CLASS I AIR QUALITY PERMIT RENEWAL APPLICATION
FOR
NOVO BIOPOWER

Submitted by: Novo Biopower, Snowflake, Arizona

December 10, 2020

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A. Emission Calculations

Certification of Compliance with all Applicable Requirements

This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.

The responsible official is defined as a person who is in charge of principal business functions or who performs policy or decision-making functions for the business. This may also include an authorized representative for such persons. For a complete definition see the Arizona Administrative Code, Title 18, Chapter 2, Section R18-2-301.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record. I also attest that I am in compliance with the applicable requirements listed in Section 1 and will continue to comply with such requirements and any future requirements that become effective during the life of my permit. I will present a certification of compliance to ADEQ no less than annually and more frequently if specified by ADEQ. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Name (Print/Type): Robin Palmer

Title: Environtmental & Maintenance Manager

Signature: Robin L Palmer Date: December 10, 2020

Certification of Truth, Accuracy, and Completeness

Arizona Administrative Code R18-2-304.H

R18-2-304(H) Certification of Truth, Accuracy, and Completeness.

Any application form, report, or compliance certification submitted pursuant to this Chapter shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this Article shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

By my signature I, Robin Palmer, hereby certify that based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Name (Print/Type): Robin Palmer Title: Environmental & Maintenance Manager

Organization: Novo Biopower, LLC

Signature: Robin L Palmer Date: December 10, 2020

CLASS I PERMIT APPLICATION FORM

1.0 EXECUTIVE SUMMARY

Pursuant to Arizona Administrative Code (AAC), Title 18, Chapter 2, Article 3, Section 320 (R18-2-320), Novo Biopower, LLC Holdings, LLC (Novo Biopower, LLC) herewith submits this permit revision and renewal application for its Air Quality Operating Permit No. 53023, issued by the Arizona Depa1tment of Environmental Quality (ADEQ) on July 31, 2013 for located at 4764 W. Highway 277 Snowflake, Navajo County, Arizona. The current permit covers the operation of a biomass-fired boiler, dust collectors, cooling tower, disc screen, hammer hog.

This permit application is being submitted in order to request changes to Permit No. 69960 which allow emissions limit for both NOx and CO to be increased from 240 tons per year on a 365-day rolling total to 248 tons per year on a 365-day rolling total. Since 2018 Novo Biopower has witnessed an increase in boiler efficiency, the Biomass Boiler operates an additional 10 - 15 days/year. This additional operating time has naturally led to increased emissions on a 365-day rolling total basis. . Herein, Novo Biopower submits this permit revision application in order to request the following changes to be made to Permit No. 69960:

- II.C.1.a "The permittee shall not cause to be discharged into the atmosphere from the boiler stack, including emissions generated during start-ups and shutdowns, NOx emissions in excess of **248** tons per year on a 365-day rolling total."
- II.D.1 "The permittee shall not cause to be discharged into the atmosphere from the boiler stack, including emissions generated during start-ups and shutdowns, CO emissions in excess of **248** tons per year on a 365-day rolling total."

2.0 FACILITY OVERVIEW

NOVO BIOPOWER, LLC (Novo) is a nominal 24-megawatt (MW) biomass fueled electric generating facility located at 4764 W. Highway 277 Snowflake, Arizona (Figure 1). The facility was constructed in 2006 and is owned and operated, commercial operation June, 2008 to meet power obligations under a Power Purchase Agreement (PPA) with Arizona Public Service (APS) and Salt River Project (SRP). The current 10-year PPA began June 2013 and expires June 2023. The plant generates power using a nominal 340 million British thermal unit per hour (MMBtu/hr) Babcock and Wilcox bubbling fluidized bed boiler, fueled from two main sources, including wood waste material from the surrounding National Forests, and biomass.

NOVO BIOPOWER, LLC is situated in a rural setting of primarily public owned land at an elevation between 6,030 and 6,060 feet above mean sea level (amsl). The adjacent areas surrounding the facility are generally flat with the closest residential dwelling approximately 1.25 miles east of the facility. Historical emission sources consist of combustion and particulate emissions from the burning of biomass and wood in the boiler, particulate emissions from the cooling tower, particulate emissions from material handling operations at the facility, and a sawmill. Particulate emissions from the boiler are controlled with multiclone dust collectors and baghouses.

Each process and their estimated emissions are described in the subsequent sections.

Table 2-1 – EMISSION SOURCES

Estimated "Potential to Emit" per A.A.C. R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION POINT [5]			STACK SOURCES [6]					NONPOINT	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/ HR. [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			SOURCES [7]	
										DIA (ft.)	VEL. (fps)	TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
1	Biomass Boiler	**Carbon Monoxide**	**56.6210**	**248**	12	561210	3817605	75		6	109	302		
		Oxides of Nitrogen	**56.6210**	**248**	12	561210	3817605	75		6	109	302		
		Sulfur Dioxide	51.3699	225	12	561210	3817605	75		6	109	302		
		Particulate Matter	28.9	126.58	12	561210	3817605	75		6	109	302		
		Hydrogen Chloride	2.0548	9	12	561210	3817605	75		6	109	302		
		Antimony	0.0007	3.034E-03	12	561210	3817605	75		6	109	302		
		Arsenic	0.0015	6.536E-03	12	561210	3817605	75		6	109	302		
		Beryllium	0.0003	1.120E-03	12	561210	3817605	75		6	109	302		
		Cadmium	0.0001	6.069E-04	12	561210	3817605	75		6	109	302		
		Chromium	0.0037	1.634E-02	12	561210	3817605	75		6	109	302		
		Cobalt	0.0015	6.536E-03	12	561210	3817605	75		6	109	302		
		Lead	0.0016	7.003E-03	12	561210	3817605	75		6	109	302		
		Manganese	0.0906	3.968E-01	12	561210	3817605	75		6	109	302		
		Mercury	0.0000	1.657E-04	12	561210	3817605	75		6	109	302		
		Nickel	0.0023	1.027E-02	12	561210	3817605	75		6	109	302		
		Selenium	0.0013	5.602E-03	12	561210	3817605	75		6	109	302		
		Formaldehyde	0.0022	9.455E-03	12	561210	3817605	75		6	109	302		

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION POINT [5]			STACK SOURCES [6]					NONPOINT	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/ HR. [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			SOURCES [7]	
										DIA (ft.)	VEL. (fps)	TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
1 (continued)		Acetaldehyde	0.0021	8.983 E-03	12	561210	3817605	75		6	109	302		
		Acetonitrile	0.0050	2.174 E-02	12	561210	3817605	75		6	109	302		
		Benzene	0.0683	2.992E-01	12	561210	3817605	75		6	109	302		
		Acrolein	.0025	1.105E-02	12	561210	3817605	75		6	109	302		
		Acrylonitrile	0.0063	2.754E-02	12	561210	3817605	75		6	109	302		
		Carbon Disulfate	0.0063	2.754E-02	12	561210	3817605	75		6	109	302		
		Vinyl Acetate	0.0063	2.754E-02	12	561210	3817605	75		6	109	302		
		n-Hexane	0.0415	1.816E-01	12	561210	3817605	75		6	109	302		
		Toluene	0.0145	6.349E-02	12	561210	3817605	75		6	109	302		
		Total HAPs	5.1370	2.250E+01	12	561210	3817605	75		6	109	302		
		Single HAP	0.063	2.80E-01	12	561210	3817605	75		6	109	302		
2-9	Cooling Tower (8 modules)	PM10-Fil	0.43811	1.9189	12	561210	3817605	23		11	42.32	179		
		PM2.5-Fil	0.36354	1.5923	12	561210	3817605	23		11	42.32	179		
		PM10-Pri	0.43811	1.9189	12	561210	3817605	23		11	42.32	179		
		PM2.5-Pri	0.36354	1.5923	12	561210	3817605	23		11	42.32	179		
		Chlorine	0.01589	0.0696				23		11	42.32	179		
10	Biomass Boiler Material Handling	Particulate Matter	18.03	79.0	12	561366	3818094						500	215
11	Emg Dsl Fire Pump #1	PM10	0.495	0.0248	12	561055	3818418	20	2	0.4	252.26	850		
		SO_2	0.014	0.0007										

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION POINT [5]			STACK SOURCES [6]					NONPOINT	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/ HR. [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			SOURCES [7]	
										DIA (ft.)	VEL. (fps)	TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
		NOx	6.975	0.3488										
		VOC	0.566	0.0283										
		CO	1.503	0.0752										
12	Emg Dsl Fire Pump #2	PM10	0.592	0.0296	12	561055	3818418	20	20	0.6	140.82	850		
		SO_2	0.017	0.0008										
		NOx	8.339	0.4170										
		VOC	0.676	0.0338										
		CO	1.797	0.0898										
13	Emg Dsl Generator (Turbine)	PM10	0.072	0.0036	12	561052	3818297	10		0.4				
		SO_2	0.002	0.0001										
		NOx	1.011	0.05005										
		VOC	0.082	0.0041										
		CO	0.218	0.0109										
14	Emg Dsl Generator (Utility)	PM10	0.117	0.0058	12	561091	3817999	5		0.3				
		SO_2	0.003	0.0002										
		NOx	1.643	0.0822										
		VOC	0.133	0.0067										
		CO	0.354	0.0177										

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION POINT [5]			STACK SOURCES [6]					NONPOINT	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/ HR. [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			SOURCES [7]	
										DIA (ft.)	VEL. (fps)	TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
15	Portable Chip Trailer Tipper (Diesel)	PM10	0.660	0.1073	12	561203	3818047						10	2
		SO_2	0.018	0.0030										
		NOx	9.300	1.5113										
		VOC	0.754	0.1226										
		CO	0.00668	0.3257										
	Portable Chip Trailer Tipper (Diesel)	PM10	0.013	0.0064	12	561203	3818047							
		SO_2	0.1925	0.0924										
		NOx	0.6097	0.2927										
		VOC	0.0171	0.0082										
		CO	0.1621	0.0778										

Table 2-2 – EQUIPMENT LIST

EQUIPMENT TYPE	CONTROLS	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER/ EQUIPMENT #	DATE OF MFG.
Boiler	SNCR for NO_X	Nominal 340 MMBtu/hr	Babcock and Wilcox	2 drum	Not available	REBUILT 2006
	Multiclone Collectors	205,848 acfm	Barrons	14K35-0710	Not Available	1993
	Fabric Filter Sodium Bicarbonate Injection for HCl	337,500 acfm	Wheelabrator	Pulse-jet	414-3429-G, 414-3401-G 414-3408-G, 414-3415-G 414-3422-G, 414-3429-G	1990
Cooling Tower	Drift Eliminators	28,000 gpm	Marley	Mechanical Draft	CT-1	2006
Disc Screen	N N/A /A	30 ton/hr	Rader	40-11	338589	2002
Hammer Hog	N/A	20 ton/hr	Jeffery Wood Hog	55WB	11795	1966
Boiler Fuel Conveyor #1	N/A	N/A	N/A	N/A	414-3041-K	N/A
Boiler Fuel Conveyor # 2	N/A	N/A	N/A	N/A	414-3042-K	N/A
Boiler Fuel Conveyor # 3	N/A	N/A	N/A	N/A	414-3043-K	N/A
Biomass Bin Outfeed Conveyor	N/A	N/A	N/A	N/A	414-2135-K	N/A
Wood Pile Reclaim Conveyor # 1	N/A	N/A	N/A	N/A	414-3017-K	N/A
Wood Pile Reclaim Conveyor # 2	N/A	N/A	N/A	N/A	414-3018-K	N/A
Wood Pile Reclaim Conveyor # 3	N/A	N/A	N/A	N/A	414-3025-K	N/A
Wood Pile Stack Out Conveyor	N/A	N/A	N/A	N/A	414-3010-K	N/A
Truck Dump Outfeed Conveyor # 1	N/A	N/A	N/A	N/A	414-3006-K	N/A

EQUIPMENT TYPE	CONTROLS	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER/ EQUIPMENT #	DATE OF MFG.
Truck Dump Outfeed Conveyor # 2	N/A	N/A	N/A	N/A	414-3008-K	N/A
Wood Pile Reclaimer # 1	N/A	N/A	N/A	N/A	414-3015-K	N/A
Wood Pile Reclaimer # 2	N/A	N/A	N/A	N/A	414-3016-K	N/A
Truck/Rail Dump Receiving Hopper	N/A	N/A	N/A	N/A	414-3005-K	N/A
Biomass Bin	N/A	N/A	N/A	N/A	414-2130-T	N/A
Sand Bucket Elevator	NA	2 HP	Wilson Manf. & Design	15x45 Chain BE	2591	2009
Internal Combustion Engines						
Diesel Fire Pump #1	N/A	225 HP	N/A		Fire Pump #1	1974
Diesel Fire Pump #2	N/A	269 HP	N/A		Fire Pump #2	1997
Diesel Emergency Generator (Turbine)	[F]	32.6 bhp, 21kw	Perkins	AGPE-20-OF	U45506580	2017
Diesel Emergency Generator (Support)	NA	37.5 hp, 28kw	Atlas Copco	QAS 38	USA 011682	2005
Portable Tipper (Diesel, CAT)	NA		Columbia Corp.	Landfill Model	962823	1996
Portable Tipper (Diesel, Kubota)	NA	75hp	Kubota	V3307-T	V3307-T-8KA4897	2020

TBD = to be determined, N/A = not available

3.0 PROCESS DESCRIPTION

3.1 BIOMASS FUEL HANDLING

All of the biomass fuel that is received and used by Novo Biopower is delivered by truck. When a truck arrives, its weight is measured and recorded. A truck is unloaded in one of three ways: 1) A self-unloading walking bed trailer, 2) a small tipper that tips the trailer only, and 3) a large tipper that tips both the truck and the trailer. Both the self-unloading trailers and the small tipper require the material to be pushed, but the large tipper is connected to a conveyor system which moves the unloaded material. Once the trailer is unloaded the truck will weigh again and record the difference.

As the fuel is unloaded it is either pushed onto the pile by a Caterpillar 834k Chip Scoop, (or other equipment) or dropped onto the piles, by the conveyor system. Twice daily, two large piles are formed for the boiler feed system. Reclaimers drag fuel onto a conveyor belt that takes the fuel to a disc screen. If fuel is too large then it goes to a hammer hog to be resized before making its way across a series of conveyor belts and into the "day bin". The day bin where fuel is stored before it goes into the boiler. Screws at the bottom of the day bin control the speed at which fuel enters fuel chutes and, ultimately, the boiler.

3.2 BOILER, POLLUTION CONTROL DEVICES, & STACK

The boiler was manufactured by Babcock and Wilcox in 1966 and includes a Tampella bubbling- bed furnace. The steam generated by the boiler feeds a nominal 25 MW General Electric turbine generator. Power from the generator is delivered to an onsite substation for distribution to the power grid. The operation of the boiler results in emissions of oxides of nitrogen (NOx), sulfur dioxide (SO2), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), hydrogen chloride (HCL), and hazardous air pollutants (HAPs). A Forced draft (FD) fan supplies the combustion air to the boiler. Induced draft (ID) and Flue gas recirculation (FGR) fans draw air through the boiler and into pollution control devices. The boiler is equipped with selective non-catalytic reduction (SNCR) to control NOx emissions. The SNCR injects urea into the boiler above the flame. The urea reacts with gaseous nitrogen oxides to convert it into atmospheric nitrogen (N_2) thus reducing the amount of NO_x emitted into the atmosphere.

A flue gas recirculating fan and an induced draft fan helps draw air through the boiler and into the pollution control devices. A multiclone dust collector helps reduce particulate emissions by separating the air from the particles in the air. The process creates centrifugal force which separates air from the particulates in a parallel series of cyclones. A significant percentage of particulates are removed by using this process.

The air then flows into six baghouse modules. Each module is equipped with 495 fabric filters (bags) that filter out very fine particulate matter as the air is forced through the bags and into the ducts that lead to the stack. A pulse-jet system sends a sharp stream of air into the bags to rid them of any build-up of ash. In addition to the filtration of particulate matter, a dry sorbent injection system utilizing sodium bicarbonate is used to inject sorbent into the baghouse modules to control the amount of gaseous HCl.

As the air leaves the stack, these pollutants need to be monitored. For this, there is a continual emission monitoring system (CEMS) as well as a continual opacity monitoring system (COMS). These systems allow emissions to be monitored continuously. The analyzer that are used for oxides of nitrogen (NOx), sulfur dioxide (SO2), carbon monoxide (CO), and particulate matter (PM) is the MIR 9000 and the analyzer for the HCl is the Tunable Diode Laser

(TDL) monitor. To ensure that the monitors are reading correctly, quarterly gas audits (CGA) and an annual relative accuracy test audits (RATA) are performed.

3.3 COOLING TOWER

A 32,620 gallon per minute (gpm) condenser cooling water system recycles cooling water through an eight-cell Marley mechanical draft counter flow cooling tower. The cooling tower is equipped with mist eliminators to minimize drift loss from the tower during operation. The operation of the cooling tower results in the emissions of PM.

3.4 ASH HANDLING & DISPOSAL

Ash is produced by the burning of fuel and is collected in hoppers at the base of the boiler, multiclones, and baghouses. Enclosed conveyor systems transport the ash and fly ash to a bed material recovery system and then to an enclosed storage building. The ash is then transported by dump trucks and disposed in the Pink Cliffs Land Company (Pink Cliffs) landfill area.

4.0 EMISSIONS SUMMARY FOR EQUIPMENT

4.1 EMISSION CALCULATION METHODOLOGY

Criteria and hazardous air pollutant (HAP) emissions from the existing permitted biomass fired boiler and other equipment at NOVO BIOPOWER, LLC were calculated based upon data from the CEMS when possible, 2017 compliance testing based emission factors, maximum operating hours, permitted PM_{10} emission rate, and AP-42 emission calculation methodology for cooling towers. The following sections discuss the specific emission sources and the methodology used to estimate emission rates.

4.2 EMISSIONS FROM BIOMASS FUELED BOILER

The combustion of biomass fuel in the boiler at NOVO BIOPOWER, LLC results in emissions of CO, NOx, SO_2, VOCs, particulate matter less than 10 microns in diameter (PM_{10}), pa1ticulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and HAPs such as hydrogen chloride, hydrofluoric acid, and various metals. The Criteria Pollutants, Total HAPS, and Single HAP were calculated using the permit limits allowed by permit 53023 for NOVO BIOPOWER, LLC and maximum potential operating hours (8760). Individual HAPs emissions were calculated using the maximum single and total HAPs emission rates. Individual HAPs from the boiler were also calculated from emission factors determined from the 2017 annual HAPs stack compliance testing.

Hourly PTE emissions for criteria pollutants were calculated using the following equation:

Emissions (lb/hr) = [Criteria Pollutant Permit Limit (tons/yr)* 2000 (lbs/ton)] / [Total Operating Hours (24 hrs/365 days = 8760 hrs/yr]

The corresponding annual PTE emissions (ton/yr) are:

Emissions (ton/yr) = Criteria Pollutant Permit Limit

Hourly PTE emissions for HAPs were calculated using the following equation:

Emissions (lb/hr) = [Total HAPs Permit Limit (tons/yr)* 2000 (lbs/ton)] / [Total Operating Hours (24 hrs/365 days = 8760 hrs/yr]

The corresponding PTE annual emissions (ton/yr) are:

Emissions (ton/yr) = Total HAPs Permit Limit (22.5 ton/yr)
Emissions (ton/yr) = Single HAP Permit Limit (9 ton/yr)

Annual potential-to-emit (PTE) emission rates for the boiler would be equal to the limits currently expressed in the permit. Novo Biopower, LLC is not seeking to revise the current permit limits with this application.

Calculated criteria pollutant and HAP emission rates, in pounds per hour (lb/hr) and tons per year (ton/yr) for the existing biomass boiler are presented below in Table 4-1 Detailed emissions calculations for the biomass boiler are presented in Tables 1 and 2, within Appendix A.

Table 4-1 - Emissions from Existing Biomass Boiler at NOVO BIOPOWER, LLC

Pollutant	2019*Operating Hours (hr/yr)	Emissions (lb/hr)	Emissions (ton/yr)
NOx	8346	54.74	228.43
CO	8346	43.21	180.30
SO2	8346	1.14	4.74
PM2.5/PM10	8346	0.24	1.00
Single HAP	8346	0.39	1.63
Total HAPs	8346	0.97	4.04

***2016 Operating hours were used instead of 2017 hours due to the over-pressure incident that occurred in October 2017. Emission calculations (above and below) use 2017 emission factors and data from 2017 audits.**

4.3 PARTICULATE EMISSIONS FROM COOLING TOWER

The NOVO BIOPOWER, LLC facility includes one induced draft cooling tower. The tower is an eight-cell tower measuring 96 feet long, 22 feet wide and 21 feet high. Each cell measures 12 feet wide, 22 feet long, and 21 feet high. The cooling tower has a flow rate of 32,620 gallons per minute (gpm).

Emission factors used to calculate emissions from the mechanical draft cooling tower were based on methodology from AP 42, Section 13.4: Wet Cooling Towers. For purposes of this application, the magnitude

of PM_{10} emissions from the cooling tower was conservatively assumed to be the same for PM2.5.

Particulate emissions from the existing cooling tower at Novo Biopower, LLC were conservatively estimated using operational hours based on maximum boiler operation.

4.4 EMISSIONS FROM DIESEL-FIRED ENGINES

Emission factors used to calculate emissions from the diesel-fired internal combustion engine was obtained from AP-42 (dated October 1996), Emission Factors from Stationary Internal Combustion Sources, Section 3.4: Large Stationary Diesel and All Stationary Dual-Fuel Engines, Table 3.4-1: Gaseous Emission Factors for Large Stationary Diesel and All Stationary Dual Fuel Engines, Table 3.4-3: Speciated Organic Compounds Emission Factors for Large Uncontrolled Stationary Diesel Engines, and Table 3.4-4: PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines. For purposes of this application, the magnitude of PM_{10} emissions from the diesel engines was conservatively assumed to be the same for PM2.5.

Calculated criteria pollutant and HAP emissions in pounds per hour (lb/hr) and tons per year (ton/yr) (based on 100 non-emergency hours) are presented below in Table 2.1 "Emission Sources"

4.5 FACILITY EMISSIONS SUMMARY

The criteria and hazardous air pollutant emissions from the Novo Biopower, LLC facility for the existing permitted sources are summarized in Table 2-1 "Emission Sources"

5.0 AIR QUALITY REGULATORY REVIEW

This permit renewal application does not result in a change to the regulatory applicability associated with the Class I permit issued by ADEQ to Novo Biopower, LLC on July 31, 2013. Tables 5-1 and 5- 2 enumerate the federal and Arizona regulations, respectively, that are and are not applicable to the facility.

Table 5-1

DESCRIPTION OF APPLICABLE REQUIREMENTS FROM THE NEW SOURCE PERFORMANCE STANDARDS

Section Citation	Affected Source(s)	Emission Point	Requirement	Comments
40 CFR Part 51				
§51.166	N/A	N/A	The federal New Source Review/Prevention of Significant Deterioration regulations apply to categorical sources that emit SO2, PM and/or NOx in excess of 100 TPY and non-categorical sources that emit SO2, PM and/or NOx in excess of 250 TPY. The NOVO BIOPOWER, LLC biomass boiler meets the regulatory definition of a non-categorical source.	ADEQ placed SO2, PM and NOx emission limits into the current permit for the specific purpose of avoiding applicability of these rules.
40 CFR Part 60, Subpart A: General Provisions				
§60.1	Boiler	Boiler Stack	The provisions in 40 CFR Part 60 apply to any stationary source that contains an affected facility for which any subpart is applicable.	Novo Biopower, LLC will comply with all applicable provisions provided at 40 CFR Part 60, Subparts A and DB.
§60.2	Boiler	Boiler Stack	Definitions	Requirement Noted
§60.3	Boiler	Boiler Stack	Units and Abbreviations	Requirement Noted
§60.4(a)	Boiler	Boiler Stack	All requests, reports, applications, submittals, and other communications to the Administrator of the EPA pursuant to this part must be submitted in duplicate to EPA Region IX.	Requirement Noted
§60.4(b)	Boiler	Boiler Stack	All information that is submitted to the EPA in accordance with §60.4(a) must also be submitted to the State for each subpart for which authority was delegated to the State.	Novo Biopower, LLC has submitted a copy of this application to ADEQ, and will continue to comply with this requirement for all future requests, application updates, submittals, or other written communications.
§60.5	Boiler	Boiler Stack	When requested by an owner/operator, the Administrator will make a determination of whether an action taken constitutes construction or modification within 30 days of receipt of the request.	This requirement applies to the EPA and ADEQ.
§60.7(a)	Boiler	Boiler Stack	The owner/operator must furnish the EPA Administrator with notification of the following events: date of construction or reconstruction, actual date of initial startup, any physical/operational change that may cause an increase in emission rates, date on which continuous monitoring system (CMS) performance commences, and anticipated date for conducting opacity observations under §60.1 l (e)(l).	The Novo Biopower, LLC is an existing facility. Novo Biopower, LLC will notify the State and the EPA of the date of physical/operational changes that may cause an increase in emissions (60 days prior to change).
§60.7(b)	Boiler	Boiler Stack	The owner/operator must maintain records of the occurrence and duration of any startup, shutdown, or malfunction for affected facilities, any malfunction of air pollution control equipment, or any periods when a CMS or monitoring device is inoperative.	Novo Biopower, LLC maintains documentation on- site containing the information required by this rule and will make it available for inspection upon request.

Section Citation	Affected Source(s)	Emission Point	Requirement	Comments
§60.7 (c), (d), and (e)	Boiler	Boiler Stack	If the owner/operator is required to install a CMS, the owner/operator must submit excess emission and monitoring systems performance reports and/or summary report forms to the Administrator on at least a semi-annual basis.	Novo Biopower, LLC submits Excess Emission and Monitoring System Performance Reports (EEMSPRs) to both EPA and ADEQ on a semi-annual basis.
§60.7(f)	Boiler	Boiler Stack	The owner/operator must maintain a file of all measurements (including CMS and performance testing; CMS performance evaluations; CMS or monitoring device calibration checks; adjustments or maintenance performed on these systems or devices; and all other information required by an applicable requirement in 40 CFR Part 60 in a permanent form for at least two years.	Novo Biopower, LLC maintains documentation on- site containing the information required by this rule and will make it available for inspection upon request.
§60.7(g)	Boiler	Boiler Stack	If similar to that in §60.7(a), notifications required by the State may be copied to the EPA to satisfy the requirements in §60.7(a).	The NOVO BIOPOWER, LLC is an existing source. Novo Biopower, LLC will send a copy of all notifications required under §60.7(a) to EPA Region IX.
§60.8	Boiler	Boiler Stack	The owner/operator must conduct performance tests in accordance with §60.8 within 60 days after achieving the maximum production rate for the affected facility, but not later than 180 days after the initial start-up of the facility, and at other times as required. The owner/operator must notify the EPA and the State at least 30 days in advance of the test, and at least 7 days in advance if the scheduled date changes, and furnish a written report with the results.	The initial performance tests were completed in 2008. Annual source emissions testing has been conducted each year since then.
§60.9	Boiler	Boiler Stack	Availability of information for the public, provided or obtained under 40 CFR Part 60, is governed by Part 2 of Chapter I.	This requirement applies to the EPA and ADEQ.
§60.10	Boiler	Boiler Stack	The State may adopt and enforce emission standards/limitations for an affected facility or require the owner/operator to obtain permits or other approvals prior to construction, modification, or operation.	See Table 5-2.
§60.l l (a)	Boiler	Boiler Stack	Compliance with all standards, except opacity, must be determined in accordance with the performance test requirements in §60.8.	Requirement Noted. Compliance testing, which has been observed by ADEQ, has been conducted in 2015, 2016, and 2017.
§60.ll (b)	Boiler	Boiler Stack	Compliance with opacity standards will be determined by conducting Method 9 observations, an alternative method approved by the EPA Administrator, or as provided in §60.11(e)(5).	Novo Biopower, LLC ensures that demonstrations of compliance with opacity limitations are conducted by performing EPA Method 9 observations.
§60.ll (c)	Boiler	Boiler Stack	Opacity standards in 40 CFR Part 60 apply at all times except periods of startup, shutdown, malfunction, and as provided by an applicable standard.	Requirement Noted.
§60.1 l (d)	Boiler	Boiler Stack	Affected facilities, including associated air pollution control equipment, must be maintained and operated, to the extent practicable, in a manner consistent with good air pollution control practice for minimizing emissions.	Novo Biopower, LLC has installed, and continues to operate, and maintain, all affected facilities subject to 40 CFR Part 60 Subpart DA, including air pollution control equipment, in accordance with this requirement.

Section Citation	Affected Source(s)	Emission Point	Requirement	Comments
§60.1 l (e)	Boiler	Boiler Stack	This section establishes requirements associated with demonstrating compliance with applicable opacity requirements.	Requirement Noted. Method 9 opacity observations have been conducted during each annual performance test, and at other times, as required or appropriate.
§60.1 l(f)	Boiler	Boiler Stack	Subparts in 40 CFR Part 60 may supersede provisions in §60.ll(a) -(e).	Requirement Noted.
§60.11(g)	Boiler	Boiler Stack	Use of credible evidence when submitting compliance certifications or establishing potential violation s is not precluded by 40 CFR Part 60.	Requirement Noted.
§60.12	Boiler	Boiler Stack	The owner/operator must not conceal emissions that would otherwise constitute a violation of an applicable standard.	Requirement Noted.
§60.19	Boiler	Boiler Stack	This rule contains general notification and reporting requirements.	Requirement Noted. Novo Biopower, LLC will comply with these general notification and reporting requirements when submitting information to the ADEQ and the EPA.
Subpart Db: Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.				
§60.40b	Boiler	Stack	This subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)	Applicable, the nominal design heat input of the biomass boiler at NOVO BIOPOWER, LLC is 340 MMBtu/hr.
§60.41 b	Boiler	Stack	Definitions	Requirement Noted.
§60.42b(k)(2)	Boiler	Stack	Establishes an Emission Limit for SO2 at 0.32 lb/MMBtu	Novo Biopower, LLC combusts natural gas (up to 10 percent capacity), wood chips and biomass.
§60.43b(h)(4)	Boiler	Stack	Establishes an Emission Limit for PM at 0.085 lb/MMBtu	Since the issuance of the Significant Permit Revision in 2008, this requirement replaces the PM emission limit under §60.43b(h)(l)
§60.44b	Boiler	Stack	Establishes NOx emissions limitations for fossil fuel-fired boilers combusting a variety of fossil and non-fossil fuels at 240 tons, 365 day rolling total.	None of the individual NOx emission limitations apply to Novo Biopower, LLC; (note that the current permit limits the capacity factor for natural gas combustion to 10 percent.
§60.45b	Boiler	Stack	Establishes SO2 compliance and performance test methods.	Requirement Noted
§60.46b	Boiler	Stack	Compliance and performance test methods and procedures for particulate matter and nitrogen oxides	Requirement Noted
§60.47b	Boiler	Stack	Emission Monitoring requirements for SO2	Novo Biopower, LLC has a continuous emissions monitoring system (CEMS) to measure and records emissions of SO2
§60.48b	Boiler	Stack	Emission Monitoring requirements for particulate matter and nitrogen oxides	Requirement Noted
§60.49b	Boiler	Stack	Establishes recordkeeping and reporting requirements for the boiler.	Requirement Noted.
40 CFR Part 60, Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines				
§60.4200(a)	None	N/A	All of the engines manufacture dates for various types and uses of diesel engines cited in this rule range from 1974 to 2017.	The diesel engines within this application were manufactured between 1974 and 2017.

Section Citation	Affected Source(s)	Emission Point	Requirement	Comments
40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants				
Part 61, Subpart M	Entire Facility	N/A	This subpart regulates the maintenance and removal of asbestos-containing building materials (ACBM).	Novo Biopower, LLC will ensure compliance with Part 61, Subpart M during all facility maintenance, renovation and demolition activities.
40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants For Source Categories				
40 CFR Part 63	N/A	N/A	Establishes Maximum Achievable Control Technology (MACT) Standards for Source Categories which, in most cases, are major sources of hazardous air pollutants (HAPs); (10 tons per year of any single HAP or 25 tons per year of any combination of HAPs).	At the time this application is being submitted to ADEQ, there are no subparts to Part 63 that apply to the Novo Biopower, LLC facility. Novo Biopower, LLC is aware that the proposed NESHAP Subpart DDDDD ("Boiler MACT") may become applicable to the NOVO BIOPOWER, LLC facility within the next 12 months.
40 CFR Part 64, Compliance Assurance Monitoring				
§64.1	Boiler Stack	N/A	Definitions	Requirement Noted
§64.2	Boiler	Stack	The provision s of 40 CFR Part 64 apply to Part 70 or Part 71 sources that are subject to an emission limitation, uses a control device to achieve compliance with such emission limitation, and has the potential to emit equal to or greater than 100% of the major source threshold.	The Novo Biopower, LLC facility is a major source subject to Part 64 requirements.
§64.3	Boiler	Stack	Provides emissions monitoring system performance and design criteria to assure compliance with emissions limitations or standards.	§64.3(d)(2) provides that the use of a CEMS, COMS or PEMS that satisfies the Section 60.13 and Appendix B of Part 60 shall be deemed to satisfy the general design criteria within Part 64. The Novo Biopower, LLC boiler stack is equipped with a COMS and CEMS for NOx, CO, SO2, HCl and a diluent gas, in accordance with Part 60 requirements.
§64.4	Boiler	Stack	Establishes various submittal requirements.	The Novo Biopower, LLC plant has been subject to Part 64 since initial issuance of the permit. We presume that submittal of the required information occurred coincident with the COMS and CEMS initial certification request in 2008.
§64.5	Boiler	Stack	Deadlines for submittals, specifies that an owner or operator shall submit any information required by §64.4 that was not submitted by April 20, 1998 with the renewal application.	The Novo Biopower, LLC plant has been subject to Part 64 since initial issuance of the permit. We presume that submittal of the required information occurred coincident with the COMS and CEMS initial certification request in 2008 .
§64.6	Boiler	Stack	Establishes provisions for ADEQ/EPA approval of monitoring	The Novo Biopower, LLC plant has been subject to Part 64 since initial issuance of the permit. We presume that submittal of the required information occurred coincident with the COMS and CEMS initial certification request in 2008.
§64.7	Boiler	Stack	Requires owners or operators to maintain monitoring equipment and operate them continuously while emissions sources is operating.	Requirement Noted

Section Citation	Affected Source(s)	Emission Point	Requirement	Comments
§64.9	Boiler	Stack	Establishes recordkeeping and reporting requirements for monitoring.	Requirement Noted
40 CFR Part 70, State Operating Permit Programs				
40 CFR Part 70	Entire Facility	Boiler Stack	Establishes operating permit requirements for major sources.	The Novo Biopower, LLC facility is subject to "Title V" permitting, as it is a major source, and it is subject to standards under Section 111 of the federal Clean Air Act. The current permit constitutes a Part 70 permit.
40 CFR Parts 72 through 77, Acid Rain Program				
72.1	N/A	N/A	(a) Purpose. The purpose of this part is to establish certain general provisions and the operating permit program requirements for affected sources and affected units under the Acid Rain program, pursuant to title IV of the Clean Air Act, 42 U.S.C. 7401, et seq., as amended by Public Law 101-549 (November 15, 1990)	The Novo Biopower, LLC is not an affected source or an affect unit, and therefore is not subject to Parts 72 through 77, as enumerated in the following table entries:
72.6(b)(9) Applicability	Biomass-fired boiler	Boiler stack	(b) The following types of units are not affected units subject to the requirements of the Acid Rain program: . . . (9) A unit for which an exemption under §72.7 or §72.8, as applicable to the exemption.	
72.7(a) New unit exemption - Applicability	Biomass-fired boiler	Boiler stack	Applicability. This section applies to a new utility unit that has not previously lost an exemption under paragraph (t)(4) of this section and that, in each year starting with the first year for which the unit is to be exempt under this section: Serves during the entire year (except for any period before which the unit commenced commercial operation) one or more generators with total nameplate capacity of 25 MWe or less; Burns fuel that does not include any coal or coal-derived fuel (except coal-derived gaseous fuel with a total sulfur content no greater than natural gas); and Burns gaseous fuels with an annual average sulfur content of 0.05 percent or less by weight (as determined under paragraph (d) of this section) and non- gaseous fuel with an annual average sulfur content of 0.05 percent or less by weight (as determined by paragraph (d) of this section).	The NOVO BIOPOWER, LLC is a new utility unit, as it delivers in excess of one third and in excess of 219,000 KWe to an electric utility grid. However, NOVO BIOPOWER, LLC currently only burns wood chips and biomass containing less than 0.05 percent sulfur by weight, and natural gas. The total annual heat input of the natural gas amounts to less than 10 percent of the total annual capacity factor. Therefore, the Novo Biopower, LLC facility is not subject to the federal Acid Rain program, codified at 40 CFR Parts 72 through 77.
40 CFR Part 82, Protection of Stratospheric Ozone				
40 CFR Part 82	Ozone depleting substance (ODS)-containing devices (air conditioning systems, etc)	N/A	This rule regulates the manufacture, import, export, storage and use of ODS materials (including chlorofluorocarbons), and requires training and certification of personnel involved in the operation and maintenance of ODS-containing devices.	Production processes at the facility do not use chlorofluorocarbons. Facility personnel do not perform A/C maintenance. However, Novo Biopower, LLC is still responsible for ensuring that their AC maintenance is performed by certified vendors that are in compliance with Part 82.

Section Citation	Affected Source(s)	Emission Point	Requirement	Comments
40 CFR Part 98, Mandatory Greenhouse Gas Reporting -Not applicable, not subject to 40 CFR Part 75 and do not emit more than 25,000 metric tons of C02 annually.				
98.2(a)(3)	Biomass-fired boiler	Boiler stack	A facility that in any calendar year starting in 2010 meets all three of the conditions listed in this paragraph: The facility does not meet the requirements of either paragraph (a)(l) or (a)(2) of this section. The aggregate maximum rated heat input capacity of the stationary fuel combustion units at the facility is 30 MMBtu/hour or greater. The facility emits 25,000 metric tons C02e or more per year in combined emissions from all stationary fuel sources.	The biomass-fired boiler at NOVO BIOPOWER, LLC meets the three criteria listed in this section of the rule; (it is not subject to §98.2(a) because it is not subject to the acid rain monitoring provision s of 40 CFR Part 75, and is not one of the source categories listed in §98.2(b)). Therefore, the Novo Biopower, LLC facility is subject to Subpart C, and must begin reporting GHG emissions (for calendar year 2010) in March, 2011.
40 CFR Part 98, Subpart C - General Stationary Fuel Combustion Sources	98.2(a)(3)	Biomass-fired boiler	§98.30 through §98.38 and Tables C-1 and C-2	Beginning in 2011, Novo Biopower, LLC must report GHG emissions, including C02, CH4 and N20, for calendar year 2010 and subsequent calendar years. See Subpart C for specific requirements and procedures.
40 CFR Part 1039, Subpart A -Overview and Applicability				
§1039.l(a)	Diesel Engines	N/A	All new compression ignition nonroad engines defined in §1039.801 are subject to this part.	The diesel engines within this application are not new nonroad engines defined in §1039.801; therefore, they are not subject to §1039 Subpart A.
§1039.l(b)	Diesel Engines	N/A	Describes engines with model year 2008, 2011, and 2012 and their engine capacity criteria that are subject to §1039 Subpart A and Subpart B.	The diesel engines within this application were manufactured during years not subject to §1039.
40 CFR Part 1068, Subpart A - Applicability and Miscellaneous Provisions				
§1068.1(a)(2)	Diesel Engines	N/A	This part is applicable to land-based nonroad compression-ignition engines regulated under 40 CFR part I 039.	As stated above, the diesel engines within this application are not subject to § 1039; therefore §1068 does not apply.
§1068.30	Diesel Engines	N/A	Provides definitions for nonroad engines.	Applicable -the diesel engines are located on portable equipment and this equipment will moved throughout the calendar year based on availability of materials.

Table 5-2

DESCRIPTION OF APPLICABLE REQUIREMENTS FROM THE ARIZONA ADMINISTRATIVE CODE

.A.C. Section	Affected Source(s)	Requirement	Comments
A.A.C. Title 18, Chapter 2, Article 1-General			
R18-2-101	Entire Facility	Definitions	Requirement Noted
R18-2-102	Entire Facility	Incorporated Materials	Requirement Noted
R18-2-103	Entire Facility	No rules this chapter preempt or nullify a requirement/emission standard in an applicable implementation plan unless the plan is revised and approved by the EPA Administrator.	Requirement Noted
A.A.C. Title 18, Chapter 2, Article 2 - Ambient Air Quality Standards; Area Designations; Classifications			
R18-2-201	Entire Facility	This rule establishes primary and secondary ambient air quality standards for particulate matter.	Requirement Noted
R18-2-202	Entire Facility	This rule establishes primary and secondary ambient air quality standards for sulfur dioxide.	Requirement Noted
R18-2-203	Entire Facility	This rule establishes primary and secondary ambient air quality standards for ozone.	Requirement Noted
R18-2-204	Entire Facility	This rule establishes primary ambient air quality standards for carbon monoxide.	Requirement Noted
R18-2-205	Entire Facility	This rule establishes primary and secondary ambient air quality standards for nitrogen oxides	Requirement Noted
R18-2-206	Entire Facility	This rule establishes primary and secondary ambient air quality standards for lead.	Requirement Noted
R18-2-210	Entire Facility	Attainment, nonattainment, and unclassifiable areas are defined in 40 CFR 81.303.	The Novo Biopower, LLC facility is located in an area that is designated as either in attainment or unclassified for all criteria air pollutants.
R18-2-217	Entire Facility	All areas are classified as either Class I, Class II, or Class III.	The Novo Biopower, LLC facility is located in an area that is designated as Class II
R18-2-218	Entire Facility	Class I, Class II, and Class III areas must comply with the maximum allowable increase of concentrations stated in this rule, except the increase may be exceeded once per year at any one location.	This rule refers to increment consumption; which is not an issue with this permit application.
A.A.C. Title 18, Chapter 2, Article 3 - Permits and Permit Revisions			
R18-2-301	Entire Facility	Definitions	Requirement Noted
R18-2-302	Entire Facility	This rule describes when a facility must obtain a Class I or Class II permit.	The Novo Biopower, LLC facility is a major source operating under a Class I permit per A.A.C. R18-2-302(B)(l)(a).
R18-2-304	Entire Facility	This rule describes the permit application processing procedures, and includes a description of the contents that must be contained in a complete application.	This permit renewal and revision application is a complete application as it contains all of the required components.
R18-2-305	Entire Facility	A notice of confidentiality must accompany a confidentiality request and include the information that is being considered confidential along with sufficient supporting information.	At this time, Novo Biopower, LLC is not requesting that any information contained within this application be deemed confidential.

A.A.C. Section	Affected Source(s)	Requirement	Comments
R18-2-306	Entire Facility	This rule describes the contents that must be included in an air quality permit.	This requirement applies to ADEQ.
R18-2-306.01	Entire Facility	This rule allows for a source to voluntarily propose and accept requirements that are permanent, quantifiable, and otherwise enforceable to avoid an applicable requirement.	The existing permit for NOVO BIOPOWER, LLC already contains voluntary emissions limits, which were established to avoid federal New Source Review. Novo Biopower, LLC is not proposing to change these existing limits.
R18-2-308	Entire Facility	If applicable requirements apply different standard s or limitations to a source for the same item, all applicable requirements must be included in the permit.	Requirement Noted.
R18-2-309	Entire Facility	This rule includes requirements for compliance plans and certifications.	A compliance certification and a certification of truth, accuracy, and completeness have been included in this application. There are no pending non-compliance issues, thus no compliance plan is currently required.
R18-2-310	Entire Facility	This rule establishes affirmative defenses for certain emissions that are in excess of an emission standard or limitation due to malfunctions, startup, and shutdown.	Requirement Noted.
R18-2-310.01	Entire Facility	The owner/operator of a facility must report excess emissions by telephone or facsimile within 24 hours of the occurrence, and submit a detailed written notification within 72 hours.	Novo Biopower, LLC has established procedures to comply with this requirement.
R18-2-311	Entire Facility	This rule specifies applicable test methods and procedures that must be used to show compliance with established requirements.	Requirement Noted
R18-2-312	Entire Facility	This rule establishes requirements associated with performance tests.	Novo Biopower, LLC will comply with this rule when conducting any performance tests.
R18-2-315	Entire Facility	When granted a permit, the facility must post the perm it or a certificate of permit issuance in a manner that is clearly visible and accessible; mark all equipment with either the permit number, serial number, or equipment ID number; and maintain a copy of the permit on site.	Novo Biopower, LLC posts a copy of the permit in a visible and accessible area on-site, and maintains a copy of the permit on-site. All regulated equipment is clearly marked with either a serial or equipment ID number.

A.A.C. Section	Affected Source(s)	Requirement	Comments
R18-2-317	Entire Facility	This rule establishes the types of facility changes that do not require a permit revision for facilities with a Class I permit.	If any changes at the Novo Biopower, LLC facility do not meet the requirements of R18-2-317, Novo Biopower, LLC will submit a permit revision application to the Department. This application includes changes subject to the minor revision requirements, codified at AAC R18-2-3l9.
R18-2-318	Entire Facility	This rule establishes the types of facility changes that require an administrative permit amendment.	Novo Biopower, LLC will comply with this rule, including submittal of an application, if such changes are planned or occur.
R18-2-318C	Entire Facility	This rule limits the Director to 60 days from the receipt of a request for an administrative amendment to act on the request and enables the Director to amend any Class I permit without notifying the public or affected states.	Requirement Noted
R18-2-319	Entire Facility	This rule establishes the types of facility changes that require a minor permit revision.	Novo Biopower, LLC will comply with this rule, including submittal of an application, if such changes are planned or occur. This application includes changes subject to the minor revision requirements, codified at AAC R18-2-319 .
R18-2-320	Entire Facility	his rule establishes the types of facility changes that require a significant permit revision.	Novo Biopower, LLC will comply with this rule, including submittal of an application, if such changes are planned or occur. This application includes changes subject to the minor revision requirements, codified at AAC R18-2-319.
R18-2-32l	Entire Facility	The permit must include provisions specifying the conditions under which the permit can be reopened prior to expiration.	This requirement applies to ADEQ.
R18-2-322	Entire Facility	A renewal permit is subject to the same procedural requirements that apply to initial permit issuance.	Novo Biopower, LLC will file a renewal application in accordance with A.A.C. R18-2-304 at least 6 months prior to the expiration of its permit.
R18-2-323	Entire Facility	A permit can be transferred to another person if the person who holds the permit gives the Director at least 30 days' notice and provides all of the information required by this rule.	Requirement Noted.
R18-2-325	Entire Facility	The permit must specify all federal, State, and local air pollution control requirements applicable to the source at the time of permit issuance. It must also include a statement that compliance with the conditions of the permit is deemed compliance with any applicable requirement as of the permit issuance date, provided they are included and expressly identified in the permit.	This requirement applies to ADEQ.
R18-2-326	Entire Facility	This rule establishes all applicable air quality permit fees.	Novo Biopower, LLC will remit payment for permit processing fees as necessary and appropriate.

A.A.C. Section	Affected Source(s)	Requirement	Comments
R18-2-327	Entire Facility	This rule establishes the requirement for an annual emission inventory questionnaire, which is due by March 31st each year or 90 days after the form is made available, whichever is later.	Novo Biopower, LLC will submit timely annual emission inventory questionnaires within the applicable deadline.
R18-2-330	Entire Facility	This rule requires the Director to provide public notice, an opportunity for public comment, and an opportunity for a public hearing before issuing an air quality permit.	This requirement applies to ADEQ.
R18-2-331	Entire Facility	Conditions within the air quality permit may be delineated as material permit conditions if they meet the requirements contained in this rule.	This requirement applies to ADEQ. The SO2, PM and NOx emission limits in the current permit, expressed in ton per year values, were placed into the current permit by ADEQ as material permit conditions, to avoid applicability of the federal New Source Review Prevention of Significant Deterioration regulations.
R18-2-332	Entire Facility	This rule establishes limits on the stack height values that can be used in dispersion modeling to ensure that modeled stack heights do not exceed good engineering practice.	Modeling results from previous applications have been accepted by ADEQ, so we presume the stack at Novo Biopower, LLC meets GEP.
A.A.C. Title 18, Chapter 2, Article 4 - Permit Requirements for New Major Sources and Major Modifications to Existing Major Sources - Not Applicable as the changes do not meet the definition of a Major Modification.			
A.A.C. Title 18, Chapter 2, Article 6 -Emissions from Existing and New Nonpoint Sources			
R18-2-601	Open Areas; Paved/Unpaved Roads; Material Handling Operations; Storage Piles	This section applies to sources that do not have an identifiable emission point.	The Novo Biopower, LLC facility includes facilities and operations described under this section.
R18-2-602	Entire Facility	This rule prohibits unlawful open burning.	Novo Biopower, LLC will not conduct any open burning at the facility without obtaining the appropriate approvals beforehand.
R18-2-604	Open Areas	Reasonable precautions must be taken to minimize excessive amounts of PM emissions from open areas.	Most open areas at Novo Biopower, LLC consist of undisturbed grassland and forest lands. Disturbed soil surfaces are watered, when necessary
R18-2-605	Paved/Unpaved Roads	Reasonable precautions must be taken to minimize excessive amounts of PM emissions from roadways and streets.	Most roadways at Novo Biopower, LLC are paved with asphaltic concrete. Unpaved roadways are treated with???
R18-2-606	Material Handling Operations	Reasonable precautions must be taken to minimize excessive amounts of PM emissions from material handling operations including crushing, screening, handling, transporting, or conveying of materials.	The biomass material handling systems are designed to minimize PM emissions. Water sprays are generally not used for biomass material handling.
R18-2-607	Storage Piles	Reasonable precautions must be taken to minimize excessive amounts of PM emissions from storage piles. Stacking and reclaiming machinery utilized at storage piles must be operated with a minimum fall of material or with use of spray bars and wetting agents to prevent excessive amounts of PM emissions.	The biomass material handling systems are designed to minimize PM emissions. Water sprays are generally not used for biomass material handling.
R18-2-6 12	Open Areas; Paved/Unpaved Roads; Material Handling Operations; Storage Piles	Opacity from non-point emission sources is limited to 40 percent.	Requirement noted.

A.A.C. Section	Affected Source(s)	Requirement	Comments
A.A.C. Title 18, Chapter 2, Article 7 -Existing Stationary Source Performance Standards			
R18-2-701	Entire Facility	Definitions	Requirement Noted
R18-2-702A	Entire Facility	A source that is an existing source, point source, and a stationary source is subject to R-18-2 Article 7	Novo Biopower, LLC meets this definition and therefore is subject to Article 7.
R 18-2-702B	Entire Facility	Establishes opacity limitation s (after April 23, 2006) of any plume or effluent from a source described in R18-2-702A to 20% in any area that is in attainment or unclassified for each particulate matter standard except as provided in R18-2-702D and E. Opacity is determined by EPA Reference Method 9.	Novo Biopower, LLC will comply with the opacity limitations required by the permit.
R18-2-719.A	Diesel-fired engines	This section applies to internal combustion engines.	The diesel engine in the proposed wood chipper is subject to the requirements in this section.
R18-2-719.C.1	Diesel-fired engines	The maximum allowable particulate matter emissions must be less than the amount calculated using the equation in this rule.	Compliance with this requirement is assured through the use of on-road, ultra-low diesel fuel and proper engine O&M.
R18-2-719.E	Diesel-fired engines	Opacity is limited to 40 percent for any period greater than 10 consecutive seconds. Visible emissions are exempt from the 40 percent opacity standard for the first 10 minutes after starting cold equipment.	Novo Biopower, LLC will perform proper and timely engine O&M to comply with this requirement.
R18-2-719.1	Diesel-fired engines	Daily records of the sulfur content and lower heating value must be maintained for the fuel being fired.	Records showing procurement and/or delivery of on-road diesel will be used to demonstrate compliance with this requirement.
R18-2-719.J	Diesel-fired engines	The sulfur content of the fuel must not exceed 0.8 percent by weight.	Compliance with this requirement is assured through the use of on-road, ultra-low diesel fuel and proper engine O&M.
R18-2-719.K	Diesel-fired engines	This rule specifies applicable test methods and procedures that must be used if testing is required by ADEQ.	Requirement noted.
R18-2-722.A	Biomass handling processes	This section applies to the crushers, screens, conveyors, stackers, reclaimers and all gravel and crushed stone processing plants and rock storage piles.	The equipment at NOVO BIOPOWER, LLC includes hoppers, conveyors and a stacker, but for biomass and wood only. It is unclear whether Section 722 applies to the biomass handling operations at Novo Biopower, LLC.
RI S-2-722.B	Biomass handling processes	The maximum allowable particulate matter emissions must be less than the amount calculated using the equation in this rule.	Compliance with this requirement is usually assured, since the emission limit varies with material throughput rates. It is unclear whether Section 722 applies to the biomass handling operations at Novo Biopower, LLC.

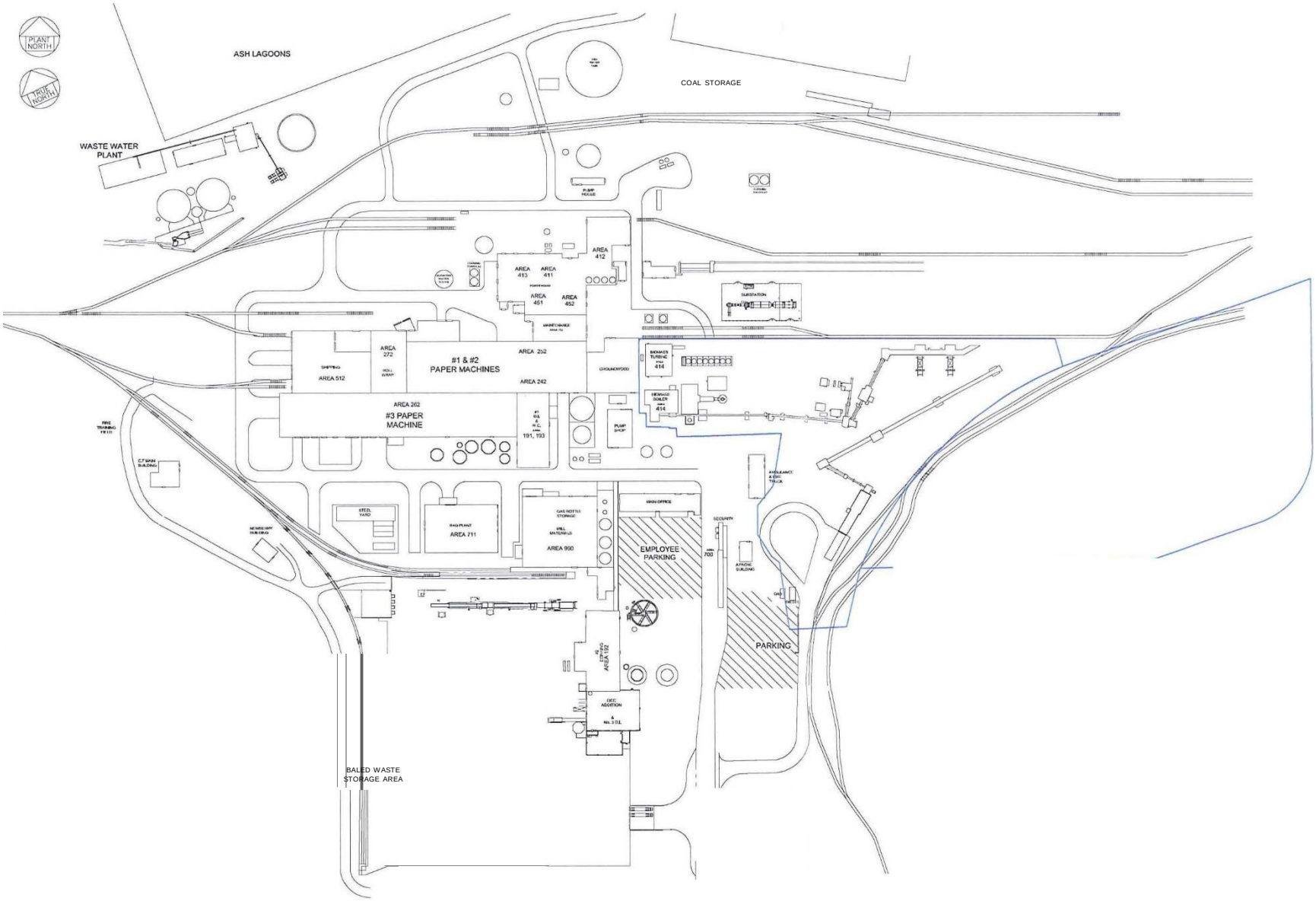
A.A.C. Section	Affected Source(s)	Requirement	Comments
R18-2-722.D	Biomass handling processes	Spray bar controls shall be utilized in accordance with a cited USEPA document.	The use of water sprays is incompatible with biomass handling equipment. It is unclear whether Section 722 applies to the biomass handling operations at Novo Biopower, LLC.
R 18-2-722.E	N/A	Fugitive emissions from gravel or crushed stone processing plants shall be controlled in accordance with R 18-2-604 through R18-2-607.	The Novo Biopower, LLC P does not include any gravel or stone crushing plants, therefore this rule is not applicable.
R18-2-722.G	N/A	The owner or operator of any affected facility shall maintain a record of daily production rates of gravel or crushed stone produced.	The Novo Biopower, LLC does not include any gravel or stone crushing plants, therefore this rule is not applicable.
R18-2-722.H	N/A	This rule specifies applicable test methods and procedures that must ·be used if testing is required by ADEQ.	Requirement noted.
A.A.C. Title 18, Chapter 2, Article 8 - Emissions from Mobile Sources (New and Existing)			
R18-2-801	Site Cleaning Machinery; Off-Road Machinery	This section applies to mobile sources that either move while emitting air contaminants or are frequently moved during the course of their utilization, but that are not classified as motor or agricultural vehicles.	Loaders, graders and water trucks at NOVO BIOPOWER, LLC are subject to these requirements.
R18-2-802	Off-Road Machinery	The opacity of smoke from any off-road machinery must not exceed 40 percent for any period greater than 10 consecutive seconds. Visible emissions when starting cold equipment are exempt from the opacity limit for the first 10 minutes.	Requirement noted.

FIGURES

1.

Location of Novo Biopower, LLC

2.
NOVO BIOPOWER SITE



3.

NOVO BIOPOWER FLOW DIAGRAM