cleveland Welding, In-House Design	124,000 Gallons	2016/2017		
E51d Fermenter #17, Cleveland Welding, In-House Design	124,000 Gallons	2016/2017		
E21 Beer Well, In-House Design	124,720 Wine Gallons	Pre 1979		
E24 Quality Tank #7, In-House Design	13,333 Wine	1993	7.12	Storage tanks with a

⁶ There are no Toxic Air Contaminant (TAC) emissions from these emissions points subject to the STAR program.

⁷ A "wine gallon" is a measurement of any liquid's total volume. 1 "wine gallon" is equal to 128 fl oz or 3.78 liters.

P/PE	Capacity	Install Date	Applicable Regulation	Basis for Applicability
E25 Quality Tank #8, In-House Design	Gallons, each			capacity greater than 250 gallons constructed after April 19, 1972
E26 Heads and Tails Tank, In-House Design	13,140 Wine Gallons	1993		
E27a Cistern Tank #10, In-House Design	16,000 Gallons	1993		
E27b Cistern Tank #11, In-House Design	16,000 Gallons	1993		
E27c Cistern Tank #12, In-House Design	16,000 Gallons	1993		
E27d Cistern Tank #13, In-House Design	16,000 Gallons	1993		
E28 Whiskey Storage Tank #14, In-House Design	53,000 Wine Gallons	2008		
E49 Whiskey Storage Tank #15, In-House Design	53,000 Wine Gallons	2014		
E29a Whiskey Storage Tank #16, In-House Design	50,000 Wine Gallons	1993		
E29b Whiskey Storage Tank #17, In-House Design	50,000 Wine Gallons	1993		
E32 Whiskey Warehouse Aging	-	1990	N/A ⁸	N/A
E33a Gauging Tank, In-House Design	10,000 Wine Gallons, each	Pre 1979	6.24	VOC standards for affected facilities constructed before June 13, 1979
E33b Gauging Tank, In-House Design				
E34 4 Station Filling and Evacuation System, MAC MFG SER# 7539, BEFS-101	-	Pre 1979		
E35 Whiskey Surge Tank, In-House Design	800 Wine Gallons	1990	7.12	Storage tanks with a capacity greater than 250 gallons constructed after April 19, 1972
E36 Whiskey Surge Tank, In-House Design	400 Wine Gallons	1990		
E37a Gauging Tank, In-House Design	6,500 Wine Gallons, each	Pre 1979	6.24	VOC standards for affected facilities constructed before June 13, 1979
E37b Gauging Tank, In-House Design				
E37c Gauging Tank, In-House Design				
E47 Truck Loading Rack	-	1992	N/A ⁹	N/A ⁶

⁸ There are no applicable VOC emission standards for the whiskey warehouses. The fugitive emissions from the warehouse are not counted toward the determination of major source status per Regulation 2.16, section 1.25.2.

⁹ Regulation 7.22 does not apply to the truck loading rack because the product loaded is not a “volatile organic material” as defined by the regulation. Under actual storage conditions, the true vapor pressure is less than 1.5 psia.

P/PE	Capacity	Install Date	Applicable Regulation	Basis for Applicability
E53 Whiskey Surge Tank, Cleveland Welding, In-House Design	150 Gallons	2016/2017	7.12	Storage tanks with a capacity greater than 250 gallons constructed after April 19, 1972

ii. **Standards/Operating Limits**

1) **VOC^{10,11}**

- (a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class III solvents, unless the emissions are reduced by at least 85%.
- (b) Regulation 7.12 establishes requirements for storage vessels greater than 250 gallons for volatile organic compounds. Regulation 7.12, section 3.3 require submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater. There are no applicable emission or equipment standards if the vapor pressure as stored is less than 1.5 psia.

¹⁰ A BACT analysis was submitted by the company on May 1, 2015 and approved by APCD on May 4, 2015. This analysis showed that there are no feasible controls for emissions from emission points E20a, E20b, E20c, E20d, E48a, E48b, E48c and E48d (tanks 6-9 and tanks 10-13). The 31.4 ton emission limit represents the potential VOC emissions calculated by APCD using the current AP-42 emission factor for this process.

¹¹ For the four Fermentation Tanks 14-17 (E51a, E51b, E51c and E51d) the company submitted a BACT on May 28, 2019, determining that there is no feasible BACT for these emission points.

d. **Emission Unit U3 – Boilers¹²**

i. **Equipment:**

P/PE	Capacity	Install Date	Applicable Regulation	Basis for Applicability
E48 Victory Boiler #1, Victory	99 MMBtu/hr	2015	STAR	Establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants.
			7.06	Standards of performance for boilers constructed after April 9, 1972
E54 Victory Boiler #2, Victory	61 MMBtu/hr	2016	40 CFR 60 Subpart Dc	Steam generating unit that commences construction, modification, or reconstruction after June 9, 1989, and that has a maximum design heat input capacity of less than 29 megawatts (MW) (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr)

ii. **Standards/Operating Limits**

1) **Opacity**

The boilers are subject to the opacity standards in accordance with Regulation 7.06, section 4.2.

2) **PM/PM₁₀**

(a) Per Regulation 7.06, section 4.1.4, the PM standard is pounds per million BTU actual total heat input.

Emission Point E48:
 $1.919 \times (241 \text{ MMBtu Total Heat Input Capacity}^{-0.535})$
 $= 0.10 \text{ lb PM/MMBtu}$

¹² Heaven Hill has requested that the boilers be limited to natural gas combustion only, in order to not be subject to the requirements imposed by 40 CFR 63, subpart JJJJJ, *National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*. Terms of this regulation permit combustion of fuel oil "only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel (fuel oil) [without being subject to requirements of the regulation.] Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year."

- (b) Emission Point E54, Regulation 7.06, section 4.1.2 establishes a PM standard of 0.10 lb per million BTU actual heat input capacity of 250 million BTU per hour or more.

3) **SO₂**

- (a) For Emission Point E48, Regulation 7.06, section 5.1.3.1 standard is pounds per million BTU actual total heat input:
 $7.7223 \times (241 \text{ MMBtu Total Heat Input Capacity}^{-0.4106}) = 0.81 \text{ lb PM/MMBtu}$
- (b) For Emission Point E54, Regulation 7.06, section 5.1.2 establishes a SO₂ standard of 0.80 lb per million BTU actual heat input capacity of 250 million BTU per hour or more.
- (c) 40 CFR 60 Subpart Dc requires that records be kept of the type and quantity of fuels burned.

e. **Emission Unit U4 – Parts Washers**

i. **Equipment:**

Emission Point	Description	Applicable Regulation
PW1	Parts Washer, Clean Tech, 30 Gallons	STAR, 6.18
PW2	Parts Washer, Clean Tech, 30 Gallons	

ii. **Standards/Operating Limits**

VOC

Regulation 6.18 establishes requirements for cold cleaners that use VOCs to remove soluble impurities from metal surfaces.

III. Other Requirements

1. **Temporary Sources:** The source did not request to operate any temporary facilities.
2. **Short Term Activities:** The source did not report any short term activities.
3. **Emissions Trading:** N/A

- 4. **Alternative Operating Scenarios:** The source did not request any alternative operating scenarios.
- 5. **Compliance History:** There are no records of any violations of the terms of the present or prior construction of operating permits.
- 6. **Calculation Methodology or Other Approved Method:**

Grain Handling and Processing (U1): Emission factors from AP-42, Chapter 9, Food and Agricultural Industries, Grain Processing, Table 9.9.1-1 and Table 9.9.1-2, are used to determine PM/PM₁₀ emissions.

Whiskey Manufacturing (U2): Emission factors from AP-42, Chapter 9, Food and Agricultural Industries, Beverages Distilled Spirits, Table 9.12.3-1, are used to determine VOC emissions from fermenters. Site specific emission factors from TANKs are used to determine VOC emissions from various tanks.

Boilers (U3): Emission estimates are based on established calculation methodologies which are from AP-42, Chapter 1.4 for Natural Gas Combustion or AP-42, Chapter 1.3 for Fuel Oil Combustion.

Parts Washers (U4) (IA): Emission estimates are based on mass balance.

7. **Insignificant Activities**

Equipment	Quantity	Basis for Exemption
Mash Coolers (U1, E17 and E18)	3	Regulation 1.02, Appendix A
Distillation Columns	3	Regulation 1.02, Appendix A
Cooling Tower	1	Regulation 1.02, Appendix A
Fuel Oil Tank	1	Regulation 1.02, Appendix A

- 1) Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements.
- 2) Insignificant activities identified in District Regulation 1.02, Appendix A, shall comply with generally applicable requirements.
- 3) The owner or operator shall annually submit an updated list of insignificant activities that occurred during the preceding year, with the compliance certification due April 15th.
- 4) Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.
- 5) The owner or operator may elect to monitor actual throughputs for each of the

insignificant activities and calculate actual annual emissions, or use Potential to Emit (PTE) as the annual emissions for each piece of equipment.

- 6) The District has determined that no monitoring, record keeping, or reporting requirements apply to the insignificant activities listed, except for the equipment that has an applicable regulation and permitted under an insignificant activity (IA) unit.