Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating
PERMIT ID: F-23-042
Kenton County Airport Board (KCAB)
2939 Terminal Drive, Hebron, KY 41048

John Jerrod Mays, Reviewer

Source ID: 21-015-00148
Agency Interest#: 197
Activity ID: APE20230001

Table of Contents

SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 4581, Airports, Flying Fields, and Airport Terminal Services (air freight handling at airports, hangar operations, airport terminal services, aircraft storage, airports, and flying fields).

Single Source Det. ☐ Yes ☒ No

Source-wide Limit ☐ Yes ☒ No

28 Source Category ☐ Yes ☒ No

County: Boone
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☒ NO_X ☐ SO_2 ☐ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☐ Yes ☒ No

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☐ Yes ☒ No

PTE* greater than 25 tpy for combined HAP ☐ Yes ☒ No

*PTE does not include self-imposed emission limitations.

Description of Facility:
The Kenton County Airport Board (KCAB) is a public governmental entity which owns and operates the Cincinnati/Northern Kentucky International Airport (CVG) located in Hebron, Kentucky. KCAB operates several support services for the airport such as indirect heat exchangers, emergency generators, fuel dispensing facilities, and various other sources of emissions.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-23-042 Activity: APE20230001

Application Received: 9/18/2023 Application Complete: 2/1/2023

Permit Action: ☐ Initial ☒ Renewal ☐ Significant Rev. ☐ Minor Rev. ☐ Administrative
Construction/Modification Requested? ☐Yes ☒No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☒Yes ☐No

Description of Action:
On September 18, 2023 the Kentucky Division for Air Quality (Division) received an application from the Kenton County Airport Board requesting a renewal of their Conditional Major operating permit.

KCAB has identified multiple existing non-permitted emission units that need to be added to Section B of the permit, as listed below:

- EP-111 and EP-112 (EU 01): These two 2.5 MMBtu/hr units were added with construction of the Consolidated Rental Car Facility (CONRAC) and brought online on October 20, 2021.

- EG-033 (EU 03): As referenced with EP-111 and EP-112 above, there is one diesel-fired emergency engine associated with the CONRAC Facility.

- EP-201 and EP-202 (EU 06): These emission points consist of four separate gasolione dispensors. KCAB is proposing to add these to the permit as EU 06, maintaining the current permit infrastructure that includes all similar EUs under a single EU designation.

In addition, the renewal application requested the removal of two emission units that have been removed from the facility: EG-029 (EU 02) and EU 05 (Cold Solvent Parts Washer).

The changes requested in the off-permit change associated with APE20240001 are incorporated into the permit as well. The gas dispensing facility was moved from Section C (Insignificant Activities) to Section B as EU 06.

F-23-042 Emission Summary		
Pollutant	2022 Actual (tpy)	PTE F-23-042* (tpy)
CO	60.03	66.34
NO_x	8.41	129.64*
PT	0.23	7.52
PM_{10}	0.25	6.26
$PM_{2.5}$	0.22	4.03
SO_2	0.15	8.71
VOC	0.56	11
Lead	--	0.001
Greenhouse Gases (GHGs)		
Carbon Dioxide	65,902.89	73,268.58
Methane	0.16	1.47
Nitrous Oxide	0.16	1.32
CO_2 Equivalent (CO_2e)	--	73,699.98
Hazardous Air Pollutants (HAPs)		
Hexane	0.13	1.23
Combined HAPs:	--	1.53

*PTE includes Insignificant Activties

**Source-wide NO_x is limited to 90 tpy.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 01: Natural Gas Fired Indirect Heat Exchangers					
Pollutant	**Emission Limit or Standard**		**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
	Year Constructed	**lb/MMBtu**			
PM	1976	0.56	401 KAR 59:015, Section 4(1)(a)	7.6 lb/MMscf, AP-42 TBL 1.4-2	Assumed based upon natural gas combustion
	1989	0.54	401 KAR 59:015, Section 4(1)(c)		
	1993	0.36			
	1999	0.35			
	2006	0.34			
	2007	0.33			
	2021	0.32			
	20% opacity		401 KAR 59:015, Section 4(2)	--	
SO_2	**Year Constructed**	**lb/MMBtu**	401 KAR 59:015, Section 5(1)(a)1.	0.6 lb/MMscf, AP-42 TBL 1.4-2	
	1976	3.0			
	1989	2.8	401 KAR 59:015, Section 5(1)(c)2.b.		
	1993	1.4			
	1999	1.3			
	2006	1.2			
	2007	1.2			
	2021	1.1			

Process Description:
This emission unit consists of 25 natural gas-fired indirect heat exchangers that are either boilers (i.e., steam generating units) or make-up air heaters. These units each have a heat rating of greater than 1 million British thermal units per hour (MMBtu/hr), which generally excludes them from designation as insignificant activities.

Emission Point	KYEIS ID	Location	Year Constructed	Operating Rate (MMBtu/hr)
EP-33	023	T-3 Parking Garage	1989	1.47
EP-35	003	Terminal 3	1993	6.856
EP-36				
EP-37				

Emission Unit 01: Natural Gas Fired Indirect Heat Exchangers				
Emission Point	**KYEIS ID**	**Location**	**Year Constructed**	**Operating Rate (MMBtu/hr)**
EP-38	006	Concourse B	1993	6.68
EP-39				
EP-40				
EP-41				
EP-42				
EP-44	023	CVG Centre	1999	5
EP-45				
EP-52	005	Concourse A	2006	6
EP-53				
EP-54			2007	2
EP-55				
EP-56				
EP-57				
EP-58				
EP-59				
EP-85	023	Field Maintenance Building #3	1976	3
EP-100	003	Terminal 3		3.12
EP-101	005	Concourse A		2.348
EP-105	023	Sign Shop		1.4
EP-111	029	CONRAC	2021	2.5
EP-112				

Applicable Regulation:
401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).

Comments:
The permittee shall monitor source-wide natural gas consumption on a monthly basis [401 KAR 52:030, Section 10].

All emission factors are from AP-42 Section 1.4 for Natural Gas Combustion from External Combustion Sources. A natural gas higher heating value of 1,020 Btu/scf is utilized to convert the hourly design rate from MMBtu/hr to MMscf/hr.

Emission Unit 02: Diesel Fired Emergency Engines Pre-June 12, 2006 Units						
Emission Point	**KY EIS ID**	**Make/Model**	**Manufacture Year**	**Commenced Construction**	**Operating Rate (kW)**	**Operating Rate (HP)**
EG-04	017	Cummins 275DFML33483M	1989	9/20/1989	275	368.5
EG-05	020	Cummins DFCB4490295	2000	6/30/2000	300	402
EG-06	022	Cummins 12.5RooP81	Pre-2006	Pre-2006	12	16.08
EG-07	017	Cummins 249-0152-03	1988	6/12/1988	300	402
EG-08	017	Cummins KTA19G2	1990	6/1/1990	400	536
EG-09	017	Cummins 285HC4AL/2A	1990	12/1/1990	230	308.2
EG-10	017	Detroit 250DS60	1992	7/1/1992	250	335
EG-12	020	Cummins 4BT8.9-G$	Pre-2006	Pre-2006	50	67
EG-13	017	Cummins 6BT5.9-G1	1992	5/15/1992	80	107.2
EG-14	009	Kohler 500OOVE-1	Pre-2006	Pre-2006	500	670
EG-15	009	Kohler 500OOVE-1	Pre-2006	Pre-2006	500	670
EG-17	008	Kohler 500OOVE-1	1992	2/2/1992	500	670
EG-18	012	Kohler 500OOVE-1	Pre-2006	Pre-2006	500	670
EG-19	013	Kohler 500ROZD71	1992	2/2/1992	500	670
EG-20	017	Cummins 80DGDAL30441R	1990	2/2/1990	80	107.2
EG-21	017	Detroit 20DSJ	Pre-2006	Pre-2006	26	34.84
EG-22	021	Cummins DGEA-5002028	2000	2/2/2001	125	167.5
EG-23	018	Kohler 750 ROZD4	2/28/2004	2/28/2004	750	1,005
EG-24	017	Cummins 150DGFA-4823	2004	10/26/2004	150	201
EG-26	018	Kohler 500REOZV	2003	10/1/2003	475	636.5
EG-27	021	Cummins DGDA-5900486	Pre-2006	Pre-2006	80	107.2

Emission Unit 02: Diesel Fired Emergency Engines Pre-June 12, 2006 Units						
Emission Point	**KY EIS ID**	**Make/Model**	**`Manufacture Year**	**Commenced Construction**	**Operating Rate (kW)**	**Operating Rate (HP)**
EG-28	018	Kohler 600ROZD71	1999	5/1/1999	600	804
EG-30	020	Cummins DSGAC-10088859	Pre-2006	Pre-2006	80	107.2
EG-31	011	Kohler 300REOZD	1999	Pre-2006	410	549.4

Process Description:
This emission unit consists of 24 diesel-fired emergency engines with manufacture dates that pre-date 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. These units meet the definition of "Existing Stationary RICE" pursuant to 40 CFR 63.6590(a)(1)(iii) and have various work practise requirements based in 40 CFR 63 Subpart ZZZZ, Table 2d.

Applicable Regulation:
401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, applicable to stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Comments:
The permittee shall monitor and maintain records of the fuel usage, in Mgal, and hours of operation for each unit, on a monthly basis [401 KAR 52:030, Section 10].

The majority of emission factors for engines greater than 600 HP are from AP-42 Section 3.4 for Large Stationary Diesel and All Stationary Dual-fuel Engines for Stationary Internal Combustion Sources. Emission factors for engines up to 600 HP are from AP-42 Section 3.3 for Gasoline and Diesel Industrial Engines. In addition to the provided emission factors in AP-42, a lead emission factor from Ventura Co APCD 2588 Combustion Emission Factors (5/2001) as well as methane and nitrous oxide emission factors from 40 CFR 98, Table C-2 are included in PTE calculations.

Emission Unit 03: Diesel Fired Emergency Engines Post June 12, 2006 Units					
Pollutant	**Emission Limit or Standard**		**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
	EG-02	**EG-11,32,33**			
NMHC + NO_X	4.0 g/kW-hr	4.0 g/kW-hr	40 CFR 60.4202(a)(2)	--	Purchase an engine certified by the manufacturer to meet the emission standards. Install and operate engine according to manufacturer's emission-related specifications.
CO	5.0 g/kW-hr	3.5 g/kW-hr		116.45 lb/Mgal, AP-42 TBL 3.41-1	
PM	0.30 g/kW-hr	0.20 g/kW-hr		9.54 lb/Mgal, AP-42 TBL 3.41-2	

Process Description:
This emission unit consists of 4 diesel-fired emergency engines:

Emission Point	Make/Model	Manufacture Year	Commenced Construction	Operating Rate (kW)
EG-02	Cummins DSGAB-1233093	2009	10/9/2009	75
EG-11	Cummins OS87-G3 NR3	2008	12/3/2008	155
EG-32	Cummins DQDAC-1666149	2015	1/31/2017	300
EG-33	Cummins DFEK-2089515	2018	10/20/2021	500

These four permitted emergency engines that are not “Existing Stationary RICE” pursuant to 40 CFR 63.6590(a)(1)(iii) and, therefore, are subject to the requirements of NSPS IIII. EG-33 is a previously unpermitted emergency engine associated with the CONRAC Facility.

Applicable Regulation:
401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, applicable to stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Emission Unit 03: Diesel Fired Emergency Engines Post June 12, 2006 Units
401 KAR 60:005, Section 2(2)(dddd), 40 CFR 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, applicable to owners and operators of stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005 and manufactured after April 1, 2006, and are not fire pump engines, or manufactured as a certified National Fire Protection Association fire pump engine after July 1, 2006. **Comments:** The permittee shall monitor and maintain records of the fuel usage, in Mgal, and hours of operation, on a monthly basis [401 KAR 52:030, Section 10]. The majority of emission factors for engines greater than 600 HP are from AP-42 Section 3.4 for Large Stationary Diesel and All Stationary Dual-fuel Engines for Stationary Internal Combustion Sources. Emission factors for engines up to 600 HP are from AP-42 Section 3.3 for Gasoline and Diesel Industrial Engines. In addition to the provided emission factors in AP-42, a lead emission factor from Ventura Co APCD 2588 Combustion Emission Factors (5/2001) as well as methane and nitrous oxide emission factors from 40 CFR 98, Table C-2 are included in PTE calculations.

Emission Unit 04: Fire Pump Engine (Diesel)

Manufacturer: Detroit Diesel
Operating Rate:175 HP
Fuel: Diesel
Initial Construction Date: 2/28/1985

Process Description:
KCAB operates a fire pump engine that pre-dates NSPS IIII.

Applicable Regulation:
401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, applicable to stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Comments:
The permittee shall monitor fuel usage and hours of operation on a monthly basis [401 KAR 52:030, Section 10].

The majority of emission factors for engines greater than 600 HP are from AP-42 Section 3.4 for Large Stationary Diesel and All Stationary Dual-fuel Engines for Stationary Internal Combustion Sources. Emission factors for engines up to 600 HP are from AP-42 Section 3.3 for Gasoline and Diesel Industrial Engines. In addition to the provided emission factors in AP-42, a lead emission factor from Ventura Co APCD 2588 Combustion Emission Factors (5/2001) as well as methane and nitrous oxide emission factors from 40 CFR 98, Table C-2 are included in PTE calculations.

Emission Unit 06: Gasoline Dispensing Facilities				
Emission Point	**Dispensers**	**Storage Tank**	**Average Monthly Throughput (gal/mo)**	**Operating Rate (gal/mo)**
GDF #1 (EP-201)	D-01	UST Tank 29 (20,000- gal capacity)	8,000	<100,000
	D-02		8,000	
GDF #2 (EP-202)	D-13	AST Tank 55 (10,000- gal capacity)	11,000	<100,000
	D-14		11,000	

Process Description:
Storage tank and gasoling dispensing units for filling gasoline in vehicles.

Applicable Regulation:
401 KAR 63:002, Section 2(4)(ddddd), 40 CFR 63.11110 through 63.11132, Tables 1 through 3 (Subpart CCCCCC), National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities, applicable to.each GDF that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.

Comments:
Through the process of reviewing facility operations to prepare the application for renewing, KCAB personnel identified two additional EUs that should be added to Section B of the permit. KCAB is proposing to add these to the permit as EU 06, maintaining the current permit infrastructure that includes all similar EUs under a single EU designation. The units are two separate gasoline dispensing facilities (GDFs) subject to the standards of 40 CFR 63 Subpart CCCCCC.

Each operator of a GDF under this subpart shall report, by March 15 of each year, the number, duration, and a brief description of each type of malfunction which occurred during the previous calendar year, and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an operator during a malfunction of a GDF to minimize emissions in accordance with CFR 40 63.11115(a), including actions taken to correct a malfunction. No report is necessary for a calendar year in which no malfunctions occurred [40 CFR 63.11126(b)].

HAP emission factors are calculated by multiplying the VOC emission factor (lb/Mgal) by the weight fraction of various HAP and reportable compounds.

Testing Requirements\Results
N/A

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:
N/A

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:015, New indirect heat exchangers	EU 01
401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	EU 02, 03, 04
401 KAR 60:005, Section 2(2)(dddd), 40 CFR 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	EU 03
401 KAR 63:002, Section 2(4)(dddd), 40 CFR 63.11110 through 63.11132, National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	EU 06
401 KAR 63:020, Potentially hazardous matter or toxic substances	IA 1, 2, 4

Table C - Summary of Precluded Regulations:
N/A

Table D - Summary of Non Applicable Regulations:
N/A

Air Toxic Analysis
401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*
The Division for Air Quality (Division) has performed SCREEN View on March 3, 2024 of potentially hazardous matter or toxic substances that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

Single Source Determination
N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-17-051	Initial	APE20170002	8/11/2017	3/30/2019	Initial Permit	N/A
F-17-051 R1	Minor Revision	APE20200004	7/17/2020	8/2/2020	Revised construction date for EG-31 and added EU 05 (Cold Solvent Parts Washer)	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

N/A

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS – Ambient Air Quality Standards
BACT – Best Available Control Technology
Btu – British thermal unit
CAM – Compliance Assurance Monitoring
CO – Carbon Monoxide
Division – Kentucky Division for Air Quality
EG – Engine
EP – Emission Point
ESP – Electrostatic Precipitator
EU – Emission Unit
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
HF – Hydrogen Fluoride (Gaseous)
KCAB – Kenton County Airport Board
MSDS – Material Safety Data Sheets
mmHg – Millimeter of mercury column height
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NO_x – Nitrogen Oxides
NSR – New Source Review
PM – Particulate Matter
PM_{10} – Particulate Matter equal to or smaller than 10 micrometers
$PM_{2.5}$ – Particulate Matter equal to or smaller than 2.5 micrometers
PSD – Prevention of Significant Deterioration
PTE – Potential to Emit
SO_2 – Sulfur Dioxide
TBL – Table
TF – Total Fluoride (Particulate & Gaseous)
tpy – Tons per Year
VOC – Volatile Organic Compounds

APPENDIX B – INDIRECT HEAT EXCHANGER HISTORY

Emission Point	Fuel(s)	Capacity (MMBtu/hr)	Construction Date	Total Heat Input Capacity for PM (MMBtu/hr)	PM Limit* (lb / MMBtu)	SO_2 Limit* (lb / MMBtu)
EP-33	Natural Gas	1.47	1989	11.338	0.5437	2.8494
EP-35		6.856	1993	65.306	0.3599	1.3884
EP-36						
EP-37						
EP-38		6.68				
EP-39						
EP-40						
EP-41						

APPENDIX B – INDIRECT HEAT EXCHANGER HISTORY (CONTINUED)

Emission Point	Fuel(s)	Capacity (MMBtu/hr)	Construction Date	Total Heat Input Capacity for PM & SO_2 (MMBtu/hr)	PM Limit (lb / MMBtu)	SO2 Limit (lb / MMBtu)
EP-42	Natural Gas	6.68	1993	65.306	0.3599	1.3884
EP-44		5	1999	75.306	0.348	1.3095
EP-45						
EP-52		6	2006	87.306	0.3361	1.2324
EP-53						
EP-54		2	2007	99.306	0.3261	1.1689
EP-55						
EP-56						
EP-57						
EP-58						

APPENDIX B – INDIRECT HEAT EXCHANGER HISTORY (CONTINUED)

Emission Point	Fuel(s)	Capacity (MMBtu/hr)	Construction Date	Total Heat Input Capacity for PM (MMBtu/hr)	PM Limit (lb / MMBtu)	SO2 Limit (lb / MMBtu)
EP-59	Natural Gas	2	2007	99.306	0.3261	1.1689
EP-85		3	1976	9.868	0.56	3.0
EP-100		3.12				
EP-101		2.348				
EP-105		1.4				
EP-111		2.5	2021	104.306	0.3223	1.1456
EP-112						

*PM limit = 0.9634*Total Heat Input Capacity^-0.2356
*SO_2 limit = 7.7223*Total Heat Input Capacity^-0.4106