Western North Carolina Regional Air Quality Agency
APPLICATION REVIEW SUMMARY

SECTION A: FACILITY INFORMATION			
Company Name:	MH Mission Hospital, LLLP		
Site Name:	Mission Hospital		
Mailing Address:	509 Biltmore Avenue, Asheville, NC 28801		
Site Address:	509 Biltmore Avenue, Asheville, NC 28801		
General Description of Business:	General Medical and Surgical Hospital		
Facility Classification:	Synthetic Minor	**Site Status:**	Existing

SECTION B: APPLICATION INFORMATION			
Date of Application:	October 27, 2023	**Application Tracking No.:**	NA
Date Complete Application Received:	November 27, 2023	**Board Meeting Date:**	January 25, 2024
Confidentiality Requested?	No	**Board Agenda Type:**	Modification
Application Results:	The purpose of this review is to approve the replacement of two emergency-use generators.		
Permit No. Issued by Application:	11-476-18A / January 25, 2024		
Permit No. Voided by Application:	11-476-18 / July 9, 2018		

SECTION C: REGULATORY INFORMATION	
AB Air Quality Regulations:	4.0503, 4.0516, 4.0521, 4.0524, 4.1111, 4.1806, 17.0315, 17.0700

SECTION D: FACILITY-WIDE EMISSIONS INFORMATION		
Pollutants Reviewed as a Result of this Application or AB Air Quality Action:	**Actual 2022 Emissions (tons/yr)**	**Potential Emissions (TONS/YR) With Operational Limits & Control**
CO	14.41	89.33
NO_X	11.14	99.68
PM	1.29	8.11
PM_{10}	1.26	7.21
$PM_{2.5}$	1.25	6.60
SO_2	0.09	59.96
VOC	1.03	6.10
Greenhouse Gases, CO_{2e}	18,608.70	97,688.01
Total HAPs	0.28	4.48
List all HAPs >10 TPY	None	

***Emission numbers denoted with a (*) reflect "controlled" emissions (i.e. emissions reduced by a pollution control device).**

IN COMPLIANCE WITH EMISSION STANDARDS / RECOMMEND APPROVAL			
Prepared By:	James C. Raiford /	**Date Reviewed:**	1/12/24
Reviewed By:	Betsy Brown /	**Date Approved:**	1/16/2024
Director:	Ashley J. Featherstone /	**Date Approved:**	1/16/2024

SECTION A DETAILS

FACILITY INFORMATION

[Detailed discussion of any items in Section A]

Mission Hospital, formerly Mission St. Joseph's Health System, Inc., operates a general medical and surgical hospital near downtown Asheville. Mission Hospital was formed as the result of an October of 1998 merger of Memorial Mission Hospital and St. Joseph's Hospital.

On the Memorial Campus, the facility utilizes four boilers and five emergency-use generators, and on the St. Joseph Campus, the facility utilizes three boilers and three emergency-use generators. Steam from the boilers is used in several applications, including sterilization of surgical equipment, clothes laundering, and building heating. Pollutants from these operations are the result of natural gas and fuel oil combustion by the boilers and diesel combustion by the generators. The pollutants of concern are carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM, PM_{10}, $PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOCs), various hazardous air pollutants (HAPs), and greenhouse gases (GHGs), in particular, carbon dioxide (CO_2).

Mission Hospital has facility-wide potential emissions in excess of 100 tons per year (tpy) for NO_X and SO_2. In order to preclude applicability of Title V permitting procedures as outlined in 40 CFR Part 70, the facility elected to take avoidance limitations that capped facility-wide NO_X and SO_2 emissions below the 100 tpy threshold. Thus, Mission Hospital is classified as a synthetic minor facility.

Mission owns and operates various related sites in the vicinity of the Memorial and St. Joseph Campuses. The sources at these outlying sites are mainly natural gas-fired boilers and diesel-fired emergency generators and most of these are included on the exempted activities list. Emergency generators at the Cancer Center, another at the Laundry, and the three proposed generators at the new Central Energy Plant are subject to 40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICEs). These five emergency generators are listed as permitted sources (ES-17, ES-18, ES-22, ES-23, and ES-24) so that the relevant Subpart IIII requirements can be included in the permit. There is also a 500-gallon gasoline tank that is subject to 40 CFR Part 63, Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities. This tank is listed as permitted source (ES-19) so that the relevant Subpart CCCCCC requirements can be included in the permit.

In 2015, Mission Hospital added a new Central Energy Plant which included two 28.57 million Btu/hour natural gas/fuel oil boilers and three 3000 kilowatt diesel generators. This triggered a NC air toxics review of all emission sources at the facility. Actual and projected emissions exceed the TPERs (toxic permit emission rates) for several pollutants including arsenic. Modeling was performed by Mission to determine if there was an unacceptable risk to human health. The modeling results showed that with fuel limits, Mission was in compliance with toxics regulations. More information is provided in Section C of this permit review.

With this permit application, Mission is replacing two emergency generators, ES-5 and ES-7 with new units (ES-25 and ES-26). The new engines are rated at 1,645 kW, which is larger than the previous engines which were 1,250 kW. (Note: the permit application and the manufacturer's specifications stated that these engines were rated at 1500 kW. The information on the equipment nameplates shows the power as 1645 kW at 1800 rpm. The emissions and modeling were based on the rated horsepower which equates to 1645 kW. The permit reflects the 1645 kW rating.) Since the engines were larger, this triggered a toxics evaluation and required a modification to the permit (see Section C and Regulatory Notes). The facility was determined to be in compliance with toxics regulations with the replacement of these two engines. Since the engines resulted in a slight increase in emissions, the fuel oil limit for the boilers will be lowered to ensure that facility-wide NO_X and SO_2 emissions remains below the 100 tpy threshold. Additionally, with this permit modification, the facility requested that the Agency remove the requirement to report the number of hours that the boilers operate on natural gas. The facility already reports the amount of natural gas consumed for these boilers and that information can be used to calculate emissions. Since there is no regulatory requirement to log the hours that the boilers operate on natural gas, this condition will be removed from the permit.

Also as part of this modification, Permit Condition B.5.i.ii was changed from "maintain records from the amount of fuel oil" to "maintain records of the amount of each fuel" to match the language in 40 CFR Part 60 Subpart Dc.

SECTION B DETAILS

APPLICATION INFORMATION

[List all emission sources (permitted and exempt) reviewed as a result of this application, their associated control devices and pollutants. Provide a detailed discussion of any other items in Section B at bottom under "Application Notes"]

Emission Source ID	Emission Source Description 1. Type, manufacturer, capacity 2. Control device with ID (if any)	Pollutant(s) Emitted	Miscellaneous Notes
Memorial Campus			
ES-1	(1) 25.20 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Superior Boiler Works and is equipped with an oxygen trim system.
ES-2	(1) 25.20 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Superior Boiler Works and is equipped with an oxygen trim system.
ES-3	(1) 12.60 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Superior Boiler Works.
ES-4	(1) 25.20 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Superior Boiler Works and is equipped with an oxygen trim system.
ES-5	(1) 1,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar. This piece of equipment will be removed from the permit since as part of this modification.
ES-25	(1) 1,645 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	This unit replaces ES-5. The new unit was manufactured by Caterpillar. As noted in Section A, the rating is not what was listed in the application form, but appears to be correct based on what is listed on the equipment.
ES-6	(1) 1,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar.
ES-7	(1) 1,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar. This equipment is being removed from the permit as part of this modification.
ES-26	(1) 1,645 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	This unit replaces ES-7. The new unit was manufactured by Caterpillar. As noted in Section A, the rating is not what was listed in the application form, but appears to be correct based on what is listed on the equipment.

ES-8	(1) 1,135 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar.
ES-15	(1) 2,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar and meets EPA Tier 1 emission levels.
NA	(2) 20,000 gallon No. 2 fuel oil underground storage tanks	NA	These tanks are exempt from permitting per the AB Air Quality Code 17.0102 (c)(1)(D)(i).
NA	(3) 20,000 gallon diesel underground storage tanks	NA	These tank are exempt from permitting per the AB Air Quality Code 17.0102 (c)(1)(D)(i).
NA	(1) 10,000 gallon aviation fuel underground storage tank	NA	This tank is exempt from permitting per the AB Air Quality Code 17.0102 (c)(2)(D)(i).

New Central Energy Plant – Mission Campus			
ES-20	(1) 28.57 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHGs	The current unit is manufactured by Cleaver Brooks and is equipped with a low-NO_X burner with staged burner technology or flue gas recirculation (FGR).
ES-21	(1) 28.57 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHGs	The current unit is manufactured by Cleaver Brooks and is equipped with a low-NO_X burner with staged burner technology or flue gas recirculation (FGR).
ES-22	(1) 3,000 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHGs	The current unit was manufactured by Caterpillar and has a Tier 2 rating.
ES-23	(1) 3,000 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHGs	The current unit was manufactured by Caterpillar and has a Tier 2 rating
ES-24	(1) 3,000 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The proposed unit is manufactured by Caterpillar and has a Tier 2 rating.
St. Joseph Campus			
ES-9	(1) 16.74 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Kewanee and is equipped with a low-NO_X burner with flue gas recirculation (FGR).
ES-10	(1) 16.74 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Kewanee and is equipped with a low-NO_X burner with flue gas recirculation (FGR).

ES-11	(1) 10.08 million BTU per hour natural gas / No. 2 fuel oil boiler	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Kewanee and is equipped with a low-NO_X burner with flue gas recirculation (FGR).
ES-12	(1) 1,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar.
ES-13	(1) 1,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar.
ES-14	(1) 1,250 kilowatt, diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar.
NA	(1) 20,000 gallon No. 2 fuel oil underground storage tank	NA	This tank is exempt from permitting per the AB Air Quality Code 17.0102 (c)(1)(D)(i).
NA	(1) 20,000 gallon diesel underground storage tank	NA	This tank from permitting per the AB Air Quality Code 17.0102 (c)(1)(D)(i).

1 Hospital Drive			
NA	(1) 30 kilowatt Onan diesel emergency-use generator	NA	This generator is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(v)(III).
NA	(1) 120-gallon diesel aboveground storage tank	NA	This generator is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
SECU Cancer Center (21 Hospital Drive)			
ES-17	(1) 400 kilowatt diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar and meets EPA Tier 3 emission levels. This generator is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(v)(III). However, it will be included as a permitted source so that the relevant requirements of NSPS Subpart IIII can be included in the permit.
NA	(1) 300-gallon diesel sub-base storage tank	NA	This tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
NA	(2) 4.5 million BTU per hour Cleaver-Brooks natural gas boilers	NA	These boilers are exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).
NA	(2) 1.0 million BTU per hour AERCO natural gas water heaters	NA	These water heaters are exempt from per AB Air Quality Code 17.0102(c)(1)(E)(iii).
NA	(3) 0.8 million BTU per hour DRISTEEM GTS natural gas humidifiers	NA	These humidifiers are exempt from requirements per AB Air Quality Code 17.0102(c)(2)(B)(ii).
Doctors Office Building (50 Doctors Drive)			

NA	(1) 2.0 million BTU per hour Peerless natural gas boiler	NA	This boiler is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).

Laundry (345 Biltmore Avenue)			
ES-18	(1) 400 kilowatt diesel emergency-use generator	CO, NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, VOCs, HAPs/TAPs, GHG	The current unit was manufactured by Caterpillar and meets EPA Tier 2 emission levels. This generator is exempt from permitting requirements per AB Air Quality Code 17.0102(c)(2)(B)(v)(III). However, it will be included as a permitted source so that the relevant requirements of NSPS Subpart IIII can be included in the permit.
NA	(1) 840-gallon diesel sub-base storage tank	NA	This tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
NA	(1) 8.369 million BTU per hour Burnham natural gas boiler.	NA	This boiler is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).
NA	(1) 6.267million Btu/hr Burnham natural gas boiler	NA	This boiler is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).
NA	(2) 4.718 million BTU per hour Power Flame natural gas burners	NA	These burners are exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).
ES-19	(1) 500 gallon gasoline aboveground storage tank	VOCs, HAPs/TAPs	This tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(ii). However, it will be included as a permitted source so that the relevant requirements of MACT Subpart CCCCCC can be included in the permit.
NA	(1) 250 gallon diesel aboveground storage tank	NA	This tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
NA	(1) 250 gallon aboveground waste oil storage tank	NA	This tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
Education and Research (501 Biltmore Avenue)			
NA	(1) 1.57 million BTU per hour Raypack natural gas boiler	NA	This boiler has been removed from facility.
Asheville Imaging (534 Biltmore Avenue)			
NA	(2) 0.789 million BTU per hour Weil-McLain natural gas boilers	NA	These boilers are exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).
NA	(2) 0.18 million BTU per hour Lochinvar natural gas water heaters	NA	These water heaters are exempt from permitting per AB Air Quality Code 17.0102(c)(1)(E)(iii).
Genetics (267 McDowell Street)			
NA	(1) 8 kilowatt Generac natural gas emergency-use generator	NA	This generator is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(v)(I).
NA	(1) 0.726 million BTU per hour Raypack natural gas boiler	NA	This boiler is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).

Asheville MRI (222 Ashland Avenue)			
NA	(2) 0.399 million BTU per hour Raypack natural gas boilers	NA	This generator is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(ii).
Lab Express (261 Ashland Avenue)			
NA	(1) 17 kilowatt Eaton natural gas emergency-use generator	NA	This generator is exempt from permitting per AB Air Quality Code 17.0102(c)(2)(B)(v)(I).

APPLICATION NOTES

The application listed one person as their responsible official but had a different person sign the application. An email was sent to the facility to clarify who the responsible official is and this will be listed in the amended permit.

SECTION C DETAILS

REGULATORY INFORMATION

(Identify the AB Air Quality Regulations reviewed because of this application. At a minimum, the regulations already listed should be reviewed and reason given for applicability or non-applicability. If a regulation has a standard, list the standard and indicate how the source is in compliance.)

AB Air Quality Regulation Number / Title	Emission Source ID No(s). Subject	Notes On Regulation (Compliance demonstration, applicability, etc.)
17.0500 – Title V Procedures and 17.0315 – Synthetic Minor Facilities	NA	The facility is not subject to Title V permitting procedures because it elected to take avoidance limitations that define their potential to emit as less than 100 tons per year for NO_X and SO_2 (see regulatory notes below). The facility's potential to emit HAPs is less than the 10-ton per year applicability threshold for individual HAPs and the 25-ton per year applicability threshold for combined HAPs.
17.0700 – Toxic Air Pollutant Procedures	ES-1, ES-2, ES-3, ES-4, ES-6, ES-8, ES-9, ES-10, ES-11, ES-1, ES-13, ES-14, ES-20, ES-21	In 2015 the facility triggered a toxics review to evaluate combustion emissions from the boilers and emergency generators. All TAPs were found to be below the TAP permitting emission rates (TPERs), except for arsenic, benzene, beryllium, cadmium, chromium, formaldehyde and fluorides. A dispersion modeling analysis performed using AERMOD determined that with operational limits, the facility would be below the acceptable ambient levels (AALs). The associated stack parameters and operational limits were included in their permit. The exempt sources which are subject to GACT standards (ES-15, ES-17, ES-18, ES-22, ES-23, ES-24, ES-25 and ES-26) were included in the modeling and noted in the permit for informational purposes. For further information, please see the regulatory notes below as well as the modeling memo dated September 28, 2015. The modeling demonstration showed that all TAPs were below the AALs. For this modification, the modeling was re-run for arsenic with the new engines and showed no change in the maximum predicted impacts.
4.0524 – New Source Performance Standards (40 CFR 60, Subpart Dc)	ES-1, ES-2, ES-3, ES-4, ES-9, ES-10, ES-11, ES-20, ES-21	The facility is subject to 40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. To maintain compliance with the SO_2 requirements of this regulation, the facility will monitor the sulfur content of the No. 2 fuel oil combusted in the boilers to ensure that it does not exceed 0.5% by weight. The facility will report the results of the monitoring to this Agency on a semi-annual basis.
4.0524 – New Source Performance Standards (40 CFR 60, Subpart IIII)	ES-15, ES-17, ES-18, ES-22, ES-23, ES-24, ES-25, ES-26	These emergency-use generators are subject to the requirements of 40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which requires the manufacturer to certify that the generators meet the emission limits listed in the subpart. The generators must be equipped with a non-resettable hour meter and nonemergency use (e.g., testing) is limited to 100 hours per year. Ultra-low sulfur diesel (ULSD) fuel must be used.
4.0530 – Prevention of Significant Deterioration	NA	The facility does have potential SO_2 emissions above the PSD major source applicability threshold. An avoidance limit will be included in the permit.
4.1111 – MACT (40 CFR 63, Subpart ZZZZ)	ES-15, ES-17, ES-18, ES-22, ES-23, ES-24, ES-25, ES-26	Because these emergency generators commenced construction after June 12, 2006, they are considered new sources (located at an area source of HAP emissions), making them subject to 40 CFR Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines. Compliance with NESHAPS Subpart ZZZZ is achieved by compliance with NSPS Subpart IIII. ES-6, ES-8 and ES-12 through ES-14 are existing stationary institutional emergency engines located at an area source and they are not subject to Subpart ZZZZ.
4.1111 – MACT (40 CFR 63, Subpart CCCCCC)	ES-19	This gasoline tank is subject to 40 CFR Part 63, Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities. The required management practices include minimizing gasoline spills and cleaning spills expeditiously.

4.1111 – MACT (40 CFR 63, Subpart JJJJJJ)	NA	None of the facility's boilers are subject to 40 CFR Part 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers. The rule is generally applicable to solid and liquid fuel-fired boilers; however, boilers that are also gas-fired and burn liquid fuel only during periods of gas curtailment, gas supply emergencies, startup, or for periodic testing not to exceed 48 hours during any calendar year, are not subject to this subpart. Mission Hospital has submitted an Initial Notification indicating that all of its boilers will burn fuel oil only during such periods. However, relevant requirements of this subpart have been included in a permit condition in case the facility decides to operate the boilers on fuel oil in the future.
4.0503 – Particulates from Fuel Burning Indirect Heat Exchangers	ES-1, ES-2, ES-3, ES-4, ES-9, ES-10, ES-11, ES-20, ES-21	This regulation limits PM emissions from each of these sources to 0.34 - 0.49 lb/million Btu (MMBtu), depending upon the heat input capacity (see note on 4.0503, below). The AP-42 PM emission factor for each of these boilers is only 0.024 lb/MMBtu when burning No. 2 fuel oil, and even less when burning natural gas. Thus, the facility is in compliance.
4.0516 – Sulfur Dioxide Emissions from Combustion Sources	Boilers: ES-1 - ES-4, ES-9 - ES-11, ES-20, ES-21 Emergency Generators: ES-5 - ES-8, ES-12 - ES-15, ES-17, ES-18, ES-22, ES-23, ES-24, ES-25, ES-26	This regulation limits SO_2 emissions from these sources to 2.3 lb/MMBtu. The AP-42 SO_2 emission factor for natural gas combustion for the boilers is 0.0075 lb/MMBtu. The boilers are subject to the SO_2 emission limit of NSPS Subpart Dc when burning No. 2 fuel oil. The AP-42 SO_2 emission factor for (0.5% S) diesel fuel combustion for emergency generators is 0.51 lb/MMBtu. Thus, the facility is in compliance.
4.0521 – Control of Visible Emissions	Boilers: ES-1 - ES-4, ES-9 - ES-11, ES-20, ES-21 Emergency Generators: ES-5 - ES-8, ES-12 - ES-15, ES-17, ES-18, ES-22, ES-23, ES-24, ES-25, ES-26	This regulation limits visible emissions from each of these emission sources to no greater than 20% opacity due to their post-1971 manufacture date. Compliance with this regulation will be determined through facility self-monitoring and Agency inspections.
4.1806 – Control and Prohibition of Odorous Emissions	Entire Facility	This regulation requires that the facility prevent odorous emissions from causing or contributing to objectionable odors beyond their property line. Compliance with this regulation will be determined through Agency inspections.

REGULATORY NOTES

17.0315. Potential emissions of NO_X and SO_2 are each above the 100 tpy Title V major source threshold., The synthetic minor limitations for the facility are that boilers ES-1, ES-2, ES-3, ES-4, ES-9, ES-10, ES-11, ES-20, and ES-21 combust a total of no more than 1.6 million gallons of No. 2 fuel oil, and that emergency-use generators ES-6, ES-8, ES-12, ES-13, ES-14, ES-15, ES-17, ES-18, ES-22, ES-23, ES-24, ES-25 and ES-26 each operate no more than 100 hours for non-emergency purposes during any consecutive 12-month period (see Emission Notes). This will maintain facility-wide potential NO_X and SO_2 emissions below 100 tons per year. Because actual emergency generator operation and No. 2 fuel oil consumption are well below these levels, the facility can continue to report the required parameters annually, rather than on a rolling 12-month basis.

For this permit modification, the limit for the total amount of fuel oil was changed from 1.9 million gallons to 1.6 million gallons to keep NOx emissions below 100 tons per year.

4.0503. The previous PM emissions limits (E) were recalculated based on the total heat input capacity (Q) when each of the boilers was installed. The equation is: $E_{(lb/MMBtu)} = 1.090 \times Q_{(MMBtu/hr)}^{-0.2594}$

Memorial Campus boilers ES-1, ES-2, and ES-3 appear to have been installed together, replacing the previous boilers. Based on the total heat input of the three boilers (63.0 MMBtu/hr), the PM emissions limit for each of these boilers is 0.37 lb/MMBtu. ES-4 was added later, so based on the increased total heat input of the four boilers (88.2 MMBtu/hr), the PM emissions limit for ES-4 is 0.34 lb/MMBtu.
St. Joseph Campus boilers ES-9 and ES-10 were installed together, replacing two previous (Titusville) boilers. ES-11 was already operating at the time. Based on the total heat input of these three boilers (43.56 MMBtu/hr), the PM emissions limit for ES-9 and ES-10 is 0.41 lb/MMBtu. When ES-11 was installed, it appeared that two 6.30 MMBtu/hr Titusville boilers were in operation. Based on the total heat input of those three boilers (22.68 MMBtu/hr), the PM emissions limit for ES-11 is 0.49 lb/MMBtu. For the proposed boilers, ES-20 and ES-21 (each 28.57 MMBtu/hr), the PM emissions limit (based on total heat input) is 0.38 lb/MMBtu/hr.

4.111. If the facility's boilers, ES-1, ES-2, ES-3, ES-9, ES-10, ES-11, ES-20, and ES-21, burn fuel oil, except as noted above (e.g., during natural gas curtailment), that boiler would become subject to MACT Subpart JJJJJJ. In that event, the specific requirements would depend on the particular boiler. Boilers with a heat input capacity over 5 MMBtu/hr, would require performing biennial tune-ups. However, because ES-1, ES-2, and ES-4 have an oxygen trim system (as confirmed in a 5/22/13 email from Tim O'Rourke), the tune-ups for those boilers can be performed every five years. The proposed boilers, ES-20 and ES-21, also have oxygen trim systems, according to documents provided in the permit application for the New Central Energy Plant. In addition boilers with a heat input capacity of 10 MMBtu/hr or more, which includes all of Mission Hospital's permitted boilers, would require performing a one-time energy assessment.

The February 1, 2013 revisions to MACT Subpart JJJJJJ added § 63.11194(e), which states:

> *An existing dual-fuel fired boiler meeting the definition of gas-fired boiler, as defined in § 63.11237, that meets the applicability requirements of this subpart after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be an existing source under this subpart as long as the boiler was designed to accommodate the alternate fuel.*

Prior to a previous revision, existing dual-fuel boilers burning natural gas that later switched to burning fuel oil were considered to be new boilers. Such boilers with heat input capacities of 10 MMBtu/hr or more had been required to conduct stack testing in addition to performing the biennial tune-ups and the one-time energy audit. The revised rule eliminated the stack testing requirement for these boilers.

Mission Hospital's currently permitted boilers, ES-1, ES-2, ES-3, ES-9, ES-10, and ES-11 are classified as existing boilers because construction commenced on or before June 4, 2010.

17.0700. In September of 2015 as part of an expansion of their central energy plant, Mission submitted air dispersion modeling for arsenic, benzene, beryllium, cadmium, chromium (VI Soluble), fluoride, fluorides, and formaldehyde with their permit application because they exceed the TPER for these pollutants. The emergency engines are exempt from toxics due to Chapter 17.0702(a)(27)(B), however State Session Law SL-2012-91, which requires the Agency to "review the application to determine if the emission of toxic air pollutants from the source or facility would present an unacceptable risk to human health". The facility voluntarily conducted air dispersion modeling. Emergency engines were conservatively estimated to run 500 hours. The submitted modeling demonstrated that facility emissions would be significantly below the AALs for benzene, beryllium, cadmium, chromium (VI Soluble), fluoride, fluorides, and formaldehyde. For arsenic, the facility was at 81% of the AAL. Insignificant combustion sources were not included in the modeling, but emissions from these sources are minimal and would not cause the facility to exceed the AAL for any pollutant.

With the replacement of the two emergency engines with engines rated slightly larger than the engines that were included in the previous modeling demonstration, the Agency re-ran the arsenic modeling using the slightly higher emission rates from the new engines. This did not change the modeling results for the highest impact AAL of arsenic, since emission rates from these two engines only increased slightly and are a small percentage of the total emissions for all of the sources.

SECTION D DETAILS

EMISSION INFORMATION

Calculation Method Codes (List all that apply)	**1 = Stack test result 2 = Material (mass) balance 3 = EPA approved information (AP-42, CTG, etc.) 4 = Other (specify in table below)**			
Calculation Rejection Codes (List all that apply)	**1 = Calculation error 2 = Wrong emission factor(s) used 3 = Control efficiency(ies) not accepted 4 = Other (specify in table below)**			
Emission Source (ID No.)	**Calculation Method Code**	**Accept or Reject?**	**Calculation Rejection Code**	**AB Air Quality Calculations Attached?**
ES-1 - ES-15, ES-17, ES-18, ES-20 – ES-26	3	NA	NA	Yes

EMISSION NOTES

The facility made no emission calculations of its own. All calculations were made by AB Air Quality staff. Emissions include a limit of 1,600,000 gallons per year of fuel oil combusted by the boilers is necessary to keep the emission from NOx under 100 tons/year. The potential emissions for the generators were calculated at 100 hour per year limit on the emergency generators. ES-17 and ES-18 generators are exempt from permitting but are included in the permit to include the requirements of NSPS Subpart IIII. Emergency generators subject to Subpart IIII are limited to 100 hours per year for non-emergency operation. Emissions were not calculated for two small (8 kW and 17 kW) natural gas-fired emergency generators located, respectively, at the Genetics building (267 McDowell Street) and Lab Express (261 Ashland Avenue).

SECTION E

SUPPORTING DOCUMENTATION

(Provide brief description of any attachments)

1. Permit Application
2. Copy permit modification fee check
3. Emission Calculations made by AB Air Quality
4. Draft Permit
5. Draft Cover Letter